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Dear committee,

I am writing to express my strong interest in participating in the NBER Innovation Boot Camp. As a highly motivated individual with a passion for innovation and growth, I am eager to learn and contribute to the vibrant community at the boot camp.

I am a third-year PhD student at the University of Warwick. My past research in trade and growth has given me the foundation to understand the importance of innovation in shaping the global economy.

The NBER Innovation Bootcamp provides a unique opportunity to collaborate with and learn from some of the world's leading researchers and entrepreneurs, and I am eager to be a part of it. My colleague who participated last year highly recommended it and I am confident that I have the skills, drive and passion to learn from and make a meaningful contribution to the boot camp.

Thank you for considering my application. I look forward to the opportunity to participate in the Boot Camp and gain valuable insights, knowledge, and experiences.

Sincerely,
Zoe Zhang

Letter writer:
Roger Farmer,
Professor of Economics,
Department of Economics,
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Qianxue (Zoe) Zhang

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Education

Ph.D. in Economics, University of Warwick, UK — 2024 (*expected*)
M.Res. in Economics, University of Warwick, UK (*distinction*) — 2020
MSc. in Economics, University of Cologne, Germany (*top 5%*) — 2018
BSc in International Economy and Trade, Beijing Institute of Technology, China (ranked 1/33) — 2016
Exchange student, University of Regensburg, Germany — Sep. 2014 - Feb. 2015

Additional Training
EABCN Training School on "The Macroeconomics of Climate Change" — 2022
The 32nd Jerusalem Advanced School in Economic Theory on International Economics — 2022

Research Interests

Main: International Trade, Economic Growth and Structural Transformation
Secondary: Environmental Economics

Working papers

"Trade, diffusion and specialisation"

"Estimating nonbalanced growth path: three-factor model and structural change"

Work in Progress

"Long-run effects of trade wars under global imbalances" (with Diego Calderon).

"Structural Transformation and women empowerment in Sub-Saharan Africa" (with Jiaqi Li).

"The influence of innovation on Small and Medium Enterprises marketing in developing countries" (with Bilawal Khan), **British Academy of Management 2022 conference proceedings**.

Publications Google Scholar

"The Hubei lockdown and its global impacts via supply chains", **Review of International Economics**, 2022, 30(4): 1087– 1109.

"Does one path fit all? An Empirical Study on the Relationship between Energy Consumption and Economic Development for Individual Chinese Provinces", **Energy**, 2018, 150: 527-543 (with Yu Hao, Hua Liao)

"Does government expenditure affect environmental quality? Empirical evidence using Chinese city-level data", **Journal of Cleaner Production**, 2017, 161: 143-152. (with Shengling Zhang, Zhiyi Ding, Yu Hao.)

"A reexamination of the existence of environmental Kuznets curve for CO2 emissions: evidence from G20 countries", **Natural Hazards**, 2017, 85(2): 1023-1042. (with Guangyu Luo, Jia-His Weng, Yu Hao.)

"Will income inequality affect environmental quality? Analysis based on China's provincial panel data", **Ecological Indicators**, 2016, 67:533-542. (with Heyin Chen, Yu Hao.)

"Is there convergence in per capita SO2 emissions in China? An empirical study using city-level panel data", **Journal of Cleaner Production**, 2015, 108A: 944–954. (with Yu Hao, Ming Zhong, Baihe Li.)

Research Experience

Copyeditor for the Centre for Economic Policy Research (CEPR) Vox columns — 2022-2023
Research Assistant (World bank project) to Samantha Witte, University of Oxford — 2019-2020
Research Assistant to Prof.Yu Hao, Beijing Institute of Technology — 2013-2016

Teaching Experience

Senior Teaching Assistant, University of Warwick
Economics I 2020-2022
International Economics 2021-2022

Teaching Assistant, University of Warwick
Economics I 2019-2020

Supervision, University of Warwick
M.Sc. Thesis Helpdesk 2022

Honors, Awards and Grants

CEPR STEG PhD Research Grants, £14,640 (with Jiaqi Li) 2022-2023
Skeoch Scholarship, University of Warwick 2020-2024
Economics Departmental Scholarship, University of Warwick 2018-2020
China National Scholarship 2014
Outstanding Graduates of Beijing and the Beijing Institute of Technology 2016
First Prize Scholarship of Beijing Institute of Technology 2013,2014,2015,2016

Seminars and Conferences

Warwick Economics PhD forum, Warwick Economics Macro and International workshop, Newcastle Economics Research and Development Conference 2022, Xiangjiang River Forum in Economics, Finance and Management for Young Scholars 2022, Chinese Economic Association Annual Conference 2022 (Durham), WEAI International Conference (scheduled)

Refereeing and Discussant

Warwick Economics PhD Conference 2021, 2022, Xiangjiang River Forum 2022, Chinese Economic Association Annual Conference (Durham)

Service

Panel member, RES Medal for Services to the Economics Profession 2022-present
Mentor for the Economics Applicant Mentoring Programme 2022/2023
Co-organizer of the 10th Warwick Economics PhD conference, University of Warwick 2022
Conference Assistant of the Royal Economic Society Annual Conference 2019

Skills

Software: Matlab, R, STATA, HTML
Additional software training:
Masterclass Automated Web Data Collection, University of Warwick 2022
Python for Web Development: Code First Girls, University of Warwick 2019
Language: Chinese (native), English (fluent), German (Advanced, B2 level)

References

Prof. Roger Farmer
University of Warwick
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Prof. Dennis Novy
University of Warwick
Department of Economics
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Department of Economics

31st January 2023

Name:	Zoe Zhang
ID Number:	1864205
Course:	L1P2 - Economics (Research)
Year:	3

Postgraduate Research Module Results

2018 - 2019

EC9A1-35 Advanced Microeconomic Theory	80
EC9A2-35 Advanced Macroeconomic Analysis	68
EC9A3-35 Advanced Econometric Theory	74
EC9AA-15 The Practice of Economics Research	75

2019 - 2020

Academic Year In Progress

EC9B4-60 MRes Dissertation	75
EC9B9-12 Topics in Advanced Economic Theory II	70
EC9C3-12 Topics in Industrial Organisation and Data Science	74
EC9C4-12 Topics in International Economics	70
EC9C6-12 Topics in Macroeconomics	80*
EC9C8-12 Topics in Advanced Econometrics	84

* This mark should be used as a guide as some assessed components have not yet been completed

Please note:



Ben Lockwood
The University of Warwick
Professor of Economics and Head of Department
Department of Economics

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Dear committee,

As a researcher in the field of innovation and trade, I am thrilled to apply for the NBER Innovation Research Boot Camp. My research examines the relationship between trade, innovation and economic growth, with a particular focus on developing countries. I am interested in understanding how trade liberalization, increased international competition, and globalization can stimulate innovation and drive economic growth in these countries.

Current research: In my most recent work, I studied the impact of knowledge diffusion through trade on growth and sectoral composition in 22 economies during the decade of China's accession to the WTO. I documented a significant correlation between imports and knowledge accumulation worldwide using patent data. Following this discovery, I specified a knowledge diffusion function in which an importing region can learn foreign technology at a rate dependent on expenditure in the foreign region. This mechanism not only narrows technology gaps across all regions but also affects the sectoral composition of production.

To understand the general equilibrium effect, I set up a multi-region, multi-sector dynamic Ricardian model with diffusion. Interestingly, the catch-up effect from knowledge diffusion through trade may hamper specialisation in the more advantaged country. The higher the initial absolute advantage of one region over another, the bigger the reduction in the specialisation. I also found international trade is less beneficial to the more advanced economy than it otherwise would be when this technology diffusion mechanism is operative.

Future research: In the future, I plan to investigate the role of innovation policies in promoting trade and economic growth. I believe that well-designed innovation policies can support the development of technology-intensive industries and facilitate the adoption of new technologies by firms. This, in turn, can improve the competitiveness of firms and boost exports, which can drive economic growth and development. In parallel work, I used Chinese patent and trade data at the firm level to test if imports lead to more innovation. Using panel data from 2000 to 2007 and tariff changes as IV, I found trade leads to more growth and innovation in Chinese firms. I then built a novel dataset of technology transfer records in China and I hope to provide direct evidence of how foreign technology transfer leads to higher innovation activities in China.

Motivation for applying: This program provides a unique opportunity for me to deepen my understanding of innovation research and interact with leading experts in the field. I am honoured to have the chance to attend and I look forward to contributing to the boot camp's discussions and activities.

Regards, Zoe Zhang

THE UNIVERSITY OF
WARWICK

DEPARTMENT OF
ECONOMICS

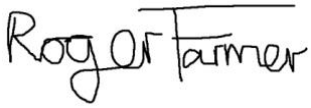
Wednesday, 25 January 2023

Zoe Zhang is a Ph.D. student at the University of Warwick. She has already written a tremendous first paper that deals with the interactions of sectoral development with international trade. In that paper she develops an innovative way of solving and estimating a model of sectoral imbalances over time that explains the decline of the agricultural sector, the growth of services and the hump-shaped pattern we see in manufacturing. Both the solution method and the estimation strategy that she employed are creative and distinct from much of the work on dynamic models that typically really on linearizing a model around a steady state.

Zoe is currently working on a model of learning by doing. Her hypothesis is that an industry in an underdeveloped country will reach the technological frontier faster, the more it relies on the importation of intermediate products from an advanced country. To estimate her model, she draws on Patent data from the U.S. and on trade data for a panel of 22 countries over a ten-year period beginning in 2000, when China entered the World Trade Organization.

Zoe is smart and creative and, given the nature of her current research, she is a perfect fit for the NBER innovation bootcamp

Yours sincerely



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