10.02.2026

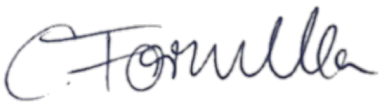
Dear Program Committee of the NBER Innovation Bootcamp,

I am a doctoral student at LMU Munich as well as at the Max-Planck-Institute for Innovation and Competition studying how geopolitics shapes science and technology. This research is motivated by the conviction that technological capabilities and innovation have become central instruments of geo-economic competition in the twenty-first century. One of my projects investigates the *chip war* between the United States and China, analyzing how export controls on advanced semiconductors affect China's progress in artificial intelligence. In my second project, I analyze how the U.S. migration ban, conceived as a political instrument, inadvertently affected knowledge flows and innovation in the U.S. Moreover, I conducted two randomized controlled trials in Nepal and Africa focused on Development Economics.

I build on a strong foundation in quantitative economics that enables me to study how a shifting world order affects innovation, technological progress and knowledge diffusion. Built through rigorous graduate training at LMU Munich and strengthened through my independent research, I apply this expertise to high-dimensional datasets such as bibliometric and LinkedIn data. I complement these approaches with experience in designing and implementing large-scale RCTs in the Global South.

Several aspects of the program are particularly appealing to me. I am especially interested in the comprehensive overview of Innovation Economics offered in the lectures, as well as the chance to learn which questions are currently engaging scholars at the research frontier. The opportunity to interact with NBER researchers and gain firsthand insights into cutting-edge topics would be the highlight of my PhD experience. Additionally, connecting with fellow junior scholars offers the chance to build lasting relationships and potential future collaborations. I would be delighted to attend the NBER Innovation Research Bootcamp and eager to actively contribute.

Sincerely,



Carolin Formella

Contact Details:

Carolin Formella

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Max-Planck-Institute for Innovation and Competition
Herzog-Max-Straße 4
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Recommendation Letter Writer:

Prof. Dr. Florian Englmaier
Chair of Organizational Economics
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Carolin Formella

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Research Fields

Innovation Economics, Science of Science, Development Economics

Education

Ludwig-Maximilians-University and Max-Planck-Institute for Innovation and Competition, Munich, Germany 2021 – *present*
Doctoral Researcher in Economics
Supervisors: Florian Englmaier; Dietmar Harhoff

Politecnico di Milano, Milan, Italy 2025
Research Stay
Invited by: Stefano Baruffaldi

Ludwig-Maximilians-University, Munich, Germany 2018 – 2021
M.Sc. in Economics

Université Paris 1 Panthéon-Sorbonne, Paris, France 2020
Semester Abroad

Ludwig-Maximilians-University, Munich, Germany 2014 – 2017
B.Sc. in Economics

Universidad Carlos III, Madrid, Spain 2016
Semester Abroad

Work in Progress

- Access to Technology and Innovation - Evidence from the Chip War
(single-authored) - *Data Collection Stage*
- Restricted Talent: How Migration Policies Shape Knowledge Flows in Science and Innovation
(with Stefano Baruffaldi and Michael Rose) - *Analysis Stage*
- Why Awareness needs Inclusion: Evidence from Menstrual Health Campaigns in Nepal
(with Silvia Castro, Kristina Czura and Dipisha Bhujel) - *Draft Available*
- Menstrual Technology Adoption in High Severity Settings
(with Silvia Castro, Kristina Czura and Schanzah Khalid) - *Draft Available*

Policy Reports

- *Klimawandel und Migration aus Entwicklungsländern*, with Yvonne Giesing.
ifo Schnelldienst, 2022, Vol. 75, No. 05, pp. 19–22

Awards, Grants and Fellowships

Next Geo Fellowship (Kiel Institute, Bocconi, Oxford)	2026
NWO (Dutch Research Council) Grant (€50,000) *(with Kristina Czura)*	2025
Adopting Innovations in High Severity Settings - Elrha (£150,000) *(with Oxfam)*	2025
Max Planck Institute Internal Research Grant (€7,500) (PI)	2024
Hans Riegel Foundation Connex Grant (€6,460) *(with Silvia Castro)*	2024

Service to the Profession

Co-organizer:

MaxSI Workshop (Joint workshop between MPI and CBS)	2024 – *present*
MPI: Science Communication Skills Workshop	2024 – *present*
RISE Workshop at MPI	2023 – 2024
Organizational Economics Retreat Riederau	2022
Organizational Economics Retreat Kloster Benediktbeuern	2021

Mentoring:

Lead and Coordination of RA Talent Pool	2021-2023

Professional Experience

Centre for European Policy Studies (CEPS), Brussels, Belgium Economic Research Intern, Innovation & Digital Economy Unit	04/2021 – 09/2021
Max-Planck-Institute for Innovation and Competition, Munich, Germany Research Assistant	12/2018 – 04/2021
Munich RE, Mexico City, Mexico Business Analytics Intern	02/2019 – 03/2019
Munich RE, Munich, Germany Economic Research Intern	10/2017 – 02/2018
BayernInvest, Munich, Germany Fundscontrolling Working Student	11/2015 – 06/2016

Teaching

Honors Program in Economics (B.Sc.)	WS 2025/26 – SS 2026
Honors Program in Economics (B.Sc.) *Grade: 1.28/5.00*	WS 2024/25 – SS 2025
Honors Program in Economics (B.Sc.) *Grade: 1.14/5.00*	WS 2023/24 – SS 2024
Topics in Migration Economics Seminar (M.Sc.)	SS 2023
Honors Program in Economics (B.Sc.) *Grade: 1.60/5.00*	WS 2022/23 – SS 2023
Diversity and Discrimination in Organizations Seminar (B.Sc.)	WS 2022/23
Honors Program in Economics (B.Sc.) *Grade: 1.33/5.00*	WS 2021/22 – SS 2022

I supervised numerous seminar and bachelor's theses.

References

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Prof. Dietmar Harhoff, Ph.D.
Max-Planck-Institute for Innovation and Competition
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LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

DEPARTMENT OF ECONOMICS
MUNICH GRADUATE SCHOOL OF ECONOMICS

MGSE

Please note that in Germany it is common practice to complete a two-years Master program that is credited as course work for the Ph.D. - this was also the case for me. The courses listed here are mostly additional "field topics" that we have to cover during the Ph.D.

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Frau
Carolin Formella
Zieblandstr. 6
80799 München

München, 15. Januar 2026

Transcript of Record

Carolin Formella has achieved the following results in courses in the doctoral program at the Munich Graduate School of Economics (MGSE). The program is entirely taught in English.

	Semester	Course Title	Course Type	Lecturer	Result
✓SK	WiSe 2021/22	MGSE Scientific Research Practice Workshop - Good Scientific Practice and Data Management (Oct 6th, 2021 and Dec 8th, 2021)	Soft Skill Course	J.Winter	Attended
1 CES	WiSe 2021/22	CES lecture online: New developments in econometric analysis - Prof. Kirill Borusyak (University College London)	CES Lecture	K.Borusyak	Attended
2 CES	WiSe 2021/22	CES lecture online: The Economics of Healthcare Supply - Prof. Joshua Gottlieb (University of Chicago)	CES Lecture	J.Gottlieb	Attended
3 CES	WiSe 2021/22	CES lecture online: Personnel Economics of the State - Prof. Guo Xu (University of California, Berkeley)	CES Lecture	G.Xu	Attended
4 CES	WiSe 2021/22	Topics in Gender Economics - CES lecture online: Prof. Audinga Baltrunaite (Bank of Italy)	CES Lecture	A.Baltrunaite	Attended
=10+1 CES	WiSe 2021/22	Firms in the Knowledge Economy	Field Course	A.Gumpert	Passed

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K... ...München

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✓MC	SuSe 2022	Macroeconomics - Business Cycles	Mandatory Course	G.Meyerheim	Passed
=9CES	WiSe 2021/22	Topics in Applied Econometrics	Optional Course	J.Winter	Attended
5 CES	SuSe 2022	CES lecture: Perceived Returns and Human Capital - Prof. Christopher Rauh (University of Cambridge)	CES Lecture	C.Rauh	Attended
=8CES	SuSe 2022	Paris School of Economics Migration Summer School (20.06.2022 - 24.06.2022)	Optional Course	et.al.	Attended
✓FC	SuSe 2022	MGSE Guest Course: Introduction to Machine Learning, Data Mining, and Big Data"	Field Course	D.Battiston	Passed
6CES	WiSe 2022/23	CES lecture: Expectations - Household Expectation Formation and Individual Behavior	CES Lecture	T.Kuchler	Attended
7 CES	SuSe 2023	CES Lecture: The Geography of Employment and the Environment	CES Lecture	M.Serafinelli	Attended
✓SL	WiSe 2024/25	Diversity and Gender Course	Soft Skill Course	S.Lerch	Attended

Complete.

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How Geopolitics Shapes Science and Technology*

* **Carolin Formella**

In recent years, governments have increasingly come to view research capacity and technological leadership as strategic assets central to national security and economic performance. This reorientation has translated into a range of policy measures that seek greater control over the production and diffusion of scientific knowledge. In my research, I explore how policy measures in the context of geopolitical competition shape science and technology.

There is intense competition in the field of Artificial Intelligence (AI) between the U.S. and China. To slow China's progress, the United States has imposed export controls on advanced chips critical for high-performance computing. To study the impact of these restrictions, I introduce a novel measure: tracking hardware acknowledgments in computer science papers to follow the spread of cutting-edge chips. I examine whether China-based scientists reported less use of frontier chips after the export bans and whether they increasingly referenced domestic hardware as substitutes. I also investigate whether researchers turned to greater collaboration with international colleagues who still have access to advanced chips.

Migration policies are one key instrument through which governments manage the circulation of knowledge. In one project, we study how such migration barriers affect knowledge flows to the *imposing* country. We exploit the so-called "Muslim Travel Ban"—which barred citizens of seven pre-dominantly Muslim countries, most notably Iran, from entering the U.S.—as an exogenous shock to the mobility of affected scientists. We construct a novel dataset by matching LinkedIn career histories to publication records and identify 38,582 scientists of Iranian origin. Compared to a matched control group, we find fewer moves to the U.S. and increased mobility to Canada and Europe. We document that U.S. scientists become less likely to cite pre-ban publications of Iranian scientists and are currently analyzing whether scientists in Canada and Europe have become more attentive to Iranian research.

Looking ahead, I am eager to pursue questions at the intersection of geopolitics and science. I am fascinated by China's rise as a science and education hub, especially for developing countries. While it is well established that scientific mobility shapes research and knowledge production, its broader, non-scientific effects remain understudied. For example, can scientific exchanges influence scholars' perspectives or align them more closely with their host countries' values upon returning home? The U.S. Fulbright Program, for instance, has long been seen as a way to "export" American values and promote a distinctive approach to science. I am curious about whether such exchange programs can be used strategically as tools of soft power—for example by China as it strengthens its position as a key center for scientific exchange.

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SEMINAR FÜR ORGANISATIONSÖKONOMIK
VOLKSWIRTSCHAFTLICHE FAKULTÄT
PROF. DR. FLORIAN ENGLMAIER

Letter of Recommendation for Ms. Carolin Formella

I have known Carolin Formella since 2021, when she joined our PhD program at the Munich Graduate School of Economics (MGSE). I currently serve as her primary doctoral supervisor, alongside Dietmar Harhoff. Carolin is an exceptionally motivated and skilled researcher who works at the intersection of Innovation Economics, the Science of Science, and Development Economics. She possesses a remarkable breadth of knowledge and a keen sense for addressing first-order economic topics with rigorous methodology.

Carolin's academic background is excellent, having completed both her Bachelor's and Master's degrees in Economics at LMU Munich with high marks. Her training is characterized by a strong international orientation, including study stays at Université Paris 1 Panthéon-Sorbonne and Universidad Carlos III in Madrid. This global perspective is further reflected in her professional experience, which includes internships at the Centre for European Policy Studies in Brussels and Munich RE in Mexico City. Most recently, she completed a research stay at Politecnico di Milano, where she collaborated with Stefano Baruffaldi.

In her research, Carolin tackles highly relevant and timely questions. Her single-authored work examines the impact of the "Chip War" on technology access and innovation, while her collaborative projects investigate how migration policies shape global knowledge flows. Beyond innovation, she has shown great versatility by leading field-based research on menstrual health and technology adoption in high-severity settings like Nepal. Her ability to drive such ambitious projects is evidenced by her success in securing significant external funding, including a £150,000 grant from Elrha via Oxfam and a €50,000 grant from the Dutch Research Council.

Beyond her research, Carolin is a great provider of public goods and an asset to the department. She has been instrumental in organizing several academic retreats and workshops, such as the RISE Workshop and the Organizational Economics Retreat. Furthermore, she demonstrates strong leadership and mentoring skills through her coordination of the Research Assistant Talent Pool and her teaching in our B.Sc. Honors Program. In summary, Carolin has all the necessary qualifications and the personality to succeed at the highest level and make the most of a research visit at a top institution. She is technically skilled, innovative, and a highly reliable colleague

Please do not hesitate to get in touch if you require further information.

Sincerely,



Prof. Dr. Florian Englmaier
Professor for Organizational Economics
Department of Economics, LMU Munich, Kaulbachstraße 45, D-80539 Munich, +49 89 2180 5642, florian.englmaier@econ.lmu.de

Munich, Febrary 12, 2026