

Johan Orrenius

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Research Interests

Primary Field: Applied Microeconomics

Secondary Fields: Digital Economics, Economics of Education, Health Economics

Current Position

The Research Institute of Industrial Economics (IFN) <i>Postdoctoral Researcher</i>	Aug 2025 – Present
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Education

Stockholm School of Economics , Stockholm, Sweden <i>PhD Program in Economics</i>	Aug 2020 – Jun 2025
Royal Institute of Technology (KTH) , Stockholm, Sweden <i>MSc Eng in Engineering Physics</i> <i>MSc Applied and Computational Mathematics</i>	Aug 2013 – Jun 2018
Technical University of Munich , Munich, Germany <i>Exchange in Mathematics</i>	Oct 2016 – Aug 2017

Working Papers

What is the value of attention? Supply and demand estimation of attention in a mobile app setting

Job Market Paper ([Link](#))

Abstract: I study the digital market for attention in a freemium mobile game where users choose between paying with money or by watching 30-second video ads. Using unique event-level data, I estimate consumer's supply elasticity of attention. In the aggregate, a one percent higher price increases the share of payments by users watching videos by 2.2 percent. A substantial part is due to individual heterogeneity in tastes. When accounting for individual heterogeneity, the elasticity reduces to 0.5. The individual elasticities vary throughout the day, peaking in the evening. Complementing the unique data on each play made by users, I use data on the revenue to the gaming company from showing ads. The data is on an individual and daily level allowing me to match the individual supply elasticity with the revenue from showing ads to the same individual. I find advertisers pay more to show ads to individuals who are less likely to use ads as their payment method. The effect is stronger among Android users than iOS users. Finally, I estimate the willingness to pay to avoid a 30-second ad to 0.15 euros. By considering the time component of the ad, we get a value of time of 18 euros per hour. This is of similar magnitude to previous estimates of consumers' valuation of time.

Market Definitions in the Real-estate Agents Market, A Data-driven Approach Using Statistical Learning

(with Adam Lindhe) Available upon request

Abstract: This paper introduces a novel method to define geographic markets using machine learning. Using an unsupervised learning approach, we cluster sales based on customers' locations, with each cluster representing a distinct market. The novelty of our method is that we leverage the identity of the seller for each observation to capture market structures that cannot be captured by today's methods. We integrate the assumption that sellers focus on a few geographic markets into our Bayesian framework and empirically implement the method using a Gibbs sampler. Estimating the geographic markets for real estate agents in Stockholm, our algorithm does significantly better in correctly classifying sales than the baseline K-means algorithm, achieving a Dice score of 0.78 compared to 0.67. We find that the number of markets each agent works in is distributed more similarly to the industry knowledge in our classification than in the baseline comparison. Our method classifies the markets such that market concentration, as measured by the Herfindahl-Hirschman Index (HHI), is closer to the market concentration calculated using the correct classification than the baseline K-means, thereby improving understanding of market power and competition dynamics. Finally, we investigate the correct number of clusters and find that, in our example, it corresponds to the established knowledge of the market's geographic structure.

Work in Progress

School openings and teacher mental health	(with Helena Svaleryd and Jonas Vlachos)
Loneliness, Alzheimer and Financial Distress	(with Marieke Bos and Andrew Herzberg)
Social services	(with Ulrika Ahlsjö and Eva Forslund)
The impact of remedial education on educational achievements	(with Shubhaa Bhattacharyya)

Presentations

- **2025:**
 - EARIE Annual Conference, Valencia
- **2024:**
 - European Winter Meeting of the Econometric Society (Upcoming)
 - Swedish Conference in Economics, Lund (Upcoming)
 - 13th Natinal PhD Workshop in Finance, Stockholm
 - Stockholm-Uppsala Doctoral Student Workshop in Economics (SUDSWEC)
 - 7th Doctoral Workshop on the Economics of Digitization
 - The 13th Nordic workshop on Industrial Organization
 - Stockholm School of Economics Brownbag
 - University of Mannheim
 - Jönköping International Business School (JIBS)
 - Umeå University

- The Mannheim Centre for Competition and Innovation Annual Conference (MaCCi)
- Research Institute of Industrial Economics (IFN)
- **2023:**
 - Stockholm-Uppsala Doctoral Student Workshop in Economics (SUDSWEC)
 - Stockholm School of Economics Brownbag
 - Microwave Stockholm University
- **2022:**
 - PhD conference SSE
 - ENTER Jamboree (discussant)
 - Microwave Stockholm University

Teaching Experience

The Psychology and Economics of Consumer Finance	Spring 2019
Teaching Assistant for Marieke Bos	
Empirical Economics	Fall 2021
Teaching Assistant for Robert Östling	
Using Data to Solve Economic and Social Problems	Spring 2022
Teaching Assistant for Robert Östling	
Mathematics bootcamp for MSc Program	Fall 2022, 2023, 2024
Instructor	

Relevant Work Experience

Swedish House of Finance, Stockholm	Jun 2018 - Jun 2020
<i>Research assistant</i>	
<ul style="list-style-type: none"> • Description: Econometric research in health and household finance for Marieke Bos. 	
ABB Corporate Research, Västerås	Jun 2015-Aug 2015
<i>Research internship</i>	
<ul style="list-style-type: none"> • Description: Multi-physics simulation using FEM software 	

Professional service

SSE Disciplinary and Dismissal Board	Graduate student representative	2022 – 2025
Referee		
Journal of Political Economy	Microeconomics	

Skills & Hobbies

Languages:

- English (Fluent)
- Swedish (Native)
- German (Intermediate)

Technical Skills:

- L^AT_EX
- Stata
- R
- Python
- Matlab

Interests:

- Sailing
- Hiking
- Theater
- Running

References

Richard Friberg (Primary supervisor)

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Robert Östling (Committee Member)

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Swedish House of Finance, Stockholm School of Economics

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