RUNHONG MA

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EDUCATION

London School of Economics and Political Science, London UK 2019 -2025 expected
MRes/Ph.D. in Economics, Department of Economics
Supervisor: Prof. Silvana Tenreyro; Advisor: Prof. Keyu Jin and Prof. Wouter den Haan
Intercollegiate Study at UCL: Advanced Deep Learning and Reinforcement Learning

London School of Economics and Political Science, London UK 2018 - 2019
MSc in Econometrics and Mathematical Economics (EME), Department of Economics Distinction
Granted Distinction in all courses

Sun Yat-sen University, Guangzhou, China 2016 - 2018
Bachelor of Science (dual degree), major in Mathematics, School of Mathematics GPA: 4.00 /4.00

Sun Yat-sen University, Guangzhou, China 2013 - 2017
Bachelor of Economics, major in Economics, International School of Business GPA: 3.85/4.00

FIELDS OF SPECIALIZATION

Macroeconomics and Technology, Environmental Economics

WORKING PAPER

How Do Robot Subsidies Affect Aggregate Productivity and Firm Dispersion? Theory and Evidence from China
Job Market Paper

Abstract: This study examines the effects robot subsidies in China's manufacturing sector. Exploiting differences in the timing of the subsidy implementation across municipalities, I find that the introduction of a robot subsidy has heterogeneous impacts across firms of different scales. Although the subsidy results in a 13 percent increase in applications for robot patents, the facilitated access to robotics leads to a 14 percent reduction in new firms' entry in the manufacturing sector, along with a significantly larger increase in turnovers in bigger industrial enterprises. Using a stylised model, I show that the interaction between financial frictions and endogenous automation helps reconcile the empirical findings: ex-ante capital misallocation causes a uniform subsidy to disproportionately benefit firms with better access to capital. The distortion creates an efficiency trade-off: while a subsidy can enhance overall automation, it also exacerbates automation dispersion, which reduces efficiency. To quantify the net efficiency impact of these competing forces, we embed this mechanism into a dynamic heterogeneous firm model, calibrated to match key features of the Chinese industrial sector. The model indicates that a robot subsidy of 20 percent narrows the gap between mean and optimal automation levels by 22 percentage points, while raising automation dispersion by 49 percentage points. This leads to a 1.2 percent increase in aggregate output, along with a 2.4 percent decline in total factor productivity.

Presentations: LSE Macro Seminar, Tsinghua University China Financial Research Conference, Royal Economic Society (RES) PhD Conference

WORKING PROJECT

Industry Subsidy and the Emergence of Electrical Vehicle Industry in China (with Keyu Jin and Nan Li)

This paper analyzes the impact of various municipal-level electric vehicle (EV) subsidies in China on EV-related innovation and patent development, employing a Local Projection Difference-in-Differences (LP-DiD) approach and micro-level supply chain data to evaluate both local and global effects.

Trapped in Flood? Migration Decisions in Response to Floods (with Yuxiao Hu)

This paper investigates how flood risks affect migration patterns in China, using satellite data and a spatial general equilibrium model to assess the impact of the Hukou system on relocation decisions, particularly in Flood Detention Basin counties.

Natural Disasters and Spatial Patterns of Innovation (with Haoyu Gao, Yuxiao Hu, and Peixuan Zhao)

This study examines how natural disasters reshape the geographic distribution of innovation in China, revealing that while individual innovation declines in disaster-hit areas, cross-county collaborative innovation increases, a pattern explained by firms' risk-sharing incentives within a spatial general equilibrium framework.

Credit Reallocation and Skill-Biased Technology Adoption in Recessions

This paper examines the impact of the Great Recession on UK NUTS2 regions, revealing that regions most affected see accelerated skill-biased technological changes (SBTC). An illustrative general equilibrium framework shows the change is driven by interaction of endogenous SBTC adoption and counter-cyclical credit screening, which reallocates financial resources toward high-tech firms.

Automation, Financial Frictions and the Business Cycle

This study investigates the U-shaped relationship between unemployment rate fluctuations and automation exposure across U.S. commuting zones, using industry mix routine shares from 1950 and 1970 as instrumental variables to establish causality, and develops a general equilibrium model to explain how endogenous automation adoption and financial frictions drive this pattern.

PUBLICATION

How Housing Price Affects Labor Migration? (with Li Zhang and Jing He)
Published at Economic Research Journal (Top 1 Chinese Journal In Economics)
Abstract: The continuous growth of housing prices in China has significantly outpaced wage increases. Does this trend suppress the influx of migrant labor? We analyze this question in this study. Theoretically, it argues the dual effects of housing prices: the pulling effect and the resistance effect. On one hand, housing prices signal the characteristics of alternative cities, reducing the uncertainty of expected future income and thus attracting labor. On the other hand, high housing costs compress disposable income, creating resistance. These two effects combine to form an inverted U-shaped impact on labor mobility. Empirically, this paper uses data from the 2012 and 2014 China Labor Dynamics Survey (CLDS) and matches it with housing price data from 250 prefecture-level cities between 2000 and 2012 to create a micro-database. The findings confirm that housing prices indeed have an inverted U-shaped effect on labor mobility. The results remain robust even after controlling for endogenous issues, measurement errors in housing prices, characteristics of the place of origin, and migration motivations. Additionally, this paper examines the heterogeneous impacts of various factors such as education level, skill level, family class, and household registration (hukou). It finds that high-skilled labor has a smaller inverted U-shaped inflection point and is more sensitive to housing prices due to their stronger demand for homeownership. The inverted U-shaped impact is mainly observed in large cities, with coastal cities having a larger inflection point. Currently, most cities, except for some first-tier cities, exhibit a pulling effect on labor due to housing prices.

FELLOWSHIPS AND AWARDS

Silver Medal (top 1%), Kaggle Data Science Competition, 2024

Travel Fund, University of Chicago, 2022

Price Theory Summer Camp, University of Chicago, 2022

Class Teacher Bonus Award, LSE, 2020-2024

RESEARCH ASSISTANCE

China International Capital Corporation — Jun 2023 - Aug 2023
Research Assistant (Macroeconomics)

Department of Sociology, LSE — Aug 2021 - Mar 2022
Research Assistant for Prof. Kristin Surak

TEACHING ASSISTANCE

EC100 Economics (EC1A5 Microeconomics and EC1B5 Macroeconomics I), 2020/09 - 2022/06

EC2A3 Microeconomics II, 2022/09 - 2024.06

EC2B3 Macroeconomics II, 2024/01 - 2024/06

LANGUAGE

Mandarin(Native), Cantonese (Native), English (Proficient)

SKILLS

Proficient in MATLAB, Stata, Python and R