

Hansen Pen

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RESEARCH FIELDS

Empirical Industrial Organization, Quantitative Marketing, Energy Economics

EDUCATION

Ph.D. Economics, Rice University	Expected 2026
B.A. Economics & B.S. Mathematics, University of Texas at Austin	2020

AWARDS AND FELLOWSHIPS

Graduate Fellowship, Rice University	2020 - Present
Center for Computational Insights on Inequality and Society Grant, Rice University	2025
Dissertation Research Improvement Grants, Rice University	2025
Samuel Fain Carter Fellowship in Economics for outstanding academic performance, Rice University	2024
Undergraduate Research in Economics Fellowship, UT Austin	2020
Unrestricted Endowed Presidential Scholarship, UT Austin	2019

WORKING PAPERS

Mergers, Market Structure, and the Rise of E-Cigarettes, with Joon Ha Kim (Job Market Paper)

This paper investigates market power and consumer inertia in the vaping and tobacco industry, with a focus on substitution patterns between cigarettes and e-cigarettes in the context of market structure changes, including the JUUL-Altria merger and a potential total ban on traditional tobacco. Using a structural demand and supply framework, we leverage both aggregate retail scanner data from Nielsen (2013–2019) and household-level panel data to capture consumer heterogeneity and state dependence, examining how past choices influence current preferences. Our merger simulations indicate that both JUUL and Altria products experience higher prices and lower sales, leading to a 0.72% decline in consumer surplus and a 1.05% increase in smoking-attributable health costs (SAHC) due to substitution to other firms. In the scenario of a total ban, e-cigarette prices rise alongside sales. These results provide insights into competitive dynamics and the policy implications of a consolidating nicotine market.

Evaluating the Cost Effectiveness of Subsidies: A Case Study of Solar Panels in New York State, with Joon Ha Kim

This paper examines the effectiveness of generous government policies aimed at promoting residential solar panel adoption in New York. We analyze the impact of the New York capacity-based subsidy program, net metering policy, and tax rebates on residential solar adoption. Using a dynamic discrete choice model, we evaluate how forward-looking households respond to these incentives. Counterfactual scenarios assess the impact of various policies on solar panel adoption. In particular, we compare the effectiveness of upfront subsidies with the long term benefits of net metering. We find that short term incentives such as federal and state tax credits are more effective at encouraging adoption. Additionally, we examine how modifying the net metering structure so that a greater share of transmission fixed costs is paid by residential solar users affects adoption behavior.

WORK IN PROGRESS

Horizontal Merger and Complementary Availability in the Video Game Industry (Third Year Paper)

Net-Metering Matters More than You Think: Evidence from California, with Joon Ha Kim

TEACHING AND RESEARCH EXPERIENCE

Teaching Assistant, Rice University	2020 - Present
Computational Economics (G), Econometrics I (G), Econometrics II (G), Econometrics (UG), Game Theory (UG), Market Design (UG), Principles of Economics (UG)	
Teaching Assistant, University of Texas at Austin	2019
Applied Statistics (UG), Discrete Mathematics (UG)	
Research Assistant, Rice University	
Professor David H. Zhang	Summer 2023
Professor Jeremy Fox	Summer 2022

PROFESSIONAL EXPERIENCE

Applied Scientist Intern, LinkedIn	Summer 2025
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CONFERENCE AND SEMINAR PRESENTATIONS

United States Association for Energy Economics (USAEE)	2024, 2025
Third-Year Paper Conference, Rice University	2023

SKILLS

Programming: Julia, Python, Matlab, Stata, SQL
Languages: English, Mandarin

REFERENCES

Professor Jeremy Fox (Committee Chair)
Shatto Professor of Economics
Department of Economics, Rice University
jeremyfox@gmail.com

Professor Isabelle Perrigne
Reginald Henry Hargrove Chair in Economics
Department of Economics, Rice University
iperrigne@gmail.com

Professor David H. Zhang
Assistant Professor of Finance
Jones Graduate School of Business, Rice University
dzhang@rice.edu