Cover Letter

Complete contact information:

Matteo Ruzzante

PhD Candidate in Economics

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Recommendation letter writer:

Christopher R. Udry

Robert E. and Emily King Professor of Economics

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CURRICULUM VITAE

Education

2021–	NORTHWESTERN UNIVERSITY **PhD Candidate in Economics**, 4th Year Fields of interest: Development Economics, Economic History
2020–2021	NORTHWESTERN UNIVERSITY **Master of Art in Economics**
2015–2017	NOVA SCHOOL OF BUSINESS AND ECONOMICS, UNIVERSIDADE NOVA DE LISBOA **Master of Science in Economics**
2012–2015	UNIVERSITÀ DEGLI STUDI DI PADOVA **Bachelor of Science in Economics and Management**
2014–2015	UNIVERSIDAD CARLOS III DE MADRID Exchange Program: *Erasmus+*

Research and Teaching Experience

2023–	**Teaching Assistant**, Nova School of Business and Economics • *Economic Development in Africa* (Winter 2024) • *Economics of State and Local Governments* (Fall 2023)
2022–2023	**Research Assistant** for Profs. Erika Deserranno (Kellogg School of Management) and Christopher Udry (Department of Economics), Northwestern University.
2018–2020	**Research Assistant**, World Bank, Development Research Group, Impact Evaluation Unit (DIME) – based in Washington, D.C., and Mozambique.
2016–2018	**Teaching Assistant**, Nova School of Business and Economics • *Intermediate Macroeconomics*, Undergraduate (Spring 2017 and Fall 2017) • *Development Economics*, Undergraduate (Fall 2016)
Oct–Dec 2017	**Short Term Consultant,** World Bank, Development Research Group, Finance and Private Sector Development – based in Lisbon.
Jul–Sep 2017	**Fund Internship Program**, International Monetary Fund – Statistics Department, Government Finance Division, Washington, D.C.
Summer 2016	**Field Research Intern**, NOVAFRICA, Cabo Delgado, Mozambique.
Spring 2015	**Intern**, Veneto Agricoltura (Regional Agency for Agriculture, Forestry and Agro-Food), Economy, Market and Competitiveness Department, Legnaro, Italy.

Awards and Grants

2023	*Susan Schmidt Bies Prize* for Doctoral Student Research on Economics and Public Policy, Northwestern University
2020–22	*Marco Fanno* Scholarship, UniCredit Foundation

2014–15 *Erasmus+* grant, European Commission

Publications

"Do Private Consultants Promote Savings and Investments in Rural Mozambique?" (2022), with Paul Christian, Steven Glover, Florence Kondylis, Valerie Mueller, and Astrid Zwager, *Agricultural Economics*, 53(1), 22-36 [doi:10.1111/agec.12672]. Replication package in GitHub: `moz-proirri-savings`.

Working Papers

"Teacher-Led Innovations to Improve Education Outcomes: Experimental Evidence from Brazil", with Caio Piza, Astrid Zwager, Rafael Dantas, and André Loureiro. World Bank Policy Research Working Paper No. 9371. Replication code in GitHub: `brazil-pip-education`. Featured in *Safe Schooling* and *Development Impact*. Revise and resumbit at *Journal of Public Economics*.

Work in Progress

Draft available upon request

"Price Regulation of Agricultural Technology", with Felipe Berrutti. Awarded the *Susan Schmidt Bies Prize* for best third-year PhD student research papers on topics relevant to analysis of economic policy.

"Brigandage and the Political Legacy of Monarchical Legitimacy in Southern Italy", with Cristoforo Pizzimenti.

Slides available upon request

"Local Industrial Production, Input Availability and Technology Adoption".

"Soil Heterogeneity and Agricultural Innovation: Evidence from Africa", with Christopher Sims.

Data collection completed, analysis stage

"Low Productivity Traps: Experimental Evidence from Agricultural Extension and Subsidies in Mozambique", with Paul Christian, Florence Kondylis, John Loeser, and Astrid Zwager.

"Maximum Wages and Organizational Performance: Evidence from the Liberian Public Sector", with Erika Deserranno, Jennifer Ljungqvist, Vincent Pons, and Dan Rogger.

Data digitization under way

"The Origins of the Nitrogen Revolution", with Christopher Sims.

"*Through the Mill:* Inherent Trade-offs of Taxation in Post-Unitary Italy".

Professional Activity

ORGANIZING: Development Economics Lunch, Northwestern University, 2022-2023; First Graduate Student Event, Global Poverty Research Lab, 2022

MENTORING: Economics PhD peer mentorship program (two editions), Northwestern University, 2022-; NOVAFRICA mentorship program (four editions), 2022-

REFEREEING: British Educational Research Journal, Economics of Education Review, Journal of African Economies

Northwestern University
633 Clark Street
Evanston, IL 60208
United States

Name: **Ruzzante,Matteo**
Student ID: **3264693**

Unofficial Transcript

Print Date: 2023-12-05

Degrees Awarded

Degree: Master of Arts
Confer Date: 09/03/2021
Plan: Economics Major

Beginning of The Graduate School Record

2020 Fall (09/16/2020- 12/12/2020)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	410-1	Microeconomics	1.000	1.000	B+	3.300
ECON	411-1	Macroeconomics	1.000	1.000	A	4.000
ECON	480-1	Econometrics	1.000	1.000	A	4.000

			Attempted	Earned	GPA Units	Points
Term GPA	3.767	Term Totals	3.000	3.000	3.000	11.300

2021 Winter (01/11/2021- 03/20/2021)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	410-2	Microeconomics	1.000	1.000	B	3.000
ECON	411-2	Macroeconomics	1.000	1.000	A-	3.700
ECON	480-2	Econometrics	1.000	1.000	B+	3.300

			Attempted	Earned	GPA Units	Points
Term GPA	3.333	Term Totals	3.000	3.000	3.000	10.000

2021 Spring (03/30/2021- 06/12/2021)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	410-3	Microeconomics	1.000	1.000	B+	3.300
ECON	411-3	Macroeconomics	1.000	1.000	B+	3.300
ECON	480-3	Econometrics	1.000	1.000	A-	3.700

			Attempted	Earned	GPA Units	Points
Term GPA	3.433	Term Totals	3.000	3.000	3.000	10.300

2021 Summer (06/21/2021- 08/28/2021)

Program: Economics: PhD
Plan: Economics Major

Program: Economics: MA
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
TGS	500-0	Advanced Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	0.000	0.000	0.000	0.000

2021 Fall (09/21/2021- 12/11/2021)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	425-1	Development Economics	1.000	1.000	A	4.000
ECON	450-1	Industrial Organization	1.000	1.000	A	4.000
ECON	481-1	Advanced Econometrics	1.000	1.000	A	4.000

			Attempted	Earned	GPA Units	Points
Term GPA	4.000	Term Totals	3.000	3.000	3.000	12.000

2022 Winter (01/03/2022- 03/19/2022)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	420-2	European Econ History	1.000	1.000	A	4.000
ECON	425-2	Development Economics	1.000	1.000	A	4.000
ECON	450-2	Industrial Organization	1.000	1.000	A	4.000

			Attempted	Earned	GPA Units	Points
Term GPA	4.000	Term Totals	3.000	3.000	3.000	12.000

2022 Spring (03/29/2022- 06/11/2022)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	425-3	Development Economics	1.000	1.000	A	4.000
ECON	481-3	Advanced Econometrics	1.000	1.000	A	4.000
MECS	540-4	Political Economy IV	1.000	1.000	A	4.000

			Attempted	Earned	GPA Units	Points
Term GPA	4.000	Term Totals	3.000	3.000	3.000	12.000

2022 Summer (06/21/2022- 08/28/2022)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
TGS	500-0	Advanced Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	0.000	0.000	0.000	0.000

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Student ID: **3264693**

Unofficial Transcript

2022 Fall (09/20/2022- 12/10/2022)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	501-0	Graduate Student Seminar	1.000	1.000	P	0.000
TGS	500-0	Funded Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	1.000	1.000	0.000	0.000

2023 Winter (01/03/2023- 03/18/2023)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
TGS	500-0	Funded Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	0.000	0.000	0.000	0.000

2023 Spring (03/28/2023- 06/10/2023)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
ECON	501-0	Graduate Student Seminar	1.000	1.000	P	0.000
TGS	500-0	Funded Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	1.000	1.000	0.000	0.000

2023 Summer (06/20/2023- 08/27/2023)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
TGS	500-0	Funded Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	0.000	0.000	0.000	0.000

2023 Fall (09/19/2023- 12/09/2023)

Program: Economics: PhD
Plan: Economics Major

Course		Description	Attempted	Earned	Grade	Points
TGS	500-0	Funded Doctoral Study	0.000	0.000		0.000

			Attempted	Earned	GPA Units	Points
Term GPA	0.000	Term Totals	0.000	0.000	0.000	0.000

The Graduate School Career Totals

Cum GPA	3.756	Cum Totals	20.000	20.000	18.000	67.600

Non-Course Milestones

Advisor
Program: Economics: MA
Milestone Title: Marciano Siniscalchi

Masters Committee Chair
Program: Economics: MA
Milestone Title: Marciano Siniscalchi, Joseph P. Ferrie

Masters Committee
Program: Economics: MA
Milestone Title: Joseph P. Ferrie, Marciano Siniscalchi

Masters Thesis/Project
Program: Economics: MA
Milestone Title: Thesis Project Not Required

PhD Candidacy
Program: Economics: PhD
Milestone Title: 6/14/2021

Prospectus Committee
Program: Economics: PhD
Milestone Title: Christopher R. Udry, Joel Mokyr, Jacopo Ponticelli

Prospectus Committee Chair
Program: Economics: PhD
Milestone Title: Christopher R. Udry, Joel Mokyr

Prospectus Advisor
Program: Economics: PhD
Milestone Title: Christopher R. Udry

End of Unofficial Transcript

RESEARCH STATEMENT

I am a 4th-year PhD Candidate in Economics working on the economics of agricultural innovation, development economics, and economic history. I am passionate about understanding the many factors shaping the economic incentives for technological diffusion and innovation. In my current work, I explore how government policies can support or distort the adoption of existing productive technologies, while directing the innovation process. In particular, I address this question in agricultural settings in developing countries and through the lens of historical episodes, some of which are detailed below. I am eager to attend the NBER Boot Camp to explore the latest advancements in innovation research. My current focus on agricultural technologies has prompted me to interact with topics surrounding the economics of innovation. Yet, I have only begun to explore this vast literature, and I would gain valuable insights from both the instructional days and the Summer Institute meeting.

In my first paper, joint with Felipe Berrutti (also a 4th-year PhD Candidate at Northwestern University), I attempt to quantify the welfare effects of price regulation of agricultural technologies in the Indian cotton seed market. Regulating the price of essential productive inputs can allow governments to ensure the affordability of productivity-enhancing technologies and boost their diffusion among low-income households. Yet, in contexts where pricing stands as the main device to recover R&D costs, it can deter private enterprises from investing in innovation and introducing superior technologies. This project studies the demand and supply-side consequences of price controls on genetically engineered (GE) cotton seeds in India. Leveraging the differential timing of this policy across states, we show that the government-mandated price reduction increased farmers' adoption of GE seeds and decreased the costs of cultivating cotton. The number of new hybrid varieties introduced by cotton seed firms fell abruptly in the aftermath of the policy, leading farmers to use older seeds. Using newly assembled data from experimental field trials across India, we show that: (i) cotton varieties lose 6% of their yield yearly; (ii) agronomic yields of new varieties worsen by 30% in price-controlled states. To quantify the overall welfare impact of the policy through both price responses and quality adjustments, we develop a structural model of demand and supply for seeds.

A second project in development economics studies the expansion of domestic production of chemical fertilizer in Nigeria. In the attempt to initiate a Green Revolution, national governments and aid donors have been focusing most of their efforts on boosting demand, heavily investing in agricultural extension service, free distribution of inputs, and subsidies. However, most of these programs are likely to fail in the short term, in contexts where input supply is absent or insufficient. Moreover, even in the presence of sufficient supply and access, inefficient distribution channels might make inputs de facto unavailable for end users. In this project, I investigate whether a nationwide industrial policy can support market development in a geographically segmented and concentrated value chain, such as the one of chemical fertilizer. Leveraging spatial variation in exposure to fertilizer plants' openings, I find preliminary evidence that the adoption of fertilizer and complementary agricultural inputs increased due to this supply-oriented policy. These effects are driven by improved proximity to available fertilizer products and lower retail prices. Follow-up work will focus on effects on farm productivity and the potential of domestic firms to better tailor product mix to match local demand.

In a third project in economic history, joint with Christopher Sims (another 4th-year PhD student at Northwestern), I study the introduction of guano fertilizer in industrializing Britain. Nitrogen inputs have been a key limiting factor to increasing crop yields across history; yet, the potential significance of nitrogen as soil nutrient only gained clear recognition among European scientists during the 19th century. A unique role in the history of agricultural intensification was to be played by *guano*, the accumulated and solidified excrement of birds, naturally rich in nitrogen and phosphorus. After its somehow fortuitous discovery off the coast of Peru, guano was imported at large scale by Western nations and rapidly ascended to become the world's foremost commercial fertilizer between 1840 and 1870. The aggressive extraction and trade of this material led to the swift depletion of its reserves, compelling agronomists and chemists to persist in the pursuit of alternative sources of nitrogen. In this project, currently in the data digitization phase, we are going to analyze the early diffusion of artificial fertilizer in Britain, its impact on agricultural production and other areas of the economy, as well as the subsequent quest for alternative technologies and innovation following its depletion.

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January 16, 2024

Dear Colleagues:

I am pleased to write in support of Matteo Ruzzante's application to the NBER Innovation Research Boot Camp. Matteo is a 4th year PhD student in development economics here. He (with his fellow PhD student Felipe Berrutti) has a very promising project on the development of new agricultural technologies. They focus on the interaction of price controls and the development and adoption of new seed varieties in India. New GMO varieties of Bt cotton have been extraordinarily successful in spreading through the country. Some states adopted a policy of price limits on the Bt seeds in 2006; the rest of India adopted those limits in 2015. The paper uses this variation over time and space to examine the demand for Bt cotton among farmers and, most importantly, the supply of effort to adapt the basic Bt genetic technology to local conditions. The reduced forms indicate that the price caps are highly effective in promoting demand for the seeds. Simultaneously, they inhibit firm investment in innovation in new varieties suitable for the states imposing price controls. Matteo has constructed a structural model of the demand for and supply of GM cotton seed to do counterfactual and welfare analysis that satisfies the IO people here. The project is extremely promising, and I think that it is very important that Matteo spend time with other scholars working in the economics of innovation before he finalizes this first paper, and as he plans further work in this area.

Matteo is a very strong student with a well-developed and exciting project on innovation, seed systems and agricultural productivity. I think that the bootcamp will have an important impact on his work. I hope that he can participate.

Sincerely,



Christopher Udry