

Sebastian Wai

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Education

- **Purdue University** **West Lafayette, IN**
Ph.D., Economics 2017
 - Dissertation Committee: Stephen Martin (Chair), John Barron, Justin Tobias, Timothy Cason
 - Primary fields: industrial organization, econometrics*M.S., Economics* 2013
 - **Carnegie Mellon University** **Pittsburgh, PA**
B.S., Economics 2011
 - Minor in Mathematical Sciences, Minor in Chinese Studies
 - Tepper College Honors, University Honors, Phi Beta Kappa, Omicron Delta Epsilon
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Employment

- **University of South Dakota – Beacom School of Business** **Vermillion, SD**
Assistant Professor 2018 – Present
 - **Indiana University – Kelley School of Business** **Bloomington, IN**
Visiting Assistant Professor 2017 – 2018
Visiting Lecturer 2016 – 2017
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Research Interests

- Industrial organization, intellectual capital, innovation, agglomeration economies, network industries, platform markets, text processing, semiconductor industry
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Teaching Specializations

- Industrial organization, microeconomics, game theory, econometrics, managerial economics, business analytics, statistics
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Programming Languages

- R, Perl, Stata, MATLAB, Java, LaTeX
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Publications

- Software Quality and Backward Compatibility in the Video Game Industry. *Journal of Industrial and Business Economics* 49(3), 545-570, 2022.
 - This paper explores the connection between sales of video game hardware (consoles) and the quality of associated software libraries. I first discuss the industry's unique features and place among durable goods and platform markets, then turn to data. I also measure the quality of backward compatibility with software designed for previous console generations and its effect on current generation sales. I investigate these links using data on the recently concluded seventh generation of video game consoles (2005-2014). Software quality is measured using aggregated review scores from Metacritic. I find that overall software quality has a significant positive impact on hardware sales, but backward compatibility's effect is negligible. Consumers are found to be forward-looking, with evidence for both substitution across platforms and across purchase timing.

Research in Progress

- **Inventor Mobility, Spillovers, and Trends in the Early Semiconductor Industry (Working Paper)**
 - This paper examines the role of inventor mobility to drive innovation spillovers in the early semiconductor industry. I employ newly collected patent data from the under-studied period of 1946–1959 to track inventor movement across firms and regions. I exploit patent assignments to identify inventor moves and test for increased patenting activity for firms on both sides of a move. The data shows increases to patenting after a move on both sides which tapers off over a period of several months. Using the main patent data and a supplementary detailed inventor dataset, I further examine the possible spillover role played by universities. I also use both datasets to discuss the broader patterns in the industry during this period, including overall geographic and hiring trends.
 - **Semiconductor Patent Database (Ongoing Project)**
 - I am currently building a comprehensive database of semiconductor patents starting in the 1940s and going forward year by year. The work involves scripted regular expression searching through OCR (optical character recognition) text data and manual inspection of scanned images. The goal is to identify semiconductor patents and their inventors' names, locations, and employers. I have employed many students over the years and currently have data on around 20,000 patents.
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Teaching Experience

- **University of South Dakota** **Vermillion, SD**
Course Instructor
 - Applied Operational Analytics (Undergraduate): Spring 2020, Spring 2021, Spring 2022, Spring 2023
 - Experimental Game Theory (Honors Seminar): Spring 2023
 - Industrial Organization (Undergraduate): Fall 2019, Spring 2022
 - Intermediate Microeconomics (Undergraduate): Fall 2021, Fall 2022
 - Foundations of Economics (MBA, Online): Fall 2020
 - Managerial Economics (MBA): Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2023
 - Managerial Economics (MBA, Online): Fall 2018, Summer 2019, Fall 2019, Fall 2020, Fall 2021, Fall 2022
 - Principles of Microeconomics (Undergraduate): Fall 2018, Spring 2019, Fall 2019, Fall 2020, Spring 2021
 - Principles of Microeconomics (Undergraduate, Online): Fall 2022
- **Indiana University** **Bloomington, IN**
Course Instructor
 - Business Econometrics (Undergraduate): Spring 2017, Spring 2018
 - Business Econometrics (MSBA, Online): Spring 2017, Spring 2018
 - Predictive Analytics (MSBA, Online): Summer 2017, Summer 2018
 - Business Econometrics (MBA): Spring 2017
- **Purdue University** **West Lafayette, IN**
Course Instructor
 - Industrial Organization (Undergraduate): Summer 2013, Spring 2014, Summer 2014, Fall 2014

Krannert Certificate for Distinguished Teaching (3), Krannert Certificate for Outstanding Teaching (1)

Teaching Assistant
 - Game Theory (MS, Online): Spring 2016
 - Industrial Economics (MS, Online): Fall 2015, Spring 2015
 - Industrial Organization (Undergraduate, Online): Summer 2015
 - Intermediate Economics I (MS, Online): Fall 2013
 - Principles of Economics (Undergraduate): Spring 2012

Krannert Certificate for Distinguished Recitation Teaching
- **Carnegie Mellon University** **Pittsburgh, PA**
Recitation Instructor
 - Principles of Economics (Undergraduate): Fall 2009, Fall 2010

Presentations

- Missouri Valley Economics Association
 - MVEA Annual Conference (October 2019, October 2021)
 - University of South Dakota
 - Beacom Scholar Series (October 2018, March 2019, November 2019, March 2022)
 - Indiana University
 - Business Economics and Public Policy Brown Bag Seminar Series (October 2017)
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Service

- **University of South Dakota**
 - Academic Misconduct Hearing Board (2019 –)
 - Phi Beta Kappa, Alpha Chapter of South Dakota (Chapter Vice President, 2019 –)
 - Digital Accessibility Mentor (2021 –)
 - **Beacom School of Business**
 - Beacom Outstanding Student Awards Selection Committee (2021)
 - Accounting Faculty Search Committee (2020 – 2021)
 - Economics Major Coordinator (2019 –)
 - Master of Professional Accountancy Assessment Committee (2019 –)
 - Business Communications Task Force (2019)
 - **Peer Review**
 - Textbooks: Cambridge University Press
 - Journal Articles: Economics of Innovation and New Technology
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Advising

- **MBA Program Academic Advisor**
 - Primary academic advisor for 20 MBA students since 2021
 - **Honors Thesis Director**
 - Shinyoung Kim (2020), Zane Rankin (2023), Connor Van Der Werff (2023)
 - **Honors Thesis Committee Member**
 - Martin Long (2020)
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Other Activities

- YouTube channel *SebastianWaiEcon*
 - Stata and R econometrics tutorials
 - Full course lectures on principles of economics and managerial economics
 - 1.6 million total video views and 8000 subscribers as of September 2022

References

- Stephen Martin
Professor of Economics, Purdue University
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- John M. Barron
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403 W. State St.
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- Jeff Prince
Professor of Business Economics and Public Policy
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1309 East 10th St
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