Dingzhe Leng
dingzhe_leng@berkeley.edu | Fourth-year PhD student in Quantitative Marketing at University of California, Berkeley
Committee Members: Joao Miguel Villas-Boas, Steven Tadelis, and Stephan Seiler

Research Interest

I study how AI and digital platforms reshape market structure, pricing, and information flows. My work examines competition and pricing in the emerging LLM marketplace, the design and bias of curated information in digital marketplaces, scale efficiencies in two-sided platforms, and identification challenges created by endogenous firm responses. Across these projects, I use tools from empirical IO, information economics, and causal inference to understand how technological change affects innovation incentives, consumer welfare, and the strategic behavior of digital platforms.

- **Open vs. Closed LLMs: Competition and Pricing in the LLM Marketplace**
  Sole-authored (Work in progress)

  Abstract: AI APIs have become essential inputs for marketing technologies such as search, recommendation, and customer service, making the evolution of API pricing central to both adoption and innovation. This paper examines how model providers set prices in a rapidly changing market shaped by two forces: competition from open-weight models and declining hardware costs. Openness may push prices down but can weaken long-run innovation incentives, while hardware improvements enable sustainable cost-driven reductions. By decomposing these effects, the paper clarifies whether price changes reflect competitive pressure or genuine cost declines and draws implications for market structure, entrant viability, and firms' AI adoption strategies.

- **What Review is Newsworthy? Measuring Informativeness and Bias in Review Curation**
  coauthored with Olivia Natan and Yixiang Xu (Work in progress)

  Abstract: Digital marketplaces employ a variety of curation mechanisms such as ranking algorithms, firm selected highlights, consumer directed filters, and AI generated summaries to help consumers navigate overwhelming volumes of information. However, little is known about how these methods influence belief updating and perceptions of product match quality, and evaluating potential bias requires a benchmark for an unbiased presentation of information. We develop such a benchmark by adapting the media concept of newsworthiness to consumer reviews and quantify the incremental, decision relevant information each curated output provides. This framework enables a unified comparison of curation strategies and guides the design of more transparent review systems.

- **Scale Efficiencies in Two-Sided Markets: Evidence from the Grab–Uber Merger in Singapore**
  coauthored with Bingzhao Li and Juin Kuan Chong (Working paper (available upon request))

  Abstract: This paper provides the first retrospective evaluation of a merger in a two-sided platform market by studying the 2018 Grab–Uber acquisition in Singapore. Using trip-level data covering all pre- and post-merger activity, we document that the merger led to higher prices but also to a substantial expansion in market volume during peak hours and an increase in active drivers, patterns that contradict predictions from a leading paper in ride-hailing. We show that this divergence is driven by a previously overlooked mechanism: spatial scale efficiency on the demand side. Unifying all drivers on a single platform improves matching quality, save driver's time, and attract more drivers. Therefore shortened matching times reduces riders' uncertainty about going unmatched. This reduction in matching frictions brings back riders who stayed out of the pre-merger market due to high unmatching risk, offsetting the adverse effects of increased market power and ultimately raising consumer welfare. Incorporating this mechanism into a standard platform model reconciles the model prediction with the observed data and reveals that ignoring demand-side spatial scale efficiencies can reverse welfare conclusions. Our findings highlight the importance of accounting for unrealized trips when evaluating mergers in congested platform markets.

- **Causal Inference With Endogenous Price Response**
  coauthored with Przemyslaw Jeziorski and Stephan Seiler (Under review)

  Abstract: We study the estimation of causal treatment effects on demand when treatment is randomly assigned but prices adjust in response to treatment. We show that regressions of demand on treatment or on treatment and price lead to biased estimates of the direct treatment effect. The bias in both cases depends on the correlation of price with treatment and points in the same direction. In most cases including an endogenous price control reduces bias but does not remove it. We show how to test whether bias from an endogenous price response arises and how to recover an unbiased treatment effect (holding price constant) using a price instrument. We apply our approach to the estimation of the impact of feature advertising across several product categories using supermarket scanner data and show that the bias when not instrumenting for price can be substantial.

Courses (graduate-level)

My graduate coursework provides rigorous training in microeconomic theory, econometrics, industrial organization, and quantitative marketing. I completed the full first- and second-year econometrics sequences, advanced microeconomic theory, and

IO sequence, building a strong foundation in causal inference, structural modeling, and empirical strategy. Complementing this are marketing PhD courses in buyer behavior, choice modeling, marketing strategy, and specialized research topics, which ground my work in applied questions around digital platforms, AI, and information design. This combination equips me to study how emerging technologies reshape firm strategy, market structure, and consumer welfare.

- Mathematical Tools for Economics (ECON 204)
- Economic Theory (ECON 201A, 201B)
- Introduction to Econometrics (ECON 240A, 240B; first-year econometrics sequence)
- Econometrics (ECON 241A, 241C; second-year econometrics sequence)
- Industrial Organization (ECON 220A, 220B)
- Buyer Behavior (PHDBA 269A)
- Choice Modeling (PHDBA 269B)
- Marketing Strategy (PHDBA 269C)
- Special Research Topics in Marketing (PHDBA 269D)

Education

- **University of California, Berkeley** — Berkeley, U.S.
  PhD student in Quantitative Marketing — *September 2022 – present*
- **Shanghai University of Finance and Economics** — Shanghai, China
  Bachelor of Science in Economics; ***GPA : 3.8/4.0 (Rank: 1/50)*** — *September 2016 – June 2020*
- **University of Pennsylvania** — Philadelphia, U.S.
  Exchange Student; ***GPA (junior): 4.0/4.0*** — *August 2018 – May 2019*

Work Experience

- **Northwestern University, Kellogg School of Management** — Evanston, U.S.
  Empirical Research Fellow (Pre-doc), Strategy Department — *November 2020 – August 2022*
  - Full-time research assistant to Prof. Benjamin Friedrich, Kieu-Trang Nguyen, and Quoc-Anh Do
- **University of Pennsylvania** — Philadelphia, U.S.
  Part-time RA, Economics Department — *October 2018 - May 2019*
  - Part-time research assistant to Prof. Amit Gandhi and Aviv Nevo

Others

- **Programming Skills**: STATA, R, MATLAB, Julia, C++, LaTeX
- **Language**: Mandarin Chinese (Native), English (Proficient)