Hongbo Li

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Visiting Student Researcher, Stanford University (2026–27)

Application to the NBER Digital Economics and AI Tutorial — Stanford University, January 20–21, 2027

Dear Organizers,

I am a fourth-year Ph.D. student in economics at Peking University, currently a Visiting Student Researcher at Stanford University. My research studies how artificial intelligence and digital platforms change productivity, the organization of work, and labor markets. My main project uses administrative records from a firm-wide rollout of an internal AI coding assistant to follow the gains from generative AI from the individual worker to the team and the organization. I would be grateful for the opportunity to participate in the Digital Economics and AI Tutorial, whose focus matches the questions and methods at the center of my dissertation.

Graduate Study

- **Ph.D. in Economics**, National School of Development (NSD), Peking University, September 2023–present (fourth year).
- **B.A. in Economics (Honors)**, NSD, Peking University, 2019–2023; Outstanding Undergraduate Thesis award.
- **Research visits:** Stanford University, Visiting Student Researcher (2026–27); Crawford School of Public Policy, Australian National University, visiting Ph.D. student (2025); RFBerlin, visiting scholar (2024).
- **Graduate coursework.** Ph.D. training at NSD in microeconomic theory, econometrics, labor economics, and development economics, with emphasis on general-equilibrium reasoning, dynamic optimization, and causal inference. **Relevant undergraduate coursework:** Econometrics, Mathematical Statistics, Industrial Organization, Game Theory, Labor Economics (Honors), Data Analysis and Econometric Programming, and Data Structures and Algorithms.
- **Teaching.** Teaching assistant for Advanced Microeconomics I, Labor Economics (Honors; Outstanding Teaching Assistant Award, 2025), Intermediate Econometrics, and Statistics in Social Science Research (in English).
- **Dissertation (in progress):** *Technology Adoption, Platform Design, and Labor Market Adjustment in the Age of Artificial Intelligence*, with chapters on generative AI inside the firm (below), spatial spillovers in food-delivery platforms, and AI-driven changes in labor demand and skills.

Main Project

Generative AI and the Reorganization of Knowledge Work: A Case Study of Firm-Wide AI Deployment at a Large Technology Firm (single-authored; poster presented at the Stanford HAI Fall Conference, 2026)

Question. Generative AI raises worker productivity in experiments, but we know little about whether those gains persist in real production, how they evolve with experience, and whether they add up to more team output or instead reshape how teams are organized. Software development is the cleanest place to ask: it is one of the first occupations transformed by AI, and output is measurable task by task.

Data. I assembled linked administrative records covering nearly 100,000 developers and 20 million merge requests over 2022–2026. Production telemetry (requirements, commits, merge requests, code reviews, bugs, repositories) is linked through employee identifiers to AI-usage records (AI-generated code, tool telemetry, AI tokens, AI code review) and to organizational data (HR records, department histories, re-

porting lines, business lines).

Design and findings.

- **Adoption.** The share of active developers using AI rose from 22% to 85% within two years, with adoption staggered across developers and teams.
- **Individual productivity.** A stacked difference-in-differences design with matched controls shows flat pre-trends and a 17% increase in merge requests per developer one month after first use, rising to 23% by month six (panel a). Gains keep growing over the first year, and full AI use broadens the set of programming languages a developer works in by 0.5 languages.
- **Teams and organization.** Moving a team from no AI use to full AI use is associated with 17% fewer coders and 56% more merge requests per coder, so team output rises by 30%. A dynamic Olley–Pakes (Melitz–Polanec) decomposition shows that about 80% of the per-coder gain comes from stayers becoming more productive, newcomers add the rest, and reallocation and exit play no role (panel b): the firm absorbs the individual gains by running leaner teams.

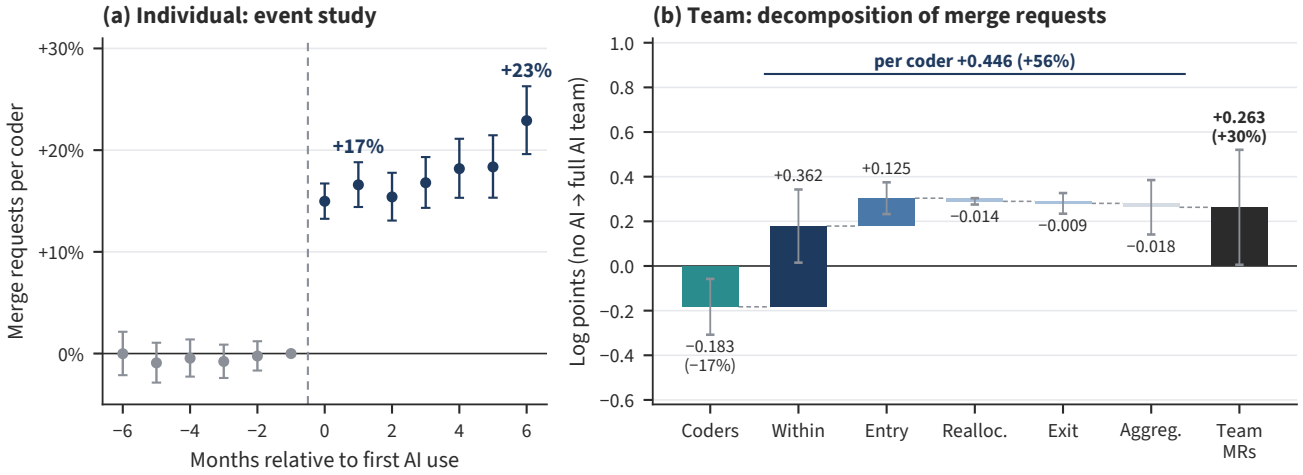


Figure 1: From individual gains to leaner teams. (a) Event-study estimates (Poisson, stacked difference-in-differences with matched controls; 95% confidence intervals). (b) Exact decomposition of the change in team merge requests into team size and the dynamic Olley–Pakes components of per-coder output; OLS slopes on the change in the team's AI-user share, 781 teams, 2024H2 vs. 2025H2.

Next steps. I am building a model in which AI shifts task allocation and coordination costs within teams, to quantify how much of the individual gain the firm converts into output versus leaner teams, and to evaluate training and adoption policies.

Other Research on AI, Platforms, and Labor Markets

- "Impacts of Large Language Model on the Chinese Labor Market" (with D. Zhang, L. Li, H. Yu, J. Hu, Y. Mo), *Management World* (in Chinese), 2025, 41(7): 59–75.
- "Artificial Intelligence and Labor Market Mismatch: Evidence from Job–Seeker Matching Data in China" (with H. Yu, D. Zhang, R. Zhang, Q. Li), *China Economic Quarterly* (in Chinese), forthcoming.
- "Delivery Pooling and Agglomeration Spillovers" (with Y. Sun): a structural model of a food-delivery platform in which order bundling generates spatial spillovers among restaurants, couriers, and consumers.
- "The Trend of Gig Work in China's Export-Oriented Manufacturing Industry: New Evidence from Manufacturing Dispatch Worker Recruitment Platforms" (with Y. Li, D. Zhang), R&R at *Social Sciences in China*.
- "China's Demographic Transition and the Rise of Manufacturing Robots" (with J. Hu, D. Zhang).

Research Projects with Industry and Government

- **Large technology firm** (2025–2026): economic-research internship; designed and assembled the linked administrative data behind the main project.
- **Ministry of Human Resources and Social Security**, major project on the impact of AI on labor-market supply, demand, and future trends (investigator, 2026).
- **Ministry of Transport** (Research Institute of Highway), project on the impact of AI on ride-hailing drivers (investigator, 2026).
- **Ele.me–NSD project** on technology-driven labor-market change under new forms of employment (investigator, 2024).
- **National Social Science Fund**, major project on the digital economy, corporate organizational structure, and employment (investigator, 2022).
- **World Bank**, Beijing Office, short-term consultant (2025).
- **Principal investigator** of three research grants on platform governance and labor welfare (Caixin ESG30 Young Scholar Program), migration, labor costs and firm innovation, and demographic change and industrial robots.

Why This Tutorial

My work sits at the intersection of the economics of AI, digital platforms, and labor. The tutorial would help me in three ways: it would expose me to frontier methods for measuring AI adoption and its effects on productivity and organizations; it would sharpen the industrial-organization tools I use to model platform markets; and it would give me the chance to discuss the firm-level AI project with researchers working on the same questions. Being at Stanford this year, I would also welcome the opportunity to join the NBER Digital Economics and AI meetings that follow the tutorial.

Selected Honors and Presentations

Honors: Young Scientist, 8th Lindau Nobel Laureate Meeting on Economic Sciences (2025); President Scholarship, Peking University (2024–25); CF40 Young Research Fellow (2026); Caixin ESG30 Young Scholar (2025); Yifu Research Scholarship (2022–23).
Presentations: Stanford HAI Fall Conference (2026); CCER Summer Institute (2022, 2026); AASLE Annual Conference (2024, 2026); ECONtribute Research Conference, University of Bonn (2025); DSE Summer School, London (2025); China Economics Annual Conference (2025); NCER–CCER Annual Conference (2025); RFBerlin Seminar (2024).
Referee: *Journal of Economic Behavior and Organization*, *China Economic Review*, *Journal of Asian Economics*, *Economics of Transition and Institutional Change*, *China Economic Quarterly*.

Thank you for your consideration.

Sincerely,
Hongbo Li