Proposal for a Research Grant

NBER Productivity, Innovation and Entrepreneurship Program

Matthias Kehrig

My research revolves around the interaction between entrepreneurship in individual firms and the macroeconomy. In particular, I plan to study how the firm structure – both vertical and horizontal integration of establishments and activities within the same firm – evolves over time, how it is affected by financial constraints and how micro-level differences in entrepreneurial activity shape macroeconomic aggregates.

The empirical portion of my work utilizes confidential establishment-level datasets by the U.S. Census Bureau. The results from this work inform the profession about growth, employment and innovation patterns at the level of individual enterprises crucial to properly calibrate micro founded macro models. I then formulate theoretical models that embed various theories of entrepreneurship and simulate them computationally in order to assess the quantitative relevance of these different theories. In the following, I will describe the most important projects I will pursue if awarded the NBER research grant.

First, I plan to work on the effect of intangible assets, or knowledge capital that I started in my paper "The Cyclical Nature of the Productivity Distribution" [1]. In that paper I document how many establishments that look unproductive do not exit in recessions. This data feature[1] is at odds with many Schumpeterian "cleansing" theories of recessions, a central building block of many modern macro theories. But I can reconcile these theories with the empirical evidence by showing how intangible inputs – knowledge, patents, know-how, best practices, etc. – can cause this pattern. Importantly, firms appear to use these intangible knowledge inputs more productively in booms than recessions. The intangible capital inputs, know-how and business knowledge is precisely what young entrepreneurs need to accumulate in order to be able to grow. My future research intends to shed light on this little-known activity among young establishments.

Intangible inputs seem to also play a role in the recent decline of the labor share in the U.S. and elsewhere.[2] In "Growing Productivity without Growing Wages …" [5] (joint with Nicolas Vincent) – the paper "Reconciling Rising Productivity Inequality …" (with Rudi Bachmann) [6] is related – we decompose the aggregate labor share decline into changes in wages, employment, labor productivity and reallocation. We are the first to find that both reallocation and intangible inputs

[1] Foster/Grim/Haltiwanger: "Cleansing or Not? …", 2013 document some related findings.
[2] See Karabarbounis/Neimann: "The Global Decline of the Labor Share," *Quarterly Journal of Economics*, 2014.

appear to be the main reasons for the aggregate labor share decline and are more important than previous explanations such as computerization or globalization.

These results indicate that the way business is conducted in the U.S. changed and warrants a better understanding how entrepreneurs create, utilize and disseminate new knowledge and how it becomes embedded in production processes. I plan to further study this productivity-survival-knowledge capital nexus using the new Management and Organizational Practices Survey (designed by Bloom, van Reenen and Sadun with the Census Bureau). Working with this survey will require research assistants to help with the work on these large establishment-level datasets, my prime use of the NBER entrepreneurship research grant funds.

Second, I plan to continue my research on the institution where entrepreneurial activity takes place: the firm. Unlike most previous research involving micro-level business data, I take seriously that most establishments are part of multi-establishment firms. This means they share management, financial and other inputs common within the firm. In my papers with Nicolas Vincent ("Do Firms Mitigate or Magnify Capital Misallocation? …" [3] and "Financial Frictions and Investment Dynamics in Multi-Plant Firms" [4]) we study how competitive markets and entrepreneurial firms are two polar cases of different allocation mechanisms. In particular, we show theoretically how a firm that is credit constrained may optimally utilize its internal credit market in a way that creates a *larger* dispersion in capital returns across establishments within the same firm. This finding partially reverses the notion that dispersion in returns indicates misallocation and lower aggregate output and employment. Instead, dispersion of capital returns may be a symptom of entrepreneurial activities within a firm to optimally overcome the very financial frictions which previous researchers[3] held responsible as a cause of productivity dispersion and misallocation. Funds from the NBER research grant will be helpful for ongoing work in this research area when I try to match financial information to the confidential Census establishment data.

Third, in "Slow to Hire, Quick to Fire: …" (with Cosmin Ilut and Martin Schneider) [2] I consider the amount and macroeconomic implications of asymmetric hiring and firing behavior of individual firms. We estimate that typical firing is 1.5 times as strong as the typical hiring activity at the micro level. We find that this asymmetry is strong enough to shape aggregate employment growth, job creation and destruction: recessions lead to a precipitous and deep fall in aggregate employment while recoveries tend to be slow and meek. In the future, I plan to study if this hiring-firing asymmetry became more pronounced in the last two decades which would have thus contributed to the phenomenon of "jobless recoveries."

Many of my papers that I list above are at a revise & resubmit stage at top or top field journals. The NBER research grant funds would help me complete these revisions and have a large impact on the profession. Though still in working paper stage, [1] is already above 80 citations on Google Scholar which shows the reach of my work. I hope to continue the influence of entrepreneurship research with the help of the NBER research grant.

[3] See for example: Christiano/Motto/Rostagno: "Risk Shocks," *American Economic Review*, 2014.

References

[1] "The Cyclical Nature of the Productivity Distribution," R&R at the *Quarterly Journal of Economics*, March 2015.

[2] "Slow to Hire, Quick to Fire: Employment Dynamics with Asymmetric Responses to News." (with Cosmin Ilut and Martin Schneider), NBER Working Paper 20473, R&R the at *Journal of Political Economy*, December 2014.

[3] "Do Firms Mitigate or Magnify Capital Misallocation? Evidence from Plant-Level Data" (with Nicolas Vincent), March 2016.

[4] "Financial Frictions and Investment Dynamics in Multi-Plant Firms" (with Nicolas Vincent), *U.S. Census CES Discussion Paper 13-56*, June 2013.

[5] "Growing Productivity without Growing Wages: The Micro-Level Anatomy of the Aggregate Labor Share Decline," *in progress* (with Nicolas Vincent).

[6] "Reconciling Rising Productivity Inequality with ever More Similar Firms" (with Rüdiger Bachmann).

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RESEARCH FIELDS

Macroeconomics, Productivity, Entrepreneurship, Firm Dynamics, Economics of Uncertainty.

ACADEMIC POSITIONS

Duke University:	Assistant Professor, Department of Economics, starting Jan 2017.
University of Texas at Austin:	Assistant Professor, Department of Economics, 2011-2016.
	Faculty Research Affiliate, Population Research Center, 2012-2016.

OTHER POSITIONS AND SHORT-TERM VISITS

Visiting Scholar, Stanford University, Department of Economics, Spring 2015, Fall 2015.
Visiting Scholar, University of Mannheim, Department of Economics, 2014-2016.
ERID Visiting Scholar, Duke University, September 2013.
Visiting Scholar, Federal Reserve Bank of Atlanta, April 2012.

EDUCATION

Northwestern University, Evanston:	Ph.D. in Economics, June 2011; M.A. in Economics, June 2007.
Stockholm School of Economics:	CEMS Master in International Management, August 2005.
University of Cologne:	Diplom-Volkswirt (equivalent to M.A. in Economics), August 2005.

RESEARCH PAPERS

1.) "The Effects of Oil Prices on Regional Wage Dispersion" (with Nicolas Ziebarth) , *U.S. Census Center for Economic Studies Discussion Paper 13-57*, revise and resubmit at the *AEJ Macro*, December 2015.
2.) "The Cyclical Nature of the Productivity Distribution," revise and resubmit at the *Quarterly Journal of Economics*, March 2015.
3.) "Slow to Hire, Quick to Fire: Employment Dynamics with Asymmetric Responses to News." (with Cosmin Ilut and Martin Schneider), NBER Working Paper 20473, revise and resubmit at the *Journal of Political Economy*, December 2014.
4.) "Do Firms Mitigate or Magnify Capital Misallocation? Evidence from Plant-Level Data" (with Nicolas Vincent), February 2016.
5.) "Returns to Scale, Productivity and Competition: Empirical Evidence from U.S. Manufacturing and Construction Establishments" (with Wei Gao), February 2016.
6.) "Financial Frictions and Investment Dynamics in Multi-Plant Firms" (with Nicolas Vincent), *U.S. Census Center for Economic Studies Discussion Paper 13-56*, June 2013.

WORK IN PROGRESS

7.) "Growing Productivity without Growing Wages: The Micro-Level Anatomy of the Aggregate Labor Share Decline" (with Nicolas Vincent).
8.) "The Welfare Benefits of Oil Price Collapses," (with Florian Kuhn and Nic Ziebarth).
9.) "The Anatomy of a Housing Bubble."
10.) "Reconciling Rising Productivity Inequality with ever More Similar Firms" (with Rüdiger Bachmann).

OLDER WORKING PAPERS

11.) "How Do Oil Price Shocks Matter? Transmission Channels on the Supply and the Demand Side," with Nicolas Ziebarth, May 2009.
12.) "Limited Commitment and Moral Hazard in Late Classical Athenian Maritime Loans," April 2008.

DISCUSSIONS

1.) "The End of Men" (by Nir Jaimovic and Henry Siu), Northwestern Macro Alumni Conference, February 2016.
2.) "Firm Volatility in Granular Networks" (by Bryan Kelly, Hanno Lustig, Stijn van Nieuwerburgh), NBER SI Capital Markets and the Economy, July 2013.
3.) "Banking, Liquidity and Bank Runs in an Infinite Horizon Economy" (by Mark Gertler and Nobuhiro Kiyotaki), Texas Monetary Conference, April 2013.
4.) "Capital Requirements in a Quantitative Model of Banking Industry Dynamics" (by Dean Corbae and Pablo D'Erasmo), CIREQ Macroeconomics Conference, April 2012.

SEMINAR AND CONFERENCE PRESENTATIONS (including scheduled; * = Discussant)

Bonn (2016, 2011), De Nederlandsche Bank (2016), Mannheim (2016, 2014, 2011), Duke (2016, 2013, 2011), Oxford (2016), Stanford (2015), Toulouse (2015), USC (2015), Banque de France (2015), Houston (2015), Amsterdam (2014), Bank of England (2014), Penn State (2014, 2013), Census Bureau-CES (2014), Wharton (2014), Texas CRDC (2014), Federal Reserve (2013, 2011), Einaudi Institute (2013), Iowa (2013), UW Madison-Business (2013), Texas A&M (2013), Arizona State (2013), UT Austin (2013, 2011), FRB New York (2012), Frankfurt (2012), FRB Atlanta (2012), Cologne (2012), Montréal (2011), Western Ontario (2011), FRB Richmond (2011), FRB Chicago (2010), Northwestern (2010).

NBER SI Macroeconomics and Productivity: 2016, 2012.
NBER SI Capital Markets and the Economy: 2013*.
SED Annual Meeting: 2013, 2011.
Econometric Society World Congress: 2015.
Econometric Society North American Winter Meetings: 2012.
American Economic Association Annual Meeting: 2014, 2012.
EEA Annual Meeting: 2015.
Royal Economic Society Annual Conference: 2011.
Barcelona Summer Forum: Firms in the Global Economy, June 2016.
Midwest Macro Meetings: Fall 2012, Spring 2012.
Midwest Economics Association Annual Meeting: 2010.
Empirical Macro Workshop: 2015, 2013.
SITE Workshop, Macroeconomics of Uncertainty and Volatility, Stanford: 2011.
Northwestern Macro Alumni Conference, Evanston: 2016*.
CIREQ Macro Conference, Montréal: 2012*.
"Macroeconomics and Survey Data," Ifo Institute Munich: 2014, 2013, 2012.
Census RDC Annual Research Conference: 2010.
Comparative Analysis of Enterprise Data (CAED) Annual Conference: 2013.
Frankfurt-Mannheim Macro Workshop: 2014.
Cologne Macro Workshop: 2014.
Texas Monetary Conference: 2013*.
"The Causes and Macroeconomic Consequences of Uncertainty," FRB Dallas: October 2013.
German Economists Abroad Annual Meeting: 2015, 2014, 2013, 2012, 2011.

FELLOWSHIPS, GRANTS AND AWARDS

Research Grant, Fritz Thyssen Stiftung, 2015.
Foscolo Europe Fellowship, 2014-16.

Research Grant, University of Mannheim, 2014.
Research Grant, University of Texas at Austin, PRC, 2014.
Proposal Development Grant, Texas Census RDC, 2013.
Summer Research Fellowship, University of Texas at Austin, 2012.
Fulbright Fellowship, 2005-2006.
Marie Curie Fellowship, 2005-2008, declined.
CEMS Honors Program, 2002-2005.
Erasmus Exchange Scholarship, 2002.
Konrad Adenauer Scholarship, 2001-2005.

REFEREEING

American Economic Review (7x), Review of Economic Studies (3x), Journal of Monetary Economics (2x), Review of Economic Dynamics (3x), Journal of Macroeconomics (2x), Journal of Economic Theory (2x), Journal of Industrial Economics (3x), Review of Financial Studies (1x), Economics Letters (1x), Finance Research Letters (2x), Economic Inquiry (2x). National Science Foundation, Social Sciences and Humanities Research Council (Canada), European Research Council.

TEACHING

Intermediate Macroeconomics (Eco 320L): Fall 2013, Fall 2012, Spring 2012.
Graduate Macroeconomics II (Eco 387L): Spring 2014, Spring 2013.

ADVISING

Graduate (graduation year, initial placement)
Florian Kuhn (Chair, 2015, SUNY Binghamton)
Chacko George (Chair, 2014, FDIC)
Ayse Kabukcuaglu (Committee Member, 2013, Koç University)
Ahmet Taşkin (Committee Member, 2013, Central Bank of Turkey)
Jorge Barro (Committee Member, 2012, Louisiana State University)

Undergraduate (graduation year, first job)
Nina Le (2014, Deloitte)
Ian Arena (2013, Privateer Capital Managment)

REFERENCES

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