Research proposal for the NBER Productivity, Innovation and Entrepreneurship Program

Group/grant applied to: Digitization

Jonas Hjort
Columbia University and NBER

Project: The Arrival of Fast Internet and Skilled Job Creation in Africa

To some, the Internet is the greatest invention of our time (The Economist, 2012). Proponents argue that fast Internet can reduce search and communication frictions, enable the use of advanced production systems, and lower entry barriers. If so, the technology may help to ``unleash'' the private sector and increase job creation in the developing world, where investment in high-speed infrastructure has begun in some regions while others lag behind. However, the effect of fast Internet on job creation depends on its factor bias in the relevant context, and on the existing distribution of skills, other factors of production, and interacting constraints. Indeed, some new technologies lead to net job losses in regions with many jobs that can be automated and replaced by those technologies (Autor, 1998).

This paper provides evidence on the causal effect on job creation of the expansion of fast Internet along its current frontier in developing countries. We exploit the gradual arrival in African coastal cities of submarine Internet cables from Europe and maps of the continent's terrestrial cable network that connects those cities with users.

Results so far:

- Robust difference-in-differences estimates from three datasets covering 14 countries show large average effects on employment rates.

- Fast Internet enables the creation of skilled jobs but reduces employment rates in some unskilled occupations; increases firm creation in technological sectors; and increases business ownership among individuals.

- The reduced form effects appear to be driven both by an increase in average speeds for existing users and increased take-up.

The grant would be used to expand and enhance the project in two directions:

1. I would like to obtain a panel dataset of existing manufacturing firms in Ethiopia and use this to estimate production functions (the relevant dataset is by far the best administrative dataset on firms in Africa). Doing so will enable me to relate the overall job creation findings to
    a. Changes in the marginal productivity of workers of different skills levels when fast Internet arrives and is adopted.

    b. Organizational changes inside the firm when fast Internet arrives and is adopted.

2. I would also like to obtain an "income dynamics" individual worker level dataset from South Africa (NIDS). What is unusual about this dataset is that (i) it is an individual level panel, and (ii) it includes variables on incomes, which would enable me to estimate how fast Internet affects the incomes e.g. of those who start new technology firms in response to the new technology.

Budget: $15000

Data purchases: $5000

Trip to South Africa to use the NIDS data (it can only be used on-site): $4000

Research assistance: $6000 (the project is very data intensive so I am currently looking for an RA who can help gather and organize data).

April 2016

Jonas Hjort

Graduate School of Business
Columbia University
Uris Hall, room 622
3022 Broadway
New York, NY 10027

212-854-5957 (tel)
212-316-9219 (fax)
hjort@columbia.edu
www0.gsb.columbia.edu/faculty/jhjort

Employment

Fall 2015	Visiting Assistant Professor, Department of Economics, Harvard University
2012 – present	Assistant Professor of Economics and Finance, Graduate School of Business, Columbia University
2013 – present	Affiliated faculty member, Department of Economics, Columbia University

Professional organizations

2014 – present	Lead Academic, Liberia Country Program, International Growth Centre
2016 – present	NBER Faculty Research Fellow

Education

2006 – 2012	PhD Economics, UC Berkeley
Fall 2008	Price Theory Scholar, Becker Center, University of Chicago
2005 – 2006	MA International & Development Economics, Yale University
2002 – 2005	BSc Economics, London School of Economics

Research interests

Development Economics, Organizational Economics, Labor Economics

Ongoing papers and projects

"The Arrival of Fast Internet and Skilled Job Creation in Africa", with Jonas Poulsen, work in progress

"Vertical Integration, Technology Upgrading and Output Quality in Peru", with Chris Hansman, Gianmarco Leon and Matthieu Teachout, work in progress

"Interlinked Firms and the Consequences of Piecemeal Regulation", with Chris Hansman and Gianmarco Leon, *revise and resubmit*

"Fiscal Capacity and Tax Revenues from Firms", with Miguel Almunia and Francois Gerard, work in progress

"The Static and Dynamic Allocation of Jobs", with Tarek Ghani and Sylvan Herskowitz, work in progress

"Determinants and Consequences of Firm Growth in Liberia", work in progress

Publications

"Ethnic Divisions and Production in Firms", *Quarterly Journal of Economics*, vol. 129, no. 4, pp. 1899-1946, November 2014

Winner of the 2013 CESifo Prize for best paper in Applied Microeconomics

Earlier versions: CDEP-CGEG working paper 006, CESifo working paper 4449

"Pre-Colonial Culture, Post-Colonial Economic Success? The Tswana and the African Economic Miracle", *The Economic History Review,* vol. 63, no. 3, pp. 688-709, August 2010

Teaching

The Private Sector and International Development (MBA, Executive MBA), Graduate School of Business, Columbia University: spring 2013, spring 2014, fall 2014, spring 2015

Selected grants

2015	$160,000 for "Search frictions…" from The IGC
2014	$69,000 for "Fiscal…" from The IGC (with Almunia and Gerard)
2014	$60,000 from The IGC (with Wei)
2013	$53,000 for "The Static…" from PEDL (with Ghani and Herskowitz)
2013	$33,000 for "Determinants…" from The IGC
2013	$20,000 for "The Static…" from CBS Dean's Seed Funding (with Ghani)
2013	$20,000 for "Firm Responses…" from CIBER (with Leon)

Selected fellowships and awards

2014	Recipient of the Sandmo Junior Visiting Fellowship at Norwegian School of Economics
2013	CESifo Prize for best paper in Applied Microeconomics
2012	Journal of Development Economics Prize for outstanding dissertation in the area of development economics, UC Berkeley 2012
2009-2011	The Hewlett/IIE Dissertation Fellowship
2009-2010	Spencer Foundation Dissertation Fellowship
2008-2009	The Norway-America Association's King Olav V Birthday Fund Award
2007-2008	The American-Scandinavian Foundation Graduate Fellowship
2007-2008	The National Gift (C. Michelsen Institute Scholarship)

Affiliations

NBER, BREAD, Center for Development Economics and Policy, CESifo, Chazen Institute for International Business

Refereeing

American Economic Review, Journal of Political Economy, Quarterly Journal of Economics, Journal of the European Economic Association, American Economic Journal: Applied Economics, American Economic Journal: Economic Policy, Journal of Economic Literature, Journal of Labor Economics, Journal of Public Economics, Journal of Development Economics, Journal of Economic Behavior and Organization, Economic Journal, Journal of African Economies, Economic Development and Cultural Change

Invited presentations

2016: IGC Growth Week, NBER Summer Institutes,

2015: Copenhagen University, University of Toronto, McGill University, Harvard University, Oxford University, Central European University, Boston University, IFPRI, University of Oslo, Stockholm IIES, Norwegian School of Economics
2014: World Bank DRG, BREAD, Princeton, Stanford
2013: Harvard University / MIT, LSE, UPF, Uppsala
2012: Columbia GSB / Econ, Stanford GSB, University of Michigan, Penn State, Cornell, Wharton, Stockholm IIES, Kellogg, Warwick, Chicago Booth
2011: PopPov Conference (Marseilles)
2010: Chicago, Norwegian School of Economics, University of Oslo
2009: World Bank / IZA conference on Evaluation of Labor Market Programs in Developing Countries (Bonn), Working Group on African Political Economy (WGAPE) conference (Berkeley)

Personal information
Citizenship: Norway and Denmark, U.S. permanent resident
Languages: English, Danish, Norwegian, Spanish (intermediate)