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Fields of Concentration:

Industrial Organization/Applied Microeconomic Theory
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Desired Teaching:

Microeconomics
Industrial Organization
Econometrics

Comprehensive Examinations Completed:

2016 (Oral): Industrial Organization, Microeconomics
2015 (Written): Microeconomics, Macroeconomics

Dissertation Title: *Essays in Network Economics*

Committee:

Professor Steven Berry
Professor Larry Samuelson
Professor Edward Vytlačil

Degrees:

Ph.D., Economics, Yale University, 2021
M.Phil., Economics, Yale University, 2017
M.A., Economics, Yale University, 2015
Master of Economics, University of Melbourne, 2013
Bachelor of Commerce (Hons), University of Melbourne, 2012
Diploma in Mathematical Sciences, University of Melbourne, 2011

Fellowships, Honors and Awards:

William Noall and Son Prize (Top student in faculty for undergraduate honours year, 2012)
Jean Polglaze Memorial Prize (Best undergraduate honours thesis in Economics, 2012)

Teaching Experience:

Spring 2020 Teaching Assistant to Prof. Benjamin Polak, Game Theory (Yale U)
Fall 2019 Teaching Assistant to A. Prof. Nicholas Ryan, Introductory Metrics (Yale U)
Spring 2019 Teaching Assistant to A. Prof. Cormac O’Dea, Introductory Micro. (Yale U)
Fall 2018 Teaching Assistant to A. Prof. Nicholas Ryan, Introductory Metrics (Yale U)
Spring 2017 Teaching Assistant to Prof. Evangelia Chalioti, Intermediate Micro. (Yale U)
Fall 2016 Teaching Assistant to Prof. Steve Berry, Introductory Micro. (Yale U)
Fall 2012 Teaching Assistant to Prof. Simon Loertscher, Micro. (Melbourne U)

Research and Work Experience:

2013 Research Assistant to Prof. Simon Loertscher, University of Melbourne, Australia
2013 Research Assistant to Prof. Ian King, University of Melbourne, Australia
2012 Research Assistant/Intern to Dr. Chu Chi Meng, Clinical and Forensic Psychology
Branch, Ministry of Community, Youth & Sports, Singapore

Working Papers:

“Quantifying Vertical Relationship-Forming Incentives under Economies of Scale and
Product Differentiation”, (Job Market Paper)

“Forming Firm-to-Firm Relationships under Upstream Economies of Scale and Downstream
Product Differentiation”, (November 2021)

“Non-parametrically Identifying Peer Effects when Correlated Effects are Present”,
(July, 2021)

Seminar and Conference Presentations:

Early Career Economists Conference, Monash University, June 2018

Languages:

English (native), Mandarin (conversational)

References:

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Dissertation Abstract

Quantifying Vertical Relationship-Forming Incentives under Economies of Scale and Product Differentiation [Job Market Paper]

This paper studies how economies of scale and product differentiation affect and distort business relationships. I develop a micro-founded model of how manufacturers form relationships with their suppliers. The model incorporates manufacturer-level product differentiation and supplier-level economies of scale. Two forces cause relationship formation to be inefficiently low or high. First, firms negotiate better trade terms with customers or suppliers when their counterparties form new relationships. So they enjoy positive externalities from relationships between rival firms. This holds up relationship formation. Second, suppliers charge lower prices when competing with rivals for input contracts. So manufacturers overinvest in relationships with multiple suppliers.

I estimate the model using prices, quantities and product-supplier-level network data for 2008-16 U.S. marketed automobiles. A manufacturer's input suppliers are endogenous, and its input prices unobserved. So, for identification, I assume that manufacturers Nash-bargain with suppliers inherited from previous periods. I then exploit variation in these suppliers' quantities to identify production cost curvatures. I also identify bounds for the firms' relationship-forming payoffs, holding rival relationships fixed. This helps to quantify the extent to which various inefficiencies distort payoffs.

On average, I find suppliers of all non-powertrain types of inputs face significant economies of scale. Also, on average, manufacturers do not benefit from their chosen relationships, absent inefficiencies associated with overinvestment in linkages. In comparison, hold-up of relationship investment is less significant in reducing payoffs from forming relationships.

Forming Firm-to-Firm Relationships under Upstream Economies of Scale and Downstream Product Differentiation

This paper analyses supply chains through use of a simple model. It seeks to assess whether economies of scale and product differentiation cause too many or too few vertical relationships to form. The model is based on documented features of the automotive industry. Two manufacturers start with relationships to distinct suppliers. Then, an unlinked manufacturer-supplier pair decide whether to form a new relationship. Based on the resulting network of relationships, input prices are determined by Nash bargaining if their payer is linked to one supplier, or by a first-price auction otherwise. Two inefficiencies arise when manufacturers are horizontally differentiated. First, manufacturers hold up relationship formation by rival firms. This causes the relationship network to be less connected than is socially optimal. Conversely, overinvestment in relationships to serve as manufacturers' "outside options", inefficiently inflates network connectivity. Ex ante, shocks to specific manufacturers or suppliers have disproportionately large welfare consequences relative to their market shares, when the network is under connected.

Non-parametrically Identifying Peer Effects when Correlated Effects are Present

This paper explores non-parametric identification of peer effects. In the studied model, outcomes associated with individuals are an unknown function of expected peer outcomes and other individual-specific attributes. Unobserved heterogeneity across individuals is captured by an additively separable individual-specific error. The error correlates with peer group, rendering expected peer outcome an endogenous covariate. I propose an intuitive assumption on how individual outcomes depend on expected peer outcomes and remaining individual-specific attributes. Specifically, I assume one of the remaining attributes indexes how strongly an individual interacts with his peers. If the index is zero, the individual is not directly affected by peer outcomes. Under this assumption, the model is identified up to a location normalization. Under appropriate restrictions, this result extends to more general forms of social effects, overlapping peer groups, and panel data. The result also leads to tests for whether estimates often ascribed to peer effects actually reflect forces associated with social interactions.