MARTIN B. SCHMITZ

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DEGREES

Vanderbilt University
Ph.D. in ECONOMICS, 2022 (expected)
M.A. in ECONOMICS, 2018

Julius Maximilian University of Würzburg
M.Sc. in ECONOMICS, 2015 (with distinction)
B.Sc. in BUSINESS MANAGEMENT and ECONOMICS, 2011

RESEARCH FIELDS

Economics of Innovation, Economic History (primary)
Applied Econometrics, Empirical Microeconomics (secondary)

REFERENCES

William J. Collins	william.collins@vanderbilt.edu
W. Walker Hanlon	whanlon@northwestern.edu
Ariell Zimran	ariell.zimran@vanderbilt.edu
Matthew Zaragoza-Watkins	matthew.zaragoza-watkins@vanderbilt.edu

WORKING PAPER

"A Penny for your Thoughts" with Walker Hanlon, Stephan Heblich, and Ferdinando Monte
(NBER Working Paper 30076)

How do communication costs affect the production of new ideas and inventions? To answer this question, we study the introduction of the Uniform Penny Post in Great Britain in 1840. This reform replaced the previous system of expensive distance-based postage fees with a uniform low rate of one penny for sending letters anywhere in the country. The result was a large spatially-varied reduction in the cost of communicating across locations. We study the impact of this reform on the production of scientific knowledge using citation links constructed from a leading academic journal, the *Philosophical Transactions* and the impact on the development of new technology using patent data. Our results provide quantitative causal estimates showing how a fall in communication costs can increase the rate at which scientific knowledge is exchanged and new ideas and technologies are developed. This evidence lends direct empirical support to an extensive theoretical literature in economic growth and urban economics positing that more ideas can emerge from communication between individuals.

WORK IN PROGESS

"Knowledge Access and Cumulative Innovation: Network-Econometric Evidence from the Republic of Letters"

How does knowledge production respond to changes in knowledge accessibility? To answer this question, I study the re-establishment of the packet boat service between Dover and Calais in the peaceful period between the Nine Years' War (1688-1697) and the War of the Spanish Succession (1701-1714). The packet boat service across the English Channel connected the British and the French postal system and facilitated the bilateral exchange of ideas within a correspondence-based network of scholars called *Republic of Letters*. Citation data from the earliest two academic journals determines the link structure of this network and renders the links indicative of cumulative innovation. How the individual members

of the *Republic of Letters* were affected by the reduction of communication restrictions varied with their geographic location and network of correspondents. Considering each possible pair of scholars as a separate cross-sectional unit, accounting for spillovers, and comparing the pre- to post-period changes in the linking probabilities of initially unaffected and directly affected pairs provides causal estimates showing how the availability of a remote access technology affected scientific knowledge production in the years following the birth of modern science.

"GMM Estimation of Network Formation with Degree Heterogeneity"

This paper generalizes a Generalized Method of Moments (GMM) approach for dynamic panel logit models with fixed effects to logit network formation models with degree heterogeneity. The proposed moment conditions do not depend on the degree heterogeneity parameters, making it possible to leave the distribution of these parameters unspecified. The approach is applicable to panel and cross-sectional network data, sparse or dense, directed or undirected networks and applies to a range of network formation models for which consistent and computationally feasible estimators were previously unavailable. The wide applicability comes at the price of a common distributional assumption in network formation models with degree heterogeneity. Conditional on the previous link structure, the exogenous regressors, and the degree heterogeneity parameters, the distribution of the error term is assumed to be i.i.d. standard logistic across dyads and over time. Consistency and asymptotic normality follow from standard GMM theory. Computationally inexpensive estimation is achieved by employing analytical derivates of the proposed moment conditions.

Fellowships and Grants

NSF Doctoral Dissertation Research Improvement Grant SES-2049808, 2021 - 2022

Russell G. Hamilton Graduate Leadership Institute Dissertation Enhancement Grant, 2021

Kirk Dornbush Summer Research Award, Department of Economics, Vanderbilt University, 2021

Graduate Student Summer Research Award, College of Arts and Science, Vanderbilt University, 2019, 2022

Exploratory Travel and Data Grant, Economic History Association, 2019

Council of Economic Graduate Students Research Grant, Vanderbilt University, 2019

Max Planck Society for the Advancement of Science Scholarship, Summer 2017, Summer 2018

Departmental Summer Research Grant, Department of Economics, Vanderbilt University, 2017

Vanderbilt University Economics Fellowship, 2016 - present

PROMOS Scholarship, German Academic Exchange Service (DAAD), 2012

Julius Maximilian University of Würzburg exchange with the University of Texas at Austin 2012 - 2013

Research Visits and Non-degree Studies

Max Planck Institute for Innovation and Competition
Department of Innovation and Entrepreneurship Research, 6/2017 - 7/2017, 6/2018 - 7/2018, 5/2019 - 7/2019

Julius Maximilian University of Würzburg
Undergraduate studies in MATHEMATICS, 9/2014 - 7/2016

University of Texas at Austin
International exchange student, 8/2012 - 5/2013

Hawai'i Pacific University, Honolulu
International student, 9/2009 - 1/2010

Teaching Experience

Vanderbilt University (Teaching Assistant)
Econometric Methods, Spring 2019, Spring 2022
Strategic Analysis, Fall 2020, Spring 2021
Applied Econometrics, Spring 2020
Principles of Microeconomics, Spring 2018, Fall 2019
Principles of Macroeconomics, Fall 2017, Fall 2018, Fall 2021

Julius Maximilian University of Würzburg (Instructor)
Tutorials in Macroeconomics II, four hours per week, Winter 2011/2012
Tutorials in Applied Computer Science, four hours per week, Summer 2010

Related Experience

Department of Economics, Julius Maximilian University of Würzburg
Research Assistant for Prof. Dr. Norbert Berthold, 5/2011 - 8/2012 and 9/2013 - 8/2014

Federal Ministry of Finance of the Federal Republic of Germany, Berlin
Intern at division IC2 - Macroeconomic Country Analyses and Bilateral Relations, 3/2012 - 4/2012

Halle Institute for Economic Research, Halle (Saale), Germany
Intern at the Department of Structural Change, 9/2010 - 10/2010 and 4/2011 - 5/2011

Languages and Software

German (native), English (fluent), French (basic)
STATA, Python, Mathematica, MATLAB, ArcGIS, LaTeX

Presentations

2022: NYU Abu Dhabi, Max Planck Institute for Innovation and Competition, Vanderbilt University
2021: Vanderbilt University (3x)
2020: Vanderbilt University
2019: Economic History Association Annual Meeting (poster), Max Planck Institute for Innovation and Competition, Vanderbilt University (2x)

Discussant

2018: TIME Colloquium, Ludwig Maximilian University Munich

Conference Attendance

2021: Cliometrics Conference, Allied Social Science Association Annual Meeting
2020: Economic History Association Annual Meeting
2019: Allied Social Science Association Annual Meeting Atlanta, Economic History Association Annual Meeting Atlanta, 2nd CEMMAP UCL/Vanderbilt Joint Conference on Advances in Econometrics
2018: Conference on Identification in Econometrics, Vanderbilt University
2017: Conference on Econometrics and Models of Strategic Interactions, Vanderbilt University