**Digital Economics and AI Tutorial 2025 - Application**

*Laura Shupp, MIT Sloan School of Management*

## Contact Information

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## Graduate Study Pursued

PhD in Management, MIT Sloan School of Management
Concentration: Technological Innovation, Entrepreneurship, & Strategic Management (TIES)
Enrollment status: Year 3, PhD Candidate

Primary field: Economics of Innovation
Secondary field: International Trade

Relevant coursework: 15.838 Digital Economics & the Economics of Artificial Intelligence (Prof. Catherine Tucker); HBSDOC 4561 Empirical Studies of Innovation & Digitization (Prof. Shane Greenstein); 15.357 Economics of Ideas, Innovation, & Entrepreneurship (Profs. Pierre Azoulay & Scott Stern); 14.581-582 International Economics I & II (Profs. Arnaud Costinot & Jose Vasquez); HLS International Intellectual Property Transactions (Prof. Jacques de Werra)

**Research Interest:** International Technology Transfer

My research examines international technology transfer as an economic and managerial phenomenon, focusing on the processes through which technologies are shared, adopted, and adapted in trade-dependent emerging economies. I am particularly interested in the mechanisms that facilitate this transfer which include cross-border patenting, foreign direct investment (FDI), and international trade as much as I am interested in using their underlying data as measures. Through this lens, my ideal dissertation would examine how firms enter global trade networks and in which sectors, and whether certain components of competition law (e.g., data localization requirements; international compulsory joint ventures) and IP rights play a role. Critical to this phenomenon is the need to incorporate measures of the digital economy that span beyond the standard manufacturing-heavy indicators of inventive activity (i.e., patent counts; Cobb-Douglas type production assumptions; etc.).

**Ideal Dissertation Title:** Three Essays on International Technology Transfer
**The micro-founded, digital economy version of Wolfgang Keller's 'Three Essays on International Technology Transfer' dissertation*

Confirmed Committee Members: Scott Stern (MIT), Jose Vasquez (LSE), others TBD

Chapter #1: The Gains from Digital Trade
**Cannot be JMP because targets trade audience*

Chapter #2: Economic Liberalization and Multinational Production: Evidence from the Gulf Co-operation Council (GCC)
**Contingent on obtaining two countries' worth of firm-employee data in GCC*

Chapter #3: TBD

**Research Projects in Progress**

**Project #1:** The Gains from Digital Trade

**Objective:** Write the equivalent of Ramondo & Rodriguez-Clare (2013) 'Trade, Multinational Production, and the Gains from Openness' but rather than comparing multinational production (MNP) and trade as measures of openness, expand to incorporate digital trade using 2023 WTO 'Handbook on Measuring Digital Trade'.

**Hypothetical Findings:** (1) Cross-border digitally delivered services (i.e., exports) growing faster than trade in manufacturing; (2) Emerging economy proportion/rate of digital trade exceeds that of manufacturing sectors

**Project #2:** Economic Liberalization and Multinational Production: Evidence from the Gulf Cooperation Council (GCC)

**Objective:** Investigate whether the removal of compulsory joint ventures generates increased multinational entry and subsequent innovation spillovers onto domestic firms across the GCC. Estimate the effects on patenting, inward FDI in the form of MNP, and trade.

**Hypothetical Findings:** (1) Multinational entry reacts and relocates across GCC countries per compulsory JV removal; (2) Spillovers in primarily services/digital economy sector captured by alternative measure to patents (e.g., apps; github accounts; digital trade flows)

**Second Year Paper:** Do Large Language Models or Crowdsourced Models Produce More Bias: Evidence from AI Chatbots and Wikipedia

**Supervisor:** Shane Greenstein

**Abstract:** OpenAI's ChatGPT set a global record as the fastest-growing consumer application, showcasing the efficiency of large language models (LLMs) for information access. However, limited research exists on their accuracy, quality, and consistency. This paper examines slant and bias in LLMs (ChatGPT-3.5, ChatGPT-4, Gemini, and Claude 3.5 Sonnet) compared to Wikipedia's crowdsourced knowledge. Slant is measured as Republican-leaning (positive) or Democratic-leaning (negative), with bias defined as the absolute difference between paired content slant estimates. By analyzing LLM mechanics, this work explores the links between chatbot features and bias, aiming to identify which knowledge models produce more biased content.

**Other Ideas Under Consideration:**

Dodging Duties: How De Minimis Rules Shape Chinese E-Commerce
The Rate and Direction of Inventive Activity through Mobile Apps
The Invention and Diffusion of Water Technologies in the Middle East and North Africa

**Development & the Digital Economy: Why Should I Attend this Tutorial?**

Since the age of industrialization, we have lived in a world where economists have broadly equated manufacturing with economic growth, and the bulk of economic literature on both innovation and trade reflects this notion (Samuelson, P.A., 1939; Deardorff, A.V., 1980; Varian, H.R., 2004; Mokyr, J., 2005). To date in trade theory, services are still considered "nontradable assets," and the vast quantity of structural transformation literature that outlines how economic development takes place speaks to the reallocation of labor from lower productivity sectors to manufacturing (Rodrik, D., 2012; Rodrik, D., 2015). In jumping fields from economics to strategy, a whole host of papers and journals exist testing the effects of digitization and digitalization. Be it the introduction of the internet (Greenstein, S., 2015), video conferencing (Tucker, C., 2008), or AI conversational assistants (Brynjolfsson et al., 2023), the literature on digital is alive and only growing.

My research questions related to integrating the digital economy into traditional manufacturing-heavy literature and measures is important because it aims to bridge the rich micro-founded knowledge on digital technologies possessed in management journals with more macro-level, trade-related questions that connect innovation in digital technologies to broader economic outcomes. When considering the organization and production of digital services, I argue that the role of markets and innovation look fundamentally different, and thus, present a different set of tradeoffs especially for small, export-dependent economies.

I bring these questions with eight years of experience working in research and advisory across Europe and the Middle East. From my first job at the International Telecommunication Union researching global trends in ICT Official Development Assistance relating to the digital divide, to my Fulbright research assessing the impact of Bahrain's Vision 2030 in broadening its ICT sector — a project that led to a subsequent year deploying my research at the Ministry of Labor — digitalization and its effects on the economy was at the core of my work. I joined Monitor Deloitte where I wrote white papers for Deloitte Digital that spanned topics on the effects of cyber attacks on critical national infrastructure, to a co-authored paper with Huawei on digital transformation across the Middle East, and my final advisory in the region prior to re-entering academia was for the Saudi Center for Digital Entrepreneurship. I can confirm that my pathway of digital was not out of continued specialization, but out of a regional economic push towards digital. Everyone was working on digital (outside of oil & gas). So this leaves me in a space where now in academia, with this knowledge, I would be doing a disservice to myself, the economic literature, and the broader impacts I hope my research would have if I conform to canonical economic theory and methods. I didn't realize that doing this would place me within the digital community; however I couldn't be more greatful to be both exposed and connected to individuals such as Catherine Tucker and Shane Greenstein who see the world from this perspective as well.