HSU, Ke-Cheng (Clio)

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Professional Summary

PhD candidate in Economics at HKUST specializing in empirical industrial organization and digital economics. Builds and estimates structural models of pricing, demand, and inventory on very large retail and e-commerce datasets, turning raw records into revenue, cost, and margin measures under counterfactual scenarios. Works in Python, R, and C++ on AWS and HPC/SLURM and uses AI tools daily for research, coding, and OCR data extraction, with outputs verified by tests. Earlier research modeled bank crises on interbank lending networks. Seeking the Research – Economics & Strategy, Equity & Derivative Associate role at UBS.

Education

The Hong Kong University of Science and Technology, Hong Kong

Doctor of Philosophy in Economics Expected Graduation: June 2027

Research interests: Empirical industrial organization and digital economics.

Master of Philosophy in Economics, CGA: 4.1/4.3 2020–2022

Bachelor of Science in Mathematics and Economics, Minor in Actuarial Mathematics, CGA: 3.9/4.3 2015–2019

Awards: Dean's List (2016–2019); University Scholarship (730K HKD); Academic Achievement Medal (top 1%); Postgraduate studentship (1.5M HKD); Redbird scholarship (40K HKD).

Experience

Research Assistant, National Taiwan University 2020

- Built a MATLAB model of a bank crisis on an interbank lending network, as a negotiation between the regulator and the banks' creditors, who share losses only if the regulator's no-bailout threat is credible; found that less tightly linked networks make that threat more credible in a large shock.

Teaching Assistant & Lecturer, Department of Economics, HKUST 2020–present

- Lecturer for MSc Math Camp (rated 4.53/5); TA for PhD and undergraduate economics (avg 4.72/5).

Teaching Assistant Coordinator, Business School, HKUST 2025–2026

- Coached and evaluated a teaching team on teaching materials and mock lectures.

Hall Tutor, UG Hall I, HKUST 2024–present

- Mediated resident conflicts and led orientation, workshops, and career talks.

Projects

Inventory and Pricing under Resale Price Maintenance (RPM) *(w/ K. Kawaguchi, HKUST & UTokyo Econ Consulting; K. Kawai, U. Tokyo & Compass Lexecon)*

- Built a dynamic oligopoly model of pricing and inventory under demand uncertainty and RPM, with equilibrium stockouts and unsold returns (35–40% of Japanese books printed are discarded); constructed title-by-market-by-month panels from monthly bookstore POS data (deliveries, sales, returns; tens of billions of records across 1,000+ stores), linked via standardized ISBNs and merged with local demographics and detailed title-level information scraped from Amazon in Python.
- Estimated demand and supply with instrumental variables (2SLS) and Hausman-style price instruments; validated the estimator with Monte Carlo on simulated equilibria; selected controls with LASSO and panel fixed effects; implemented iterative equilibrium simulation in C++.
- Showed that the classical static model overstates marginal cost by ∼20% once demand uncertainty and inventory decisions are ignored, a correction that changes a company's assessed value.
- Uncovered stockout-driven intertitle and intertemporal substitution (not interregional) through weekly descriptive statistics, regressions, and figures, delivered as a weekly report on a fixed deadline.

Return Policy Design in E-Commerce *(Job Market Paper)*

- Built and estimated a structural model of purchase, return-shipping-insurance take-up, and return decisions under monopoly pricing, using within-retailer switches between automatic provision and selective adoption of return-shipping insurance on Taobao (2017–2023; ∼62M RMB revenue; six apparel categories; ∼20–30% return rates); scraped and OCR-digitized product attributes in Python.
- Developed a reproducible, version-controlled estimation pipeline on AWS and HPC/SLURM (Python, R, C++); cleaned and linked orders, prices, insurance, and returns; recovered category-specific demand, consumer fit uncertainty, and return responses via GMM; accelerated Monte Carlo and optimization in C++; validated policy rankings (seller profit, consumer surplus, social welfare) with bootstrap inference.
- Found a purchase–return efficiency trade-off: a stricter return policy curbs inefficient ex-post returns but raises prices and can exclude ex-ante efficient purchases; automatic provision expands valuable purchases in high-margin categories while selective adoption outperforms it by ∼15–30 pp of first-best welfare in thinner-margin categories, and a partial return-penalty discount (discounted price + ∼10–15% restocking fee) attains ∼75–78% of first-best welfare outside dresses.

Skills

Languages: Mandarin (Native), English (Fluent), Cantonese (Basic).

Technical: Python, R, MATLAB, Stata, C++, Microsoft Excel, Word, PowerPoint, LaTeX, AWS, HPC/SLURM; web scraping, AI-based OCR; 2SLS, MLE, GMM, LASSO, Monte Carlo, bootstrap.

AI: Daily use of AI tools for research, coding, OCR data extraction, and workflow automation; outputs verified by tests.

References: Kei Kawai (UTokyo; Compass Lexecon), Kohei Kawaguchi (HKUST; UTokyo Econ Consulting), Pak Hung Au (HKUST).