

# MARTIN B. SCHMITZ

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## DEGREES

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### 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

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Economics of Innovation, Economic History (primary)

Applied Econometrics, Empirical Microeconomics (secondary)

## REFERENCES

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William J. Collins

[william.collins@vanderbilt.edu](mailto:william.collins@vanderbilt.edu)

W. Walker Hanlon

[whanlon@northwestern.edu](mailto:whanlon@northwestern.edu)

Ariell Zimran

[ariell.zimran@vanderbilt.edu](mailto:ariell.zimran@vanderbilt.edu)

Matthew Zaragoza-Watkins

[matthew.zaragoza-watkins@vanderbilt.edu](mailto:matthew.zaragoza-watkins@vanderbilt.edu)

## WORKING PAPER

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“A Penny for your Thoughts” with Walker Hanlon, Stephan Heblich, and Ferdinando Monte

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 new ideas and technologies are developed.

## WORK IN PROGRESS

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“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 derivatives of the proposed moment conditions.

## FELLOWSHIPS AND GRANTS

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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  
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 Program with the University of Texas at Austin  
2012 - 2013

## RESEARCH VISITS AND NON-DEGREE STUDIES

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**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

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**Vanderbilt University** (Teaching Assistant)  
Strategic Analysis, Fall 2020, Spring 2021  
Applied Econometrics, Spring 2020  
Econometric Methods, Spring 2019  
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**

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**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**

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German (native), English (fluent), French (basic)  
STATA, Python, Mathematica, MATLAB, ArcGIS, L<sup>A</sup>T<sub>E</sub>X

## **PRESENTATIONS**

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2021: Economic History Tea, Vanderbilt University  
Graduate Student Research Day, Vanderbilt University  
Work in Progress Seminar, Vanderbilt University  
2020: Economic History Tea, Vanderbilt University  
2019: Poster Session, Economic History Association Annual Meeting Atlanta  
Brown Bag Seminar, Max Planck Institute for Innovation and Competition  
Graduate Student Research Day, Vanderbilt University  
Economic History Tea, Vanderbilt University

## **DISCUSSANT**

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2018: TIME Kolloquium, Ludwig Maximilian University Munich

## **CONFERENCE ATTENDANCE**

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2021: Cliometrics Conference, online  
Allied Social Science Association Annual Meeting, online  
2020: Economic History Association Annual Meeting, online  
2019: Allied Social Science 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