Tonghua Lin

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EDUCATION

Rutgers Business School, Newark, NJ, USA
Ph.D. in Supply Chain Management, GPA: 4.0/4.0 2023–Expected 2028

Zhejiang University, Hangzhou, Zhejiang, China
B.S. in Mechanical Engineering, GPA: 3.78/4.0 2019–2023

AWARDS AND HONORS

- Alfred Battaglia Award, Rutgers Business School (2026).
- Gold Prize, *Internet Plus* Innovation and Entrepreneurship Competition (2021); Second Prize, *Challenge Cup* College Innovation Competition (2021).

RESEARCH PAPERS

T. Lin, W. Chen, X. Xu, **Modeling Liquidity and Survival: Inventory Speculation and Bankruptcy Risk**
Work in Progress

- Modeled inventory speculation strategies for financially constrained firms, explicitly characterizing the critical trade-off between profit generation and bankruptcy risk due to liquidity depletion.
- Formulated an infinite-horizon Markov Decision Process (MDP) with discounted expected survival time as the objective, and reduced the dynamic problem to a static one-period problem through approximation.
- Characterized boundary structures and state-dependent ordering policies that capture when firms should act conservatively to preserve liquidity versus aggressively to extend survival.

C. Zhou, **T. Lin**, X. Ding, W. Chen, L. Lei, **Balancing Workforce Fissuring and Service Quality: Evidence from Dialysis Operations**
Completed, Second-round R&R at Journal of Operations Management (JOM)

- Examined how workforce fissuring affects service quality in dialysis facilities, finding an inverted-U relationship in which limited use of contract nurses may improve flexibility while excessive reliance weakens coordination and service quality.
- Developed theoretical framing around relational coordination and organizational information processing to explain the non-monotonic effect of contract nurse usage.
- Integrated 3 heterogeneous public datasets spanning 2015-2019 (CMS, BLS, HCRIS); employed two-way fixed-effects, quadratic modeling, and the 2SRI IV method to isolate causal effects.

W. Chen, B. Melamed, **T. Lin**, B. Sopranzetti, **A Markov Renewal Model for Valuating Cash Conversion Systems**

Completed, Second-round R&R at European Journal of Operational Research (EJOR)

- Addressed how firms can value new products and product lines in cash conversion systems when historical financial data are unavailable or too aggregated, using endogenous operational and financial parameters rather than traditional firm-level valuation inputs.
- Formulated cash conversion systems as transient Markov renewal processes and derived transition kernels that characterize their operational-financial dynamics.
- Developed finite-state approximations for expected discounted free cash flows and time to termination; built code and ran numerical tests, including parameter-sensitivity use cases for new technology adoption.

X. Huang, **T. Lin**, W. Chen, H. Dai, **Optimizing Order Assignments in On-Demand Delivery with Behavior Heterogeneity of Crowdsourced Drivers**

Almost Completed, Preparing for submission to Production and Operations Management (POM)

- Studied assignment problems in which tasks can be completed through multiple execution modes and agents may deviate from the system-specified mode, creating behavioral heterogeneity and assignment suboptimality; specifically, crowdsourced drivers differ in service speed and routing preferences.
- Proposed a predict-then-optimize framework integrating machine-learning predictions with a branch-and-price algorithm. [Code Available at github.com/tonghua-lin/O2O_Routing_pub]
- Showed the operational value of accounting for behavioral heterogeneity in platform-based delivery systems.

D. Dreyfus, Z. Chen, **T. Lin**, **Enhancing Healthcare Operations in Disadvantaged Communities: The Role of Chain Affiliation and Dynamic Capabilities**

Completed, R&R at Health Care Management Science

- Studied whether chain affiliation mitigates healthcare quality deficits in socially disadvantaged communities.
- Developed a dynamic capabilities framing to explain how chain-affiliated facilities may better mobilize resources and implement quality-improvement routines.
- Constructed a multi-year dialysis facility panel and employed fixed-effects and instrumental-variable analyses to examine the quality effects of chain affiliation.

T. Lin, W. Chen, **Learning-to-Optimization: A Graph-Structured Decision Framework for Food Safety**

Early-stage Project

- Propose a closed-loop learning-to-optimization framework for food safety inspection, using over 10 million food safety records to integrate graph-based risk prediction with budgeted inspection decisions.

TEACHING

Instructor, Rutgers Business School
Demand Planning and Fulfillment, Spring 2026

- Delivered in-person lectures to approximately 70 undergraduate students, covering forecasting, inventory management, project management, and related supply chain planning topics.
- Teaching evaluations: 4.2/5 overall and 4.5/5 for instructor.
- Established clear guidelines for the use of AI tools in coursework and provided guidance on how students could use AI responsibly and effectively for learning.

Teaching Assistant, Rutgers Business School, 2023–Present

- Assisted with grading, office hours, exam preparation, and student support for graduate courses including Operations Analysis, Business Statistics, and Supply Chain Analytics, as well as undergraduate courses including Demand Planning and Project Management.

PRESENTATIONS

- Rutgers SCM Brown Bag Seminar, "Modeling Liquidity and Survival: Inventory Speculation and Bankruptcy Risk Analysis," April 2026.
- INFORMS Annual Meeting, "Modeling Liquidity and Survival: Inventory Speculation and Bankruptcy Risk Analysis," 2025.

SERVICE

Reviewer

- *International Journal of Production Research*.
- *Digital Transformation and Society*.
- *Annals of Operations Research*.

Session Chair

- Session Chair, "Smart Resource Allocation," INFORMS Annual Meeting, 2025.

SKILLS

- Programming & Data: Python, C++ (OOP), SQL, MATLAB, Stata
- Optimization: Gurobi, Mixed Integer Programming (MIP), Branch-and-Price, Dynamic Programming
- Languages: English (Fluent), Mandarin (Native)