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**DOCTORAL
STUDIES**

Massachusetts Institute of Technology (MIT)
PhD, Economics, Expected completion June 2022
DISSERTATION: “Essays in Automation, Innovation, and Growth”

DISSERTATION COMMITTEE AND REFERENCES

Professor Daron Acemoglu
MIT Department of Economics
77 Massachusetts Avenue, E52-446
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Professor Martin Beraja
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Professor John Van Reenen
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**PRIOR
EDUCATION**

Bocconi University
MSc in Economics and Social Sciences
110/110 cum laude

2015

Bocconi University
BSc in Economics and Social Sciences
110/110 cum laude

2013

CITIZENSHIP

Italian

GENDER

Male

LANGUAGES

English (fluent), Italian (native), French (fluent), Spanish (intermediate),
German (beginner), Bengali (beginner)

FIELDS	Primary Field: Macroeconomics Secondary Field: Labor Economics	
TEACHING EXPERIENCE	Labor Economics I (graduate, MIT course 14.661) Teaching Assistant to Professors Joshua Angrist, Heather Sarsons	2021
	Advanced Research and Communication (graduate, MIT Course 14.192) Teaching Assistant to Professors Esther Duflo, Stephen Morris	2021
	Advanced Research and Communication (graduate, MIT Course 14.192) Teaching Assistant to Professors Amy Finkelstein, Stephen Morris	2020
	Microeconomic Theory and Public Policy (undergraduate, MIT course 14.03) Teaching Assistant to Professors Tobias Salz (Fall) Nikhil Agarwal (Spring)	2019
	Microeconomic Theory and Public Policy (undergraduate, MIT course 14.03) Teaching Assistant to Professor Nikhil Agarwal	2018
	Principles of Macroeconomics (undergraduate, MIT course 14.02) Teaching Assistant to Professor Martin Beraja	2018
RELEVANT POSITIONS	Research Assistant to Professor Daron Acemoglu (MIT)	2020
	Research Assistant to Professor Alp Simsek (MIT)	2019, 20
	Research Assistant to Professor Martin Beraja (MIT)	2018
	Analyst, CEEMEA Economics Team, Global Investment Research Division at Goldman Sachs International, London	2016
	Research Assistant to Professors Chiara Fumagalli and Tommaso Monacelli (Bocconi University)	2015
	Visiting Student at Innocenzo Gasparini Institute for Economic Research (IGIER)	2013-15
FELLOWSHIPS AND AWARDS	Guido Cazzavillan PhD Fellowship, Full tuition and stipend fellowship (2016-2017)	
	Bocconi Graduate Merit Award. Full tuition scholarship, Bocconi University (2013-2015)	
PROFESSIONAL ACTIVITIES	<i>Referee:</i> Quarterly Journal of Economics, AER:Insights, Review of Economic Dynamics, International Journal of Manpower	

Conferences: IZA Workshop: Labor Market Institutions (Sep 2021), EEA-ESEM Virtual 2021 (Aug 2021), Robotics: Science and Systems 2021 (Jul 2021), MFM Summer Session for Young Scholars (2018), Yale Summer School in Behavioral Finance (2017)

PUBLICATIONS

“Automation and the Future of Work: Assessing the Role of Labor Flexibility” (with Michele Fornino), *Review of Economic Dynamics*, *Forthcoming*.

We study the economic incentives for automation when labor and machines are perfect substitutes. We show that labor is employed in production, even when it is a costlier input than robots, if: (i) firms face idiosyncratic risk, (ii) adjusting the stock of machines is costly, and (iii) workers can be hired and fired quickly enough. While labor survives, jobs become less stable, as workers are hired in short-lived bursts to cope with shocks. A calibration of our model to match US robot adoption data shows that lower robot prices produce negligible employment losses. By contrast, falling adjustment costs and rising robot productivity cause sizable disemployment effects. An extension of our model reveals that hiring and firing costs unambiguously depress long-run employment.

“Does the US Tax Code Favor Automation?” (with Daron Acemoglu and Pascual Restrepo), *Brookings Papers on Economic Activity*, *Spring 2020*.

We argue that the US tax system is biased against labor and in favor of capital and has become more so in recent years, promoting levels of automation beyond what is socially desirable. Moving from the US tax system in the 2010s to optimal taxation of capital and labor would raise employment by 4.02 percent and the labor share by 0.78 percentage point and restore the optimal level of automation. More modest reforms can increase employment by 1.14– 1.96, if coupled with an automation tax reducing the equilibrium level of automation. Indeed, marginal automated tasks bring about small productivity gains but reduce employment below its socially optimal level. We also show that reducing labor taxes or combining lower capital taxes with automation taxes can increase employment much more than the uniform reductions in capital taxes enacted between 2000 and 2018.

**RESEARCH
PAPERS****“Competing for Inventors: Market Concentration and the Misallocation of Innovative Talent” (Job Market Paper)**

Inventors are a scarce resource, whose skill sets can apply to R&D in disparate product markets. Motivated by this fact and by the fall in R&D productivity that characterized recent decades, I explore the impact of product market competition on the misallocation of inventors and growth. First, I delineate the boundaries of “knowledge markets”, employing USPTO patent data to group NAICS sectors that employ inventors with similar skills. Second, I analyze the relation between 4-digit NAICS sectors’ market concentration and the share of inventors employed in R&D projects relevant to these sectors. Four findings emerge from the analysis. First, the last thirty years saw a sizable increase in the concentration of inventors across NAICS sectors of application. Second, over the period 1997-2012, increases in sector-level concentration are positively correlated with the share of inventor markets captured by each sector. An IV analysis based on the increase in sector-specific regulations suggests a causal interpretation of this result. Third, higher shares of relevant inventors are positively correlated with rising concentration of inventors at the top of the innovating firms distribution, and negatively with forward citations. Fourth, concentrating sectors have seen a decrease in R&D productivity, as measured by growth in output per worker per inventor. A back-of-the-envelope computation suggest that the increased concentration of inventors in less competitive sectors can account for about 27% of the overall decrease in output per worker growth over the period 1997-2012 (a fall of 0.78% in absolute value). I interpret my findings through a Schumpeterian model of creative destruction, where incumbents can conduct defensive patenting. In the model, unbalanced increases in markups shift inventors towards less competitive sectors, and towards monopolistic firms carrying out R&D projects with the aim to erect barriers to entry. This shift reduces equilibrium inventors’ productivity and growth. I calibrate a two-sector version of this model to match moments of the inventor distribution and R&D spending in the US and study the optimal allocation of R&D subsidies for a planner wishing to maximize growth. I show that subsidies to entrants in highly concentrated sectors constitute the most effective policy, raising output by 0.5% in absolute value in the calibrated model (17% of the baseline in percentage terms).

“Employment Protection and the Direction of Technology Adoption”(with Martina Uccioli), *Submitted for Review*

We study the impact of employment protection legislation (EPL) on firms' innovation choices, through an event-study analysis of several labor market reforms occurring in Europe over 2000-2016. Data on firms' technology adoption from the Community Innovation Survey reveal that substantial drops in EPL for temporary workers prompt a reallocation of innovation efforts towards the introduction of new products, away from process innovation aimed at cutting labor costs. Among innovative firms, the share of product innovators increases by 15% of the pre-reform value (10pp in absolute terms), while the share of firms specializing in process innovation falls by 35% (also 10pp).