Carl Hallmann

Last updated 11th November, 2022

Northwestern Economics

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Fields

Research: Macroeconomics, Economic History

Teaching: Economic History, Macroeconomics, Microeconomics, Econometrics

Education

Ph.D., Economics, Northwestern University (anticipated) 2023
Dissertation: Essays in Macroeconomic Aspects of Short-Time Work and Innovation
Committee: Matthias Doepke (Co-Chair), Joel Mokyr (Co-Chair), Giorgio Primiceri

M.Sc., Economics, LMU Munich 2017

B.Sc., Economics, LMU Munich 2014

Job Market Paper

"Short-Time Work and the Unemployment Scar"

Abstract: Short-time work is a policy tool which subsidizes employment during recessions. I assess its welfare effects, who benefits most from it, and when it is most effective. For this purpose I develop a heterogeneous agents model, for which the income process is generated by a job ladder search and matching model. I calibrate the model to match the German labor market around the great recession. Key parameters governing the value a worker generates after entering STW are estimated using German social security data in combination with a survey on the use of STW. In my preferred specification the welfare effect of a worker entering STW instead of becoming unemployed is about one third of her yearly output. Workers at the peak of their career benefit most strongly, as they stand to lose job and firm specific knowledge, as well as the high wages they negotiated in the past. I find that the effectiveness of STW depends on the type of crisis an economy undergoes. STW is less effective if the crisis is driven by a structural change, financial markets are healthy such that few firms are affected by borrowing constraints, or low wage workers with little firm and task specific human capital are affected. As a consequence the effectiveness of STW varies from crisis to crisis, and it is best used as a discretionary policy tool.

Working Papers

"Why Britain? The Right Place (in the Technology Space) at the Right Time" with W. Walker Hanlon and Lukas Rosenberger

Abstract: Why did Britain attain economic leadership during the Industrial Revolution? We argue that Britain possessed an important but underappreciated innovation advantage: British inventors worked in technologies that were more central within the innovation network. We offer a new approach for measuring the innovation network using patent data from Britain and France in the 18th and early 19th century. We show that the network influenced innovation outcomes and then demonstrate that British inventors worked in more central technologies within the innovation network than inventors from France. Then, drawing on recently-developed theoretical tools, we quantify the implications for technology growth rates in Britain compared to France. Our results indicate that the shape of the innovation network, and the location of British inventors within it, can help explain the more rapid technological growth in Britain during the Industrial Revolution.

"Invention and Technological Leadership during the Industrial Revolution" with Lukas Rosenberger and Emre E. Yavuz

Abstract: This paper provides the first empirical cross-country evidence on inventive activity during the Industrial Revolution. Idiosyncrasies in the French historic patent law allow us to compare invention rates in Britain and France across sectors based on French patent data from 1791 to 1855. Our key result is a robust, positive association of invention rates in Britain and France at the sectoral level. Furthermore, we provide the first quantitative evidence on technological leadership in invention at the sectoral level. The evidence informs a debate about whether the acceleration of technological progress during the Industrial Revolution mainly was a British or a European achievement, which has implications for theories of growth and innovation.

Work in Progress

"Are Recursive Neural Networks Useful for Macroeconomic Forecasting?" with Federico Puglisi and Emre Enes Yavuz

Abstract: We horse-race a Bayesian VAR with hierarchical priors, one of the state of the art macroeconomic forecasting models, with different neural networks. These include a simple recursive neural network (RNN), an RNN with a gated recurrent unit (GRU), and a GRU regularized such that it shrinks towards a random walk (GRU-VAR). We find that any sufficiently flexible, and well regularized model has similar forecasting performance as the Bayesian VAR in one step ahead forecasts. We find that our GRU-VAR easily outperforms the Bayesian VAR in forecasts that go further than one step ahead.

"Central Bank Accounts For All!"

Abstract: I develop a simple model of banking in which central bank accounts for all are equivalent to a central bank digital currency (CBDC). I use the model to outline conditions under which a CBDC can be beneficial for financial stability. In the absence of any policy intervention the equilibrium is inefficient as deposit insurance induces banks to act irresponsible. A CBDC can help if the central bank hands what it receives for issuing currency to banks, and requires the right type of collateral in exchange. This collateral should be valuable, especially when the financial market experiences an episode of distress.

Fellowships & Awards

Dissertation University Fellowship, Northwestern University	2021–2022
Prosa Scholarship	2015
Erasmus Scholarship	2013
Max Weber Scholarship	2012–2017

Research Experience

Research Assistant, Guido Lorenzoni, Northwestern University	2019
Research Assistant, Christoph Trebesch , LMU Munich	2016
Research Assistant, Lukas Buchheim, LMU Munich	2016

Teaching Experience

Teaching Assistant, Northwestern University 2018–2022

ECON 281: Introduction to Applied Econometrics (2021)
ECON 315: Topics in Economic History (2020)
ECON 324: Western Economic History (2021, 22)
MMSS 300: Foundations of Mathematical Social Sciences (2018, 19, 20)

Languages

English (proficient), German (native)

Programming

Python, Stata, Matlab, Fortran, SQL

Patents

System for estimation of parking probabilities (Published as: CN111066072A, CN111066072B, DE102017221180A1, US11100799B2, US2020279484A1, WO2019101500A1; Inventor: Carl Hallmann; Owned by: BMW)

References

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