October 2022

Michael R Sullivan

Address: Department of Economics
Yale University
New Haven, CT 06520-8268

Telephone: 1-650-804-0188
E-mail: m.r.sullivan@yale.edu

Web page: https://sites.google.com/view/michaelrsullivan/home

Citizenship: Canada (F-1 Visa)

Fields of Concentration:
Primary Field: Industrial Organization
Secondary Field: Econometrics

Desired Teaching:
Industrial Organization, Econometrics, Microeconomics

Comprehensive Examinations Completed:
2019 (Oral): Industrial Organization (*with distinction)*, Econometrics (*with distinction*)
2018 (Written): Microeconomics, Macroeconomics

Dissertation Title: *Essays on the Industrial Organization of Digital Industries*

Committee:
Professor Katja Seim (Chair)
Professor Steven Berry
Professor Philip Haile

Degrees:
Ph.D., Economics, Yale University, 2023 (expected)
M.Phil., Economics, Yale University, 2020
M.A., Economics, Yale University, 2018
B.Sc., Pure Mathematics and Economics, Memorial University of Newfoundland, 2016

Fellowships, Honors and Awards:
Governor General's Award (first in graduating class), Memorial University of Newfoundland

Research Grants:
Doctoral Fellowship, Social Science and Humanities Research Council (2021)

Teaching Experience:

Fall 2020, Teaching Assistant to Prof. Donald Andrews, Econometrics I (Graduate), Yale University

Spring 2020, Teaching Assistant to Prof. Yuichi Kitamura, Econometrics III (Graduate), Yale University

Fall 2019, Teaching Assistant to Prof. Timothy Armstrong, Introduction to Probability Theory and Statistics (Undergraduate), Yale University

Research and Work Experience:

Research Assistant to Prof. Fiona Scott Morton and Prof. Dirk Bergemann, Yale University, January 2021–May 2022

Research Assistant to Prof. Yuichi Kitamura, Yale University, January 2021–May 2022

Research Assistant to Prof. Soheil Ghili, Prof. Michael Whinston, and Prof. Igal Hendel, Yale University, February 2018–May 2020

Research Assistant to Prof. Matthew Gentzkow and Prof. Jesse Shapiro, Stanford University, June 2016–June 2017

Publications:

"Market Design for Personal Data" with Katja Seim, Dirk Bergemann, Jacques Crémer, David Dinielli, Carl-Christian Groh, Paul Heidhues, Maximillan Schaefer, Monika Schnitzer, and Fiona M. Scott Morton, *Yale Journal on Regulation*, forthcoming.

Working Papers:

"Price Controls in a Multi-Sided Market," (November 2022), *Job Market Paper*

"Sources of Limited Consideration and Market Power in E-Commerce," (October 2022)

*"*Cross-Channel Competition and Complementarities in US retail" with Hiroki Saruya, (October 2022)

"Demand with Network Externalities: Identification and an Application to the Dating Websites Industry," (October 2022)

Seminar and Conference Presentations:

Young Economist Symposium (Princeton University), August 2021

5th Doctoral Conference on the Economics of Digitization (Ifo Institute), June 2022

Young Economist Symposium (Yale University), August 2022

Invited Amazon Core AI Presentation, September 2022

Referee Service:

RAND Journal of Economics

Languages:

English (native), French (elementary)

October 2022

References:

Prof. Katja Seim
Yale University
Department of Economics
New Haven, CT 06520
PO Box 208200
Phone: (203) 432-5487
katja.seim@yale.edu

Prof. Steven Berry
Yale University
Department of Economics
New Haven, CT 06520
PO Box 208264
Phone: (203) 432-3556
steven.berry@yale.edu

Prof. Philip Haile
Yale University
Department of Economics
New Haven, CT 06520
PO Box 208264
Phone: (203) 432-3568
philip.haile@yale.edu

Dissertation Abstract

Price Controls in a Multi-Sided Market [Job Market Paper]
Many US cities have capped the rates of commission that food delivery platforms (e.g., DoorDash) charge to restaurants. All else equal, commission caps benefit restaurants belonging to platforms; this may entice restaurants to join platforms and thereby benefit consumers who value variety in platforms' restaurant listings. Reduced platform commissions may also lead restaurants to lower their prices on platforms, further benefitting consumers. Commission caps, however, have potential harms: they may lead platforms to raise their consumer fees, thereby reducing ordering on platforms and consequently platforms' value to restaurants.

I develop a model of platform competition to evaluate the effects of commission caps on restaurant profits and consumer welfare. This four-stage model captures the primary drivers of commission caps' effects, including responses of restaurants' platform membership, restaurant prices, and platforms' consumer fees to commission caps. These responses in turn depend on consumer responses to the variety of nearby restaurants available on platforms, to restaurant prices, and to platform fees. The final consumer-choice stage of the model captures these consumer responses. Heterogeneous tastes for platforms and restaurants govern substitution patterns within and between platforms, which in turn shape platforms' and restaurants' pricing incentives. The model allows commission caps to affect the overall number of restaurant orders. The restaurant pricing stage of the model captures incomplete pass-through of platform commissions into restaurant prices. Before setting prices, restaurants choose which platforms to join in a positioning game; restaurants' choices in this game depend on platforms' commission rates. This positioning game is tractable despite featuring thousands of spatially differentiated firms. Platforms set commission rates in the model's first stage, which captures dynamic pricing incentives in a reduced-form way.

To estimate my model, I combine panel data on consumer orders placed both on and outside of platforms, the universe of restaurants on each platform, and records of platforms' fees. My procedure uses within-market variation in fees and networks of restaurants—which owes partly to commission caps—to estimate price sensitivity and network externalities. I exploit the data's panel structure to learn about taste heterogeneity. The estimated model implies that commission caps reduce total welfare—i.e., the sum of consumer welfare, restaurant profits, and platform profits—

by $2.94 per capita a year on average across markets. Caps, however, raise restaurant profits. Losses in consumer welfare and platform profits from commission caps are similar. Consumer losses owe to platforms' fee hikes in response to caps. Young and unmarried consumers experience greater-than-average losses from caps. Restaurants compete away many of their gains from commission caps in ways that benefit consumers, i.e., by lowering prices and joining more platforms. Last, I find that restaurants would be more profitable if platforms did not exist.

Sources of Limited Consideration and Market Power in E-Commerce
The internet allows consumers to easily learn about retailers' product offerings, and it allows firms to enter retail industries without establishing physical stores. These conditions seem capable of inducing high levels of consumer search effort and cut-throat price competition, yet consumers exhibit severely limited consideration in online markets and often pay prices significantly above the minimum available one for a product. In this paper, I develop a model of sequential consumer search and retailer price competition to assess the contributions of search costs and seller differentiation to limited consideration and market power in contact lens e-commerce. My framework exploits the panel nature of my data to estimate the extent of state dependence and consumers' persistent unobserved tastes for sellers; it also features a novel approach for computing probabilities of search outcomes. I find that various forms of seller differentiation rather than search costs are primarily responsible for limited consideration and market power in contact lens e-commerce.

Cross-Channel Competition and Complementarities, with Hiroki Saruya
We estimate the effects of brick-and-mortar retail stores on consumers' online spending ~~usingdata~~ on US store locations and internet usage. Our approach uses a rich set of internet usage variables to proxy for unobserved taste characteristics. It also exploits variables characterizing the demographic profiles of consumers' neighbourhoods to address endogeneity problems arising from systematic differences in shopping tastes across regions. Our estimates for the 2007–2008 time period imply that a multichannel retailer's online sales decrease by 1.1–3.8% on average across categories with the addition of a rival offline store, whereas these sales increase by 7.1–32.3% when the retailer adds a store of its own. We attribute this finding to the presence of cross-channel complementarities that exceed standard cannibalization effects. Additionally, our estimated effects of offline locations on rivals' online sales vary across retailers and categories; notably, offline stores often boost Amazon's sales. We suggest showrooming effects as a possible source of this heterogeneity.

Demand with Network Externalities: Identification and an Application to the Dating Websites Industry
Network externalities—i.e., effects on a consumer's demand for a product of other consumers' choices—often arise in differentiated products markets, and especially in platform markets. I show that demand models with network externalities are generally not identified with market-level data alone. This result reflects the impossibility of independently varying product characteristics and market shares (i.e., aggregate choice probabilities) at the market level. A straightforward extension of Berry and Haile (2022) establishes that demand models with network externalities are identified under reasonable conditions with microdata linking consumers' decisions and characteristics. In

light of this finding, I estimate demand for dating websites using online browsing microdata to understand how network externalities shape the effects of recent consolidation in the industry. Under my preferred estimates, a user of a site values a 10% increase in the site's usership at $6.34/month. I additionally find that welfare losses from increased prices outweigh the gains from network externalities associated with monopolization.