Cover Letter

Gaia Dossi (g.g.dossi@lse.ac.uk)

January 16, 2022

To Whom it may concern

I am a 4th year PhD candidate in Economics at the London School of Economics and Political Science in London, UK. I am writing to submit my application to the Innovation Research Boot Camp which will be held in Cambridge, MA in July 2022.

My contact details are:

Gaia Dossi
32 Lincoln's Inn Fields
WC2A 3PH London (UK)
Email: g.g.dossi@lse.ac.uk
Phone: +44 (0)7508 937961

Professor John Van Reenen will submit a reference letter to the address provided (maranjian@nber.org).

Your sincerely,
Gaia Dossi

List of Courses

1st year of PhD

- Microeconomics
- Macroeconomics
- Econometrics

2nd year of PhD

- Labor Economics
- Public Economics

3rd year of PhD

- Programming with Python
- Text Analysis

GAIA GRETA DOSSI

+44 (0)7508 937961 ◇ Website ◇ g.g.dossi@lse.ac.uk

EDUCATION

London School of Economics and Political Science September 2020 - Present
PhD in Economics *London, UK*
Supervisors: John Van Reenen (main), Oriana Bandiera, Xavier Jaravel

London School of Economics and Political Science September 2018 - August 2020
MRes in Economics *London, UK*

Università Bocconi September 2012 - April 2015
MSc in Economic and Social Sciences, Summa cum laude *Milan, Italy*

Università Bocconi September 2009 - September 2012
BSc in International Economics, Management and Finance, Summa cum laude *Milan, Italy*

RESEARCH FIELDS

Labor Economics, Innovation, Public Economics

PUBLISHED PAPERS

The Family Origin of the Math Gender Gap is a White Affluent Phenomenon
joint with David Figlio, Paola Giuliano, and Paola Sapienza. American Economic Association Papers & Proceedings 111 (2021): 179-183.

Born in the Family: Preferences for Boys and the Gender Gap in Math
joint with David Figlio, Paola Giuliano, and Paola Sapienza. Journal of Economic Behavior & Organization 183 (2021): 175-188.

RESEARCH IN PROGRESS

Innovation Remittances: Evidence from the English Migration to the United States, 1850-1930
joint with Davide M. Coluccia

Religiosity and Science: an Oxymoron? Evidence from the Great Influenza Pandemic
joint with Enrico Berkes, Davide M. Coluccia, and Mara Squicciarini

Indirect Experience
joint with Livia Alfonsi

TEACHING

London School of Economics and Political Science October 2021 - Present
Teaching Assistant *London, UK*

Introduction to Econometrics (EC220). Student evaluations: 4.7/5 (Michaelmas)

London School of Economics and Political Science October 2019 - June 2020
Teaching Assistant *London, UK*

Introduction to Econometrics (EC220). Student evaluations: 4.8/5 (Lent); 4.5/5 (Michaelmas)

SCHOLARSHIPS AND AWARDS

PhD Fellowship September 2018
Awarded by LSE Department of Economics *London, UK*

"Marco Fanno" Scholarship September 2016
Awarded by the UniCredit and Universities Foundation *Milan, Italy*

Merit Award Scholarship September 2012
Awarded by Università Bocconi *Milan, Italy*

RESEARCH EXPERIENCE

Center for Economic Performance, LSE October 2020 - Present
Research Assistant *London, UK*

Professor John Van Reenen

Center for Economic Performance, LSE June 2019 - August 2019
Research Assistant *London, UK*

Professor Alan Manning

Anderson School of Management, UCLA January 2018 - August 2018
Research Assistant *Los Angeles, CA, USA (remotely)*

Professor Paola Giuliano

IGIER, Università Bocconi January 2018 - August 2018
Research Assistant *Milan, Italy*

Professors Reka Juhasz, Mara Squicciarini, Nico Voigtlaender

Kellogg School Management, Northwestern University August 2015 - July 2016
Pre-Doctoral Fellow *Evanston, IL, USA*

Professor Paola Sapienza

IGIER, Università Bocconi September 2014 - July 2015
Research Assistant *Milan, Italy*

Professors Nicola Gennaioli, Laura Bottazzi, Annamaria Lusardi

European Central Bank, DG Research July 2013 - October 2013
Research Assistant *Frankfurt am Main, Germany*

Competitive Research Network (CompNet)

OTHER WORK EXPERIENCE

Frontier Economics Ltd June 2014 - August 2014
Summer Intern Economist *London, UK*

Competition and Markets Authority July 2012 - August 2012
Summer Intern Economist *London, UK*

CONFERENCE PRESENTATIONS

2021: ASSA Meetings (Virtual)
2018: Warwick Summer School (University of Warwick, UK); 3^{rd} Marco Fanno Alumni Workshop (Trento, Italy)

OTHER PRESENTATIONS

2020: LSE SU Equality in Education Society (London, UK)
2019: LSE SU Economics Society (London, UK)

PROFESSIONAL SERVICE

Applicant Mentoring Program (AMP) January 2021 - Present
Member of the organizing committee *London, UK*

London School of Economics, Department of Economics January 2021 - Present
Founder and co-organizer of the Labour student-run seminar *London, UK*

London School of Economics, Department of Economics October 2019 - September 2021
PhD students representative *London, UK*

London School of Economics, Department of Economics October 2019 - September 2020
Founder and co-organizer of the Cohort Work In Progress seminar *London, UK*

SOFTWARE

Stata, R, MS Office, Latex: proficient. Python, Matlab: working knowledge.

LANGUAGES

English, French: fluent. German: elementary. Italian: native.

Statement of Current and Future Research

Gaia Dossi (g.g.dossi@lse.ac.uk)

My research interests are at the intersection between Innovation and Labor Economics. The two main questions I aim to explore are: i) What determines the direction of innovation and scientific production? and ii) Why are there minority gaps in innovation and STEM occupations? To answer these questions, I use a combination of administrative data, secondary and newly-collected survey data, as well as historical census data and patent records from historical and current sources. I rely on historical data primarily to research topics which are relevant today, but would be difficult to study with modern data.

My first strand of research focuses on understanding what shapes the direction of innovation and scientific production. In the paper *"Innovation Remittances: Evidence from the English Migration to the US, 1850-1930"* (joint with Davide Coluccia), we study how human mobility may influence long-run innovation dynamics. Using full count census data from the UK and the US and newly digitized English patent data we document a strong positive association between the field of innovation in US counties where English migrants settle, and that in their districts of origin. In ongoing work, we find that this correlation originates from migrants facilitating knowledge outflows between receiving and sending countries. In research projects joint with Enrico Berkes, Davide Coluccia, and Mara Squicciarini we study how a pandemic (the Spanish Influenza of 1918), and one century of natural disasters have shaped the direction of innovation. In the paper "*Religiosity and Science: an Oxymoron? Evidence from the Great Influenza Pandemic*", we find that US counties more hit by the Influenza shock tend to shift the direction of innovation towards pharmaceutical-related fields. In a separate research project, we plan to investigate how natural disasters occurred in the US since 1920 have influenced the direction of innovation. Using the universe of historical US patents linked to full count census data, we plan to disentangle contemporaneous effects from inventor exposure to a disaster early on in life. In future research, I plan to investigate more how human mobility, experience, institutional change, financial incentives, and the source of funding shape the production of innovation and scientific research. Understanding what drives the direction, as well as the volume, of knowledge production is especially important to understand not only why science and innovation are underprovided, but also why they may be relatively more underprovided in some sectors with respect to others.[1]

[1]For example, in the medical field some research and innovation topics which are be relatively understudied are female health, antibiotic resistance, and sickle cell anemia.

My second strand of research aims to explore the drivers of minority gaps in innovation and STEM occupations, their implications, and policies to help bridge these gaps. Minority gaps start arising early on in life: in research joint with David Figlio, Paola Giuliano, and Paola Sapienza we investigate the family transmission of values as a driver of the gender gap in Mathematics. In the paper *"Born in the Family: Preferences for Boys and the Gender Gap in Math"* published in the Journal of Economic Behavior and Organization and in the short paper "*The Family Origin of the Math Gender Gap is a White and Affluent Phenomenon*" published in the AEA Papers and Proceedings, we find that girls from gender biased families perform worse in mathematics compared to other girls, while boys are unaffected, and that this effect is concentrated in affluent and white families. In another project, I study the racial gap in patenting in the US at a different point of the lifecyle, namely at the stage of submitting a patent application to the USPTO. To obviate to the lack of data about inventors' race, I assign a racial probability based on the first and last name of each inventor filing a patent since 2001, and I document that inventors with Black-sounding names are less likely to convert their application into a patent compared to White-sounding inventors. In ongoing research, I investigate the mechanisms behind this result. In future research, I plan to investigate more how institutional factors, cultural factors, and exposure generate minority gaps at different stages of the lifecycle. I also plan to study which policies can be effective to start closing these gaps, and how "missing" inventors and scientists affect the volume, and bias the direction, of innovation and knowledge production.

My third strand of research (partly overlapping with the ones described above) focuses on the importance of experience in shaping preferences, beliefs, and behavior. In the paper *"Indirect Experience"*, joint with Livia Alfonsi, we document the importance of indirect experience (i.e. experience of someone in the individual's network, rather than of the individual themselves) in determining individual behavior after the Covid-19 shock. To study this question, in spring 2020 we designed a survey and administered it to international students in the US. By exploiting the staggered arrival of the Covid-19 pandemic in their countries of origin, we find that students modify their behavior in response to a shock in the home country, even if they are all located in the US. In ongoing work, we rationalize our findings though the lens of a model with experience-based learning. In the future, I plan to continue this line of research to better understand how experience may shape individual preferences and beliefs in relation to the choice to pursue a career in science or innovation, and the selection into research and innovation fields.

Attending the Innovation Research Boot Camp would be a fantastic opportunity to gain more exposure to the recent evidence in innovation research, both empirical and theoretical, and I think it would be a unique opportunity to grow as a researcher. First, I would be really excited to learn about the recent advancements in the field, and new tools to conduct research at the frontier in Innovation. Second, I believe I could benefit enormously from the interaction and exchange with leading innovation scholars, as well as with the other young scholars who will attend the conference.

THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

Department of Economics

Houghton Street
London WC2A 2AE
United Kingdom

From: John Van Reenen

January 13th 2022

Dear Colleague,

I am delighted to write a letter of recommendation for Gaia Dossi to participate in the 2022 NBER Innovation Boot Camp. **She would rank at the top of all students I know who are applying for the Boot Camp. Indeed, she is one of the best students I have supervised – a future Raffaella Sadun (tenured HBS). A real must-take!**

Gaia would benefit tremendously from the Boot Camp. I believe that I am in a good position to assess this as I am teaching on the Camp myself, and have taught multiple times on these in the past (on the NBER Entrepreneurship Boot Camp and Health Economics Boot Camp). Being based in Europe, she is outside the usual set of top US institutions, and would gain tremendously from exposure to the new group being formed around innovation.

Background

I have known Gaia since she began her PhD at LSE in 2018. She took my course on Labor Economics in 2019 and I was continuously impressed by her understanding and perceptive questions. Her research focuses on innovation and labor economics. Her second year paper was a terrific piece looking at racial bias in US patenting. She showed that applicants with black-sounding names are significantly less likely to be granted a patent than applicants with white sounding names. This is true even after controlling for detailed technology class and other ways of dealing with unobserved heterogeneity. Her ongoing work is trying to unravel exactly the cause of this striking fact and also how the applicant gap starts at an earlier stage.

Based on her quality, I recruited her as a Research Assistant for me starting in October 2020. She has put in superb work on a series of projects focusing on the costs of discrimination to innovation and entrepreneurship. One part of this project is joint work with Raj Chetty, Eric

Zwick and Owen Zidar examining entrepreneurship in the US. Gaia has been at the forefront of developing structural models to examine the impact of barriers to under-represented groups (URGs), particularly women, and matching these with moments from datasources including both administrative (e.g. the IRS data) and survey data (like the ACS/CPS). She has an unusual combination of skills, being both a highly talented and creative applied econometrician as well as someone who can handle complex economic models.

The second project she has led on with me is working with the Conrad Foundation who run an innovation competition for high school kids in the US and overseas. She has worked closely with the Foundation to use their administrative data on applicants, scores and success through multiple rounds of the competition (which they had not done before). Both the Foundation (whose leaders described her on a recent call as their "data queen") and I have been blown away by her ability to organize a very unruly dataset and analyze it over multiple years. The evidence is shedding light on economic models that include barriers faced by URGs in participating and succeeding in innovation. The lessons from this are being used to improve the competition and we are currently working with them on RCTs over this.

Research

Gaia has multiple ongoing projects and (unusually for someone at such an early stage of her career) she already has publications - in the *Journal of Economic Behavior and Organization* and *American Economic Review Papers & Proceedings*. This work shows that girls from gender biased families perform worse in mathematics compared to other girls, while boys are unaffected. Further, this effect is concentrated in affluent and white families.

Another part of her portfolio is looking at how early shocks affect the direction of innovation. In "Innovation Remittances: Evidence from the English Migration to the US, 1850-1930" she studies how human mobility influences long-run innovation dynamics. She documents a strong positive association between the field of innovation in US counties where English migrants settle, and that in their districts of origin. In ongoing work, she finds that this correlation originates from migrants facilitating knowledge outflows between receiving and sending countries.

In another fine piece ("Religiosity and Science" with Berkes, Coluccia and Squicciarini) she studies how the Spanish Influenza of 1918 have shaped the direction of innovation. The paper

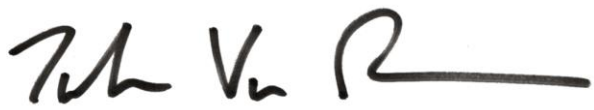
finds that US counties more hit by the Influenza shock tend to shift the direction of innovation towards pharmaceutical-related fields.

Finally, she has a project focusing on the importance of experience in shaping preferences, beliefs, and behavior. In the paper "Indirect Experience", joint with Livia Alfonsi, she documents the importance of indirect experience (i.e. experience of someone in the individual's network, rather than of the individual themselves) in determining individual behaviour after the Covid-19 shock. To study this question, she designed a survey and administered it to international students in the US. By exploiting the staggered arrival of the Covid-19 pandemic in their countries of origin, we find that students modify their behaviour in response to a shock in the home country, even if they are all located in the US. In ongoing work, she is trying to rationalize these findings though the lens of a model with experience-based learning. She wants to better understand how experience may shape individual preferences and beliefs in relation to the choice to pursue a career in science or innovation, and the selection into research and innovation fields.

Summary

All in all, this should give you a sense of how Gaia is a very creative, hard-working and talented young researcher who could become a future leader in the field. She has developed a coherent set of projects to look how the rate and direction of technical change are influenced by exposure to innovation at an earlier time, as well as institutions and preferences. She is at an ideal time in her development to participate in the Boot Camp and I can only reiterate my enthusiasm for her.

Yours Sincerely,



John Van Reenen, Ronald Coase School Professor, LSE and Digital Fellow, MIT Initiative for the Digital Economy https://www.johnvanreenen.com/