Fanwen Zhu — Application to Attend the NBER Tutorial Meeting

Contact Information

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Graduate Study

- **Program:** Ph.D. in Economics, UCLA
- **Status:** 5th year; Expected completion: June 2027
- **Core Field Courses:** Industrial Organizations; Firm Dynamics & Schumpeterian Innovation; International Trade
- **Committee Members:** Michela Giorcelli (Chair), Ariel Burstein, Pablo Fajgelbaum, Jonathan Vogel

Research Overview

Research Interests. Innovation, entrepreneurship, and international trade, with a focus on how founder type and policy shocks shape firm dynamics, inventor mobility, and LLM adoption. Methodologically, I combine regressions, event studies, survival analysis, and structural models with large-scale firm–patent data. I also run field experiments on human–LLM collaboration within project-based settings in universities and K12 schools to study organizational adoption dynamics.

Research Vision & Agenda. My broader research agenda is to map the micro-foundations of innovation to the organizational and policy choices that shape them. I study three linked questions: how external shocks (e.g., trade restrictions and policy uncertainty) change *who* becomes an entrepreneur and how inventive talent is reallocated across sectors; how founder type and top–management composition imprint dynamic capabilities—tilting organizations toward front- or back-loaded invention; and how we should govern the adoption of general-purpose technologies such as LLMs inside firms. The unifying goal is to move beyond average treatment effects on "how much innovation" and toward causal, measurable changes in *composition, timing, and collaboration networks* that ultimately determine long-run productivity, survival, and industry trajectories. Empirically, I leverage national-scale firm–patent–inventor data, quasi-experimental shocks, and network-linked outcomes; conceptually, I pair these with interpretable structural models disciplined by observables (entry, patent timing/quality, team formation) to speak to industrial policy, capability building, and market design.

A second pillar is building decision tools that organizations and policymakers can actually use. In ongoing field experiments, I treat GenAI adoption as a transition problem with distinct *speed* and *level* margins: learning costs and anchoring beliefs mainly govern how fast teams converge, while relative payoffs determine the steady state. This separation delivers testable targets (training, interface design, task re-bundling, and governance) and yields counterfactual trajectories that managers can benchmark when orchestrating rollouts. Together with work on shocks and founder imprinting,

I aim to produce a coherent evidence base—linking selection into entrepreneurship, capability formation inside firms, and technology governance—so that policy mixes (early experimentation vs. capability accumulation) and organizational choices (who leads, how teams collaborate, which tasks to automate) can be designed for both resilience and sustained innovative growth.

Working paper #1: Sanctions and Startups: Trade Shocks and Inventor Entrepreneurship in the U.S.-China Trade War

Abstract: Founding entrepreneurs have long been recognized as critical for shaping firm outcomes, but far less is known about how major shocks affect the decision of inventors to become entrepreneurs in the first place. This paper studies the impact of the U.S. Entity List—a sweeping export-control policy—on inventor entrepreneurship in Chinese high-tech industries during the 2018 trade war. Exploiting variation in industry exposure and a newly matched inventor–firm dataset, I find on the extensive margin that the policy caused a sustained decline in new inventor entrepreneurs in the targeted semiconductor and telecommunications sectors. The slowdown was uneven, reflecting a two-sided selection in which mediocre inventors were disproportionately deterred, while top incumbents and unaffiliated entrants continued to enter, reshaping entrepreneurial composition. On the intensive margin, inventor-founded firms that did emerge produced fewer patents in their early years, reflecting weaker incentives for innovation and altered organizational behavior. Collaborative ties also contracted, though in telecommunications the surviving partnerships shifted toward fewer yet higher-impact projects. Together, these findings show that export controls not only reduced the number of inventor entrepreneurs but also changed who they were and how they performed, offering new insight into how entrepreneurship responds to major shocks and contributing to the broader literature on how trade disruptions reshape the micro-foundations of innovation.

Working paper #2: Born to Invent, Bound to Succeed? Inventor Entrepreneur, Firm Success, and Policy

Abstract: Does having an inventor co-founder causally increase the probability of long-run firm success? If so, is it socially optimal to pair all (innovative) firms with inventor founders or managers? Leveraging a newly matched dataset of Chinese inventor entrepreneurship and using attainment of the national industry award as the outcome, I find that inventor-founded firms are about two percentage points more likely to succeed, effectively doubling the baseline probability. To address endogeneity, I employ a linear probit model with two historical instruments for local knowledge and cultural norms and complement with a Cox survival model. Mechanism analysis shows that inventor-founded firms pursue front-loaded, concave innovation trajectories with higher early-stage patenting and quality, whereas non-inventor-founded firms follow back-loaded, convex paths. These patterns suggest that founding imprinting shapes organizational capabilities and leaves persistent effects over a decade. To interpret, I build a Schumpeterian model with heterogeneous founder types to rationalize the concave versus convex dynamics, higher success rate of inventor-founded firms, and policy trade-offs. Industrial policy subsidizing inventor-founded firms can accelerate early experimentation and enhance spillovers, but excessive support may exacerbate business stealing and reduce aggregate growth. Conversely, targeted policies helping non-inventor-founded firms accumulate capabilities more rapidly can mitigate entry barriers and broaden the innovative base. The

optimal design therefore should balance early-stage subsidies with long-run capability development.

Working paper #3: Adopting LLMs at Work: A Dynamic Model with Field Experiment

Abstract: Generative Artificial Intelligence is empowering workers while also posing challenges for organizations seeking to embrace it. We study how organizations can effectively integrate large language models (LLMs) into work by combining a project-based field experiment with a parsimonious and extendable dynamic model of individual adoption. Time-stamped usage from the experiment reveals two salient facts: (i) a sigmoid adoption path—slow start, sharp middle acceleration, and steady state—and (ii) a nontrivial subset of non-adopters who never engage despite equal access. Interviews motivate two explanatory frictions—learning costs that decline with accumulated experience and an anchoring penalty that decays with use—interacting with a payoff trade-off between self-knowledge and LLM assistance. Analytically, we show a clean separation between *speed* and *level*: interventions that reduce learning costs or relax anchoring mainly accelerate convergence, whereas the long-run usage level is determined by relative marginal returns to self-knowledge versus LLMs. Dynamically, as current use also lowers future frictions, convergence is faster than in the static benchmark. Robustness holds under peer effects in teamwork and when workers' capability improves through learning-by-doing. Managerially, the framework separates levers that hasten adoption (e.g., training and belief nudges) from those that elevate the steady state (e.g., technology upgrades and task redesign). Referencing predicted counterfactual trajectories thus provides a benchmark that helps firms orchestrate smoother rollouts, improving organizational efficiency and ensuring that the productivity gains of LLMs are realized sooner rather than delayed.

Thank you!

Thank you for your time and effort into reviewing my application! I would be very grateful for the opportunity to attend this NBER tutorial meeting on Digital Economy and AI and to engage with faculty and peers working at the frontier of the intersection between economics and Generative AI!