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

Research

My research lies at the intersection of digital economics, quantitative marketing, and industrial organization. I study how information, technology, and market structure shape firm decisions and consumer welfare. My projects examine advertising measurement under privacy constraints, causal inference when prices respond to treatment, matching efficiencies in platform mergers, and how review curation, including AI summaries, affects consumer learning. Across these projects, I combine experiments, causal inference, and structural modeling to understand digital markets and inform platform design and policy.

- **What Do Privacy-Constrained Advertising Experiments Measure?**
  coauthored with Jingpeng Hong (TikTok)

  Abstract: Advertising experiments are increasingly challenged by privacy policies, signal loss, and platform restrictions. In response, geo lift studies have been adopted widely in marketing practice. This project asks what privacy-constrained advertising experiments measure and how their information affects firms' spending decisions. The first component combines large-scale TikTok field experiments and theoretical analysis. The hybrid experiment design embeds user-level randomization in geo-enabled markets, producing paired estimates for the same campaigns and period. A theoretical framework connects the estimands while accounting for population coverage and the embedded holdout. The second component develops a dynamic model in which firms choose advertising spending and costly experiments, learn from noisy experimental signals, and revise spending decisions. A panel of historical user-level experiments and advertiser decisions will discipline the firm decision model; responses to geo-based measurement will be simulated through counterfactuals. A potential heterogeneity question is how firm learning from advertising experiments differs between large and small advertisers. The project aims to advance causal measurement and provide guidance on privacy-constrained experiment selection and interpretation.

- **Causal Inference With Endogenous Price Response**
  *coauthored with Przemyslaw Jeziorski and Stephan Seiler (Conditionally accepted at the **Journal of Marketing Research**)*

  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 sign of the bias in both cases depends on the sign of the correlation of price with treatment, and the two biases point 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 direct treatment effect using a price instrument. We apply our approach to the estimation of feature advertising effects across several product categories using supermarket scanner data and show that the bias when not instrumenting price can be substantial.

- **Matching Efficiencies in Platform Consolidation: Evidence from the Grab–Uber Merger in Singapore**
  coauthored with Bingzhao Li and Juin Kuan Chong (Working Paper (ready to submit))

  Abstract: Platform mergers can reduce competition while improving matching efficiency. We study this tradeoff using the 2018 Grab–Uber merger in Singapore. Despite higher post-merger prices, completed trips increased during peak periods. We show that fragmentation creates matching failures that suppress realized demand, while consolidation can alleviate these frictions by pooling riders and drivers. A structural model that distinguishes potential demand from successful matching substantially improves predictions of post-merger demand. Counterfactuals show that gains in matching efficiency can offset losses from market power in thick markets. Our findings inform antitrust policy by highlighting the importance of matching probability in platform mergers.

- **What Review is Newsworthy? Measuring Informativeness and Bias in Review Curation**
  coauthored with Olivia Natan, Yingkang Xie 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.

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

  Abstract: LLM 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.

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

- **Language**: Mandarin Chinese (Native), English (Proficient)