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Employment:
Stanford Institute for Economic Policy Research, Postdoctoral Fellow, June 2016 to present

Graduate Studies:
Harvard University, Ph.D. in Business Economics, 2012-2016
Thesis Title: "Essays in the Economics of Innovation"

References:
Professor Raj Chetty
chetty@stanford.edu

Professor Lawrence Katz
lkatz@fas.harvard.edu

Professor Philippe Aghion
paghion@fas.harvard.edu

Professor Edward Glaeser
eglaeser@harvard.edu

Professor Josh Lerner
jlerner@hbs.edu

Undergraduate Studies:
B.A., Economics and Political Science, Sciences-Po Paris, *summa cum laude*, 2011

Teaching and Research Fields:
Primary fields: Labor Economics, Public Economics
Secondary fields: Economics of Innovation, Macroeconomics

Teaching Experience:
Fall 2014	Graduate Public Finance, Harvard, Teaching Fellow for Professor Raj Chetty
Spring 2014	Graduate Macroeconomics, Harvard, Guest Lecturer for Professor Robert Barro
Summer 2011	Undergraduate Micro- and Macroeconomics, Harvard, Teaching Fellow for Professor David Laibson

Research Experience:
2011-2012	Harvard, Research Assistant for Professors Philippe Aghion, Diego Comin, David Laibson, Marc Melitz, Michael Kremer and Rick Hornbeck
2011-2012	MIT, Research Assistant for Professor Daron Acemoglu

Professional Activities:
    Referee: *American Economic Journal: Economic Policy*, *Econometrica*, *Journal of Public Economics*, *Journal of Urban Economics*, *Quarterly Journal of Economics*, *Review of Economics and Statistics*.

Honors and Scholarship:
    2016-2017   Visiting Researcher, Bureau of Labor Statistics
    2016   Research Grant, Washington Center for Equitable Growth
    Winter 2016   Visiting Researcher, Stanford Institute for Economic Policy Research
    2015-2016   Ewing Marion Kauffman Dissertation Fellowship
    2015-2018   Research Fellow, Collège de France
    June 2015   Visiting Researcher, United States Patent Office
    2012-2016   Doctoral Fellowship, Harvard Business School

Publication:

Aghion, Philippe, and Xavier Jaravel. "Knowledge spillovers, innovation and growth." *The Economic Journal* 125.583 (2015): 533-573.

Job Market Paper:

The Unequal Gains from Product Innovations: Evidence from the US Retail Sector
Using detailed barcode-level data in the US retail sector, I find that from 2004 to 2013 higher-income households systematically experienced a faster increase in product variety and lower inflation for continuing products. Annual inflation was 0.65 percentage points lower for households earning above $100,000 a year, relative to households making less than $30,000 a year. I explain this finding by the equilibrium response of firms to market size effects: (A) the relative demand for products consumed by high-income households increased because of growth and rising inequality; (B) in response, firms introduced more new products catering to such households; (C) as a result, continuing products in these market segments lowered their price due to increased competitive pressure. I use changes in demand plausibly exogenous to supply factors — from shifts in the national income and age distributions over time — to provide causal evidence that increasing relative demand leads to more new products and lower inflation for continuing products, implying that the long-term supply curve is downward-sloping. Based on this channel, I develop a model featuring a secular trend of faster-increasing product variety and lower inflation for higher-income households, which I test and validate using Consumer Price Index and Consumer Expenditure Survey data on the full consumption basket going back to 1953.

Additional Research Papers:

Team-specific Capital and Innovation, Revise & Resubmit at the American Economic Review
(with Neviana Petkova and Alex Bell)
We show that the team-specific capital is important for the typical patent inventor's lifecycle earnings and productivity. Using administrative tax and patent data for the population of US patent inventors from 1996 to 2012 and employing a difference-in-differences research design based on the premature deaths of 4,714 inventors, we establish that an inventor's premature death causes a large and long-lasting decline in their co-inventor's earnings and citation-weighted patents (-4% and - 15% after 8 years, respectively). We rule out firm disruption, network effects and top-down spillovers as primary drivers of this result. Consistent with the team-specific capital interpretation, the effect is larger for more closely-knit teams and primarily applies to co-invention activities with the deceased.

The Lifecycle of Inventors (with Alex Bell, Raj Chetty, Neviana Petkova and John Van Reenen)
We characterize the lives of 1.2 million inventors in the United States by linking patent records to tax data. Tracking these inventors from birth through their careers, we establish three empirical results that shed light on the key factors that determine who becomes an inventor. First, rates of innovation vary substantially by parent income, race, and gender. Differences in ability account for relatively little of these gaps and inventors from under-represented groups do not have higher quality patents on average, contrary to existing models of selection into innovation. Second, exposure to innovation during childhood plays a critical role in determining children's propensities to innovate. Growing up in an area or in a family with a high innovation rate in a particular technology class leads to a higher probability of patenting in exactly that technology class. Third, the private returns to innovation are highly skewed and are typically earned many years after career choices are made. Using a simple model that matches these facts, we show that providing children from under-represented backgrounds greater exposure to innovation have more potential to increase innovation rates than increasing the private returns to innovation.

Patent Trolls and the Patent Examination Process (with Josh Feng)
We show that the patent examination process at the United States Patent Office plays an important role in the activity of non-practicing entities (NPEs). Using the random allocation of patent applications to examiners within art units and an estimation framework inspired by the teacher value-added literature, we identify the causal effect of patent examiners on the probability that the patents they grant become part of an NPE's portfolio. We find very large effects: one standard deviation in the estimated distribution of examiner effects accounts for over 50 percent of the baseline rate of NPE-held patents. Heterogeneity analysis shows that examiners with a high NPE effect tend to be more "lenient": they have higher allowance rates, narrow the claims less during prosecution, and are less likely to require the applicant to clarify the claims. Our analysis suggests that NPEs strategically purchase and assert patents with vague claims, and that investing in the quality of the patent examination process may have large social returns. These findings contribute to the continuing debate on patent reform and the nature of NPEs.

Revisiting Event Study Designs (with Kirill Borusyak)
A broad empirical literature uses "event study" research designs for treatment effect estimation, a setting in which all units in the panel receive treatment but at random times. We make four novel points about identification and estimation of causal effects in this setting and show their practical relevance. First, we show that in the presence of unit and time fixed effects, it is impossible to identify the linear component of the path of pre-trends and dynamic treatment effects. Second, we propose graphical and statistical tests for pre-trends. Third, we consider commonly-used "static" regressions, with a treatment dummy instead of a full set of leads and lags around the treatment event, and we show that OLS does not recover a weighted average of the treatment effects: long-term effects are weighted negatively, and we introduce a different estimator that is robust to this issue. Fourth, we show that equivalent problems of under-identification and negative weighting arise in difference-in-differences settings when the control group is allowed to be on a different time trend or in the presence of unit-specific time trends. Finally, we show the practical relevance of these issues in a series of examples from the existing literature, with a focus on the estimation of the marginal propensity to consume out of tax rebates.

Education and Military Rivalry, <u>Revise & Resubmit at the Journal of the European Economic Association</u> (with Philippe Aghion, Torsten Persson and Dorothee Rouzet)
Motivated by historical evidence on the relation between military threats and expansions of primary education, we assemble a novel panel dataset from the last 150 years in European countries and from the postwar period in a large set of countries. We find empirically that (i) investments in education increase in response to military threats, (ii) democracy has a negative direct effect on education investments, and, (iii) education investments in better democracies respond more to military threats. These empirical results continue to hold when we instead exploit rivalries in a certain country's immediate. We develop a theoretical model which is consistent with the three empirical findings and makes additional predictions.