

Research Interest

Primary fields, Industrial Organization, Econometrics

Secondary fields, Machine learning, Behavior Economics, Game Theory

Education

GRADUATE STUDIES

University of British Columbia

Vancouver, BC, Canada

PH.D. CANDIDATE IN ECONOMICS

2015 - Expected 2021

Thesis: How do firms build up mutual trust in a dynamic game: A study on collusive pricing in the Chilean pharmacy retailing industry

University of British Columbia

Vancouver, BC, Canada

MASTER OF ARTS ECONOMICS

2014 - 2015

Thesis: A Simple Application of Dynamic Game Estimation in U.S. Airline Industry with Entry-Exit Decision

UNDERGRADUATE STUDIES

Xiamen University

Xiamen, China

BACHELOR OF MANAGEMENT, ACCOUNTING

2008 - 2014

Specialization: Accountancy with ACCA standards

University of Waterloo

Waterloo, ON, Canada

BACHELOR OF ARTS, HONOURS MATHEMATICAL ECONOMICS

2010 - 2012

Specialization: Mathematical Economics

References

Professor Hiroyuki Kasahara
Vancouver School of Economics, University of British Columbia
604-822-4814, hkasahar@mail.ubc.ca

Professor Paul Schrimpf
Vancouver School of Economics, University of British Columbia
604-822-5360, Paul.Schrimpf@ubc.ca

Professor Florian Hoffmann
Vancouver School of Economics, University of British Columbia
604-822-4792, Florian.Hoffmann@ubc.ca

Professor Victor Aguirregabiria
Department of Economics, University of Toronto
416-978-4358, victor.aguirregabiria@utoronto.ca

Research Experience and Other Employment

Visiting Student

Toronto, ON, Canada

UNIVERSITY OF TORONTO

Jan, 2019 - Aug, 2019

Visiting **Professor Victor Aguirregabiria** to work on my job market paper

Summer Intern

Ottawa, ON, Canada

BANK OF CANADA

May, 2018 - Sep, 2018

Work with vector error correction model and improve the model's in-sample fit by over 30 %

Research Assistant

Vancouver, BC, Canada

UNIVERSITY OF BRITISH COLUMBIA

Jan, 2015 - present

- Design and implement docker system for department server. **with Professor Jesse Perla**
- Estimate of Discrete Choice Dynamic Programming Models, **with Professor Hiro Kasahara**
- Testing the Number of Components in Finite Mixture Models, **with Professor Hiro Kasahara**
- Identification and estimation of dynamic games with continuous states and controls, **with Professor Paul Schrimpf**

Data Analyst

Zhuhai, China

WIZARD QUANT

Jun, 2013 - Apr, 2014

Analyze the high frequency trading strategy performance, design automated data processing procedure

Research Papers

How do firms build up mutual trust in a dynamic game: A study on collusive pricing in the Chilean pharmacy retailing industry (Job Market Paper, in progress)

In an oligopolistic market, firms have market power by nature. Past literature has discussed how collusion between firms can be sustained. There have been few studies examining how collusion is built up empirically. This paper provides a framework under which the firms build up mutual trust and gradually transit from competition to collusion. I focus on identifying beliefs in the dynamic framework to explain firms' behaviours when there is regime change in the market.

Using Euler equation to estimate non-finite-dependent dynamic discrete choice model with unobserved heterogeneity (joint work Hiro Kasahara)

In the dynamic discrete choice analysis, controlling for unobserved heterogeneity is an important issue, and finite mixture models provide flexible ways to account for it. The previous discussion of incorporating finite mixture model in the dynamic discrete choice model focuses on a class of models where the difference in future value terms depends on a few conditional choice probabilities (finite dependence property). Following the Euler Equation (EE) representation of dynamic discrete decision problems, we provide an alternative conditional choice probability (CCP) value function representation that relies only on the CCP of one action. Contrasting to the Hotz-Miller CCP representation that relies on all the conditional choice probabilities, this characterization avoids the matrix inversion in each EM iteration. The matrix inversion can be computed outside the EM iterations and therefore is computationally attractive. The characterization provides unbiased estimator for models with and without finite dependence property. We illustrate the computational gains with Monte Carlo simulations.

Testing the number of components in finite mixture model with normal panel regression (joint work Hiro Kasahara)

This paper develops the likelihood-ratio based test of the null hypothesis of a m_0 -component model against an alternative of $(m_0 + 1)$ -component model in the normal mixture panel regression. I show that the normal mixture panel regression does not suffer from the Fisher Information matrix degeneracy under the reparameterization proposed in Kasahara and Shimotsu (2012). As a result, the likelihood ratio test statistic can be approximated by a local quadratic expansion of squares and products of the reparameterized parameters. Moreover, I obtain the data-driven penalty function via computational experiments to attend to unbounded likelihood ratio. In addition, I apply the test to random coefficient Cobb-Douglas production function estimation following the framework of Gandhi et al. (2013) and Kasahara and Shimotsu (2015). The empirical findings suggest evidence of heterogeneous production technology beyond Hicks-neutral technology factor.

Teaching Experience

Economics 628	Topics in Applied Econometrics I
Economics 355	International Trade
Economics 326	Methods of Empirical Research in Economics
Economics 301	Theory of Microeconomics
Economics 221	Introduction to Strategic Thinking
Economics 101	Principles of Microeconomics
Economics 102	Principles of Macroeconomics

Honors & Awards

Faculty of Arts Graduate , University of British Columbia, Vancouver School of Economics	2014-2020
CIDE grant for innovative data , University of British Columbia	2018
St John's College Itoko Muraoka Fellowship , University of British Columbia, St John's College	2017
Dean's Honours List , University of Waterloo	2010-2012

Miscellaneous

Programming Language	Matlab, Python, MySQL, Julia, R, C, C++, \LaTeX
Development Tools	Docker, GitHub, Travis, Shell
Languages	English, Chinese (Mandarin)
Citizenship	Citizen in China, Permanent Resident in Canada