Meng Song

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Application for NBER Digital Economics and AI Tutorial

Dear Selection Committee,

Graduate Study Description

I am a Ph.D. Candidate in Econometrics and Quantitative Economics (STEM) at the University of Connecticut, currently in my fourth year of doctoral study. Concurrently, I am pursuing a Master's degree in Data Science. I serve as a Quantitative Graduate Assistant at the University of Connecticut Center for Advancing Research, Methods, and Scholarship in Gun Injury Prevention (ARMS).

My graduate coursework spans applied econometrics, labor economics, public economics, and empirical methods for causal inference, alongside training in machine learning, natural language processing, and computational statistics. This dual preparation in economics and data science informs both the methodological and substantive dimensions of my research.

Research Interests

My research interests lie in applied microeconomics, focusing primarily on labor economics, the economics of education, and public policy. My work is organized around two overarching themes: the future of work and the future of education in an era of technological and institutional transformation.

1. The Future of Work. My first line of research examines how technological and structural changes—particularly artificial intelligence and the expansion of remote work—reshape labor markets, human capital formation, and economic inequality. I study how workers respond to changing job tasks, shifting productivity environments, and new employment arrangements. I am particularly interested in gender inequality, occupational adaptation, and the distributional consequences of technological change.

2. The Future of Education. A second strand of my research considers how educational systems respond to institutional reforms and emerging technologies. I study how changes in instructional time, school structure, and digital learning tools affect students' academic performance, skill development, and long-term outcomes. I am especially interested in how artificial intelligence influences learning environments and behavioral responses, and how policy can support equitable access to effective education in a digital economy.

Methodological Approach. I integrate applied econometrics with empirical machine learning and natural language processing to analyze large-scale and unstructured data, sharpen causal inference, and uncover mechanisms that would otherwise remain unobserved. My goal is to produce policy-relevant research that informs how digital technologies and AI shape individuals' opportunities and well-being.

Research Projects and Dissertation Work

1. The Future of Work: Remote Opportunities and Female Labor Force Participation
Revise & Resubmit at the Journal of Public Economics

This paper examines the long-term effects of the expansion of work-from-home (WFH) opportunities accelerated by the COVID-19 pandemic on female labor market outcomes. Using a difference-in-differences and event study design, this paper compares individuals in Metropolitan Statistical Areas (MSAs) with higher WFH potential to those in areas with lower WFH potential before and after the pandemic. The results indicate that relative to men, access to WFH opportunities significantly increases the likelihood of female labor force participation, employment, and full-time work. These effects are particularly strong among college-educated mothers and mothers with young children, with benefits diminishing with age. More broadly, the findings suggest that WFH opportunities can explain approximately 21 percent of the observed narrowing in the gender labor force participation gap between 2019 and 2023. Furthermore, the findings suggest that the positive effects of WFH opportunities remain stable over time, with the potential to grow as remote work arrangements become more established and persistent.

2. How Does a Four-Day School Week Affect High School Students? Evidence from Colorado

We examine the impact of the four-day school week on high school students' outcomes using comprehensive administrative data from Colorado, the state with the highest prevalence of this schedule in the United States. The dataset spans nearly two decades of entry cohorts and more than one million unique student records, providing an exceptional opportunity to study the policy's long-run effects. Leveraging quasi-random variation in adoption across districts within a difference-in-differences framework, we estimate how a shortened school week shapes stu-dents' educational trajectories. In contrast to much of the existing literature, we find modest improvements in standardized test performance, lower dropout rates, and higher on-time and overall graduation. The duration of exposure plays a key role: students with longer and consis-tent exposure experience the largest improvements in persistence and attainment. At the same time, heterogeneous effects indicate that disadvantaged groups may benefit less, raising con-cerns about equity. Overall, the findings challenge the perception that a shorter school week harms student learning and suggest that, when designed and implemented carefully, it can en-hance both performance and completion

3. Who Gains and Who Adapts? Labor Market Impacts of Generative AI Across U.S. Metropolitan Areas

This paper examines the labor market effects of generative artificial intelligence across U.S. metropolitan areas following the November 2022 release of ChatGPT. Using American Community Survey data from 2018 to 2024, I construct a measure of AI exposure at the Metropolitan Statistical Area level based on pre-ChatGPT occupational compositions and task-level AI exposure scores. Employing a difference-in-differences and event study design, I exploit geographic variation in AI exposure to identify heterogeneous impacts across demographic groups, age cohorts, education levels, and industries. This study examines effects on both extensive margins (labor force participation, employment) and intensive margins (work hours), as well as potential mechanisms including within-household time reallocation. This study provides the first population-level and aggregate economy causal evidence on generative AI's labor market impacts using U.S. geographic variation, addressing key barriers to equitable AI diffusion and complementing prior firm-level and descriptive studies.

References

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Sincerely,
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