

AAKASH KALYANI

PhD Economics · Boston University ◇ aakashk@bu.edu

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EDUCATION

Boston University

2017-2023 (Expected)

PhD Candidate in Economics (6th year)

Fields: Macroeconomics, Finance, Labor Economics

Delhi School of Economics, University of Delhi

2013-2015

Masters in Economics

First Division

Netaji Subhas Institute of Technology, University of Delhi

2008-2012

Bachelor of Engineering in Electronics and Communication

First Division

WORKING PAPERS

The Creativity Decline: Evidence from US Patenting ([link](#))

2022

Job market paper

Diffusion of Disruptive Technologies ([link](#))

2021

with Nicholas Bloom, Tarek Hassan, Josh Lerner and Ahmed Tahoun

WORK IN PROGRESS

International migration and knowledge diffusion

Creative innovations: A case for diverse high skill hiring

Silicon Valley: A hub for creativity or learning?

FELLOWSHIPS

Henry S. Newman Graduate Student Fellowship

Sep. 2021 - May. 2022

Boston University

OTHER POSITIONS

Visiting Fellow

Aug. 2022-Current

Department of Economics, Harvard University

PRESENTATIONS

2022

- NBER Weekly Productivity Seminar; Technology & Policy Research Initiative (TPRI), Boston University; Society of Economic Dynamics (Madison, Wisconsin); Green Line Macro Meeting (*Boston University-Boston College Joint Conference*);

2021

- Economic Growth Conference (*NBER Summer Institute 2021*); Economic Fluctuations and Growth Conference (*NBER*); Changing Nature of Innovation - Macro Perspectives (*Centre for Technology, Innovation and Economic Research, India*); Economics Seminar (*Duke University*)

PRESENTATIONS

2020

- Bocconi Assembly for Innovation and Cooperation (*University of Bocconi, Italy*); Economics Seminar (*Yeshiva University*); Economics Seminar (*Nova School of Business and Economics, Portugal*)

TEACHING EXPERIENCE

Teaching Assistant for Introductory Statistics

Boston University

Aug. 2018 - Dec. 2018

Lecturer, Econometrics and Mathematical Economics

Indian School of Business and Finance

Jul. 2016 - Jul. 2017

WORK EXPERIENCE

Research Assistant to Tarek Hassan

Boston University

Jan. 2019 - May. 2021

Research Associate

Centre for Advanced Financial Research and Learning, Reserve Bank of India

Jul. 2015 - Jul. 2016

Analyst

The Smart Cube, Delhi, India

Jul. 2012 - July 2013

REFEREEING EXPERIENCE

Review of Economic Dynamics

TECHNICAL SKILLS

Python, Stata, MATLAB, R, Mathematica, LaTeX

REFERENCES

Tarek Alexander Hassan

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Nicholas Bloom

Stanford University

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Josh Lerner

Harvard Business School

Rock Center for Entrepreneur-
ship, Room 314, Boston, Mas-
sachusetts 02163 USA

josh@hbs.edu

CITIZENSHIP

F1, Indian Citizen

LANGUAGES

English, Hindi

The Creativity Decline: Evidence from US Patenting

Job Market Paper

Why are patents rising as US productivity growth is slowing down? I argue that this is explained by a declining share of creative patents, partly driven by changing composition of inventors towards less creative ones. To separate creative from derivative patents, I develop a text-based measure of patent creativity: the share of new technical two-word combinations in a patent. I show that, even though patent creativity captures creativity of innovations unconditional on ex-post information, it is predictive of ex-post influence on follow-on innovations. To posit that the decline in creativity is particularly relevant for productivity growth, I show that only creative and not derivative patents are associated with improvements in firm level productivity and stock market valuations. Using this measure, I document that creativity is not evenly dispersed within and across inventors. Younger inventors, women, and other minorities file more creative patents. To show that the composition of inventors matters for productivity growth, I build an endogenous growth model with endogenous creation and adoption. Falling population growth in the model explains 42% of the decline in creativity, 32% of the slowdown in productivity growth, and 15% of the increase in innovations. Increasing inclusion of women and minorities into patenting has increased creativity but not nearly enough to compensate for the fall. I also make a case for government research subsidies to boost creativity and growth.

Diffusion of Disruptive Technologies (with Nicholas Bloom, Tarek Hassan, Josh Lerner and Ahmed Tahoun)

We identify novel technologies using textual analysis of patents, job postings, and earnings calls. Our approach enables us to identify and document the diffusion of 29 disruptive technologies across firms and labor markets in the U.S. Five stylized facts emerge from our data. First, the locations where technologies are developed that later disrupt businesses are geographically highly concentrated, even more so than overall patenting. Second, as the technologies mature and the number of new jobs related to them grows, they gradually spread geographically. While initial hiring is concentrated in high-skilled jobs, over time the mean skill level in new positions associated with the technologies declines, broadening the types of jobs that adopt a given technology. At the same time, the geographic diffusion of low-skilled positions is significantly faster than higher-skilled ones, so that the locations where initial discoveries were made retain their leading positions among high-paying positions for decades. Finally, these pioneer locations are more likely to arise in areas with universities and high skilled labor pools.