

Haoran Sun

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Research Profile

My research combines economic theory and applied microeconometrics to understand how government intervention shapes competition, innovation, and productivity. On the theoretical side, I develop game-theoretic models of government intervention, including subsidies and taxation, in markets characterised by strategic competition and network externalities that make demand self-reinforcing. On the empirical side, I conduct causal analysis of the firm-level effects of innovation support, external advice, and AI adoption on productivity using ONS microdata, alongside regional analysis of investment patterns and high-growth business dynamics using firm-level data. My forward research programme examines whether the productivity gains from AI adoption and public procurement are systematically larger in self-reinforcing markets, linking my theoretical work on network externalities to empirical evidence for better-targeted UK industrial policy.

Job Market Paper

Strategic Autonomy vs. Race to the Bottom: Self-Defeating Industrial Policy in the Presence of Network Externalities

Nigar Hashimzade and Haoran Sun*

*Corresponding author

This paper develops a two-country model to examine the strategic trade-off between R&D subsidies and foreign-firm taxation in sectors where network externalities make market dominance self-reinforcing. In the race for strategic autonomy, we show that non-cooperative industrial strategies can become self-defeating: when domestic and foreign products are close substitutes, aggressive subsidies intensify rent-dissipating competition rather than capturing market share. The resulting subsidisation race reduces aggregate welfare, suggesting that effective industrial policy must be carefully calibrated to the degree of product differentiation.

Employment

2025–
Researcher (PDRA), Durham University Business School
Smart & Scale Up project with an external industry partner

Analysing regional scaleup dynamics and their economic impact in North East England using firm-level microdata (Business Structure Database, Longitudinal Small Business Survey) and econometric methods including decomposition analysis and treatment effect estimation. Produced research report for a business support provider in the North East of England that directly informed their advisory service targeting and programme design. Contributing to targeted publications in ABS 3/4 journals.

2023–2025
Research Fellow, University of St Andrews

ESRC Funded (Award ES/W010259/1) – Understanding how constraints on access to finance and under-investment impact on productivity growth in smaller firms

Contributed to data management, econometric analysis, and co-authorship across work packages examining SME finance, investment, and productivity using firm-level microdata.

Education

- 2017–2023 PHD in Economics, Durham University
ESRC Funded – Tax Incentives for Innovation
Thesis: The Economics of Innovation, Investment, and Taxation
- 2018 Visiting PHD in Economics, University of Exeter
- 2015–2017 MSc in Economics (Distinction), Durham University
- 2012–2015 BA in Economics (2:1 Honours), Durham University

Publications

Spatial Myopia, Financial Hubs and the “Golden Triangle”: Tracing the Uneven Landscape of Exogenous Equity Investments in the UK

Ross Brown, Haoran Sun, Augusto Rocha, Marc Cowling
British Journal of Management (ABS 4)

Unpacking the Money-Distance Nexus: Mapping the Spatial Configuration of Exogenous Entrepreneurial Finance across UK Entrepreneurial Ecosystems

Ross Brown, Augusto Rocha, Haoran Sun, Marc Cowling
Small Business Economics (ABS 3)

Why do Owls Fly While Ostriches Flounder? SME Advice, Impacts and Entrepreneurial Outcomes

Ross Brown, Marc Cowling, Weixi Liu, Sabrina Song, Haoran Sun
Journal of Small Business Management (ABS 3)

Papers Under Review

Can We See it in the Numbers Yet? Artificial Intelligence, Firm-Level Productivity and SMEs

Ross Brown, Haoran Sun, Marc Cowling, David Dowell
Journal of Technology Transfer (ABS 3), under review

Does “Slow” Thinking “Speed Up” Performance? The Impact of “Guided Preparation” on Innovation and Productivity in UK SMEs

Ross Brown, Haoran Sun, Weixi Liu, Marc Cowling, Sabrina Song
Journal of Technology Transfer (ABS 3), under review

Working Papers

The Effect of Direct and Indirect Support for Innovation on Productivity: Evidence from Young UK Businesses

John Moffat, Haoran Sun*
Main analysis complete; further empirical work in progress

Taxing the Clouds: An Economic Analysis

Nigar Hashimzade, Haoran Sun*
Manuscript being prepared for submission

Work in Progress

Finance, Growth and Productivity in Family-Owned SMEs

Ross Brown, Marc Cowling, Haoran Sun
ERC–DBT grant awarded (2026); analysis of LSBS data in progress

Do Science Parks Act as a Magnet for Investment? The Role of University Proximity

Ross Brown, Marc Cowling, Haoran Sun
Dataset constructed; empirical analysis forthcoming

Grants

- 2026 ERC–DBT Small Grant Funding: A Study of Finance, Growth and Productivity in Family-Owned SMEs, £5,000
Ross Brown, Marc Cowling, Haoran Sun (Co-Investigator)
- 2024 ERC–DBT Small Grant Funding: The Impact of “Guided Preparation” on Innovation and Productivity in UK SMEs, £5,000
Ross Brown, Marc Cowling, Haoran Sun (Co-Investigator)

Policy & Stakeholder Engagement

- 2025 Presentation of North East High Growth Business report to RTC North
Findings directly informed RTC North’s advisory targeting and programme design Durham
- 2025 Smart & Scale Up project kickoff meeting with RTC North
Industry partnership briefing Durham University Business School
- 2025 ERC–DBT Longitudinal Small Business Survey Dissemination Event
Policy dissemination to government and industry audience London

Academic Presentations

- 2024 ZEW: Competition and Innovation Workshop
Academic workshop Montenegro
- 2024 Research Review, ESRC Team Project Meeting (Award ES/W010259/1)
Funder review Oxford Brookes University
- 2024 “Unpacking the Money-Distance Nexus,” Internal Research Seminar
Research seminar University of St Andrews

Teaching

- 2026 Guest Lecturer – *What Shaped This Data? Platform Economics and the Limits of Analytics*
MSc Digital Marketing and MSc Digital Marketing Strategy Newcastle University
- 2020 Teaching Assistant – Macroeconomics (UG) Durham University
Led seminar groups of up to 20 students covering economic growth, inequality, microfoundations, and intergenerational macroeconomics; facilitated presentations, debates, and problem sets; marked coursework and provided individual feedback
- 2019 Teaching Assistant – Corporate Finance (UG) Durham University
Marked coursework and provided individual feedback
Teaching competencies: Microeconomics, Macroeconomics, Econometrics, Microeconometrics, Public Economics (UG and PG).

Honours & Professional Activities

- 2017–2022 NINE Doctoral Training Partnership Studentship, ESRC
2017–2021 Research Training Support Grant, ESRC

Technical Skills & Languages

Software: Stata, Python, \LaTeX , Maple, Matlab, EViews, SPSS, NVivo

English: Professional proficiency

Mandarin: Native proficiency

References

References available on request.