

# Timo Schmid

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CONTACT INFORMATION	Otto-Friedrich-Universität Bamberg Chair of Statistics and Econometrics Feldkirchenstr. 21 96052 Bamberg, Germany	Voice: (0049) 951 863 2530 E-mail: timo.schmid@uni-bamberg.de WWW: www.uni-bamberg.de/stat-oek
RESEARCH INTERESTS	Computational statistics, poverty mapping, small area estimation, spatial and spatio-temporal statistics, survey statistics, statistical modelling.	
EDUCATION	<b>University of Trier, Trier, Germany</b> Ph.D., Statistics, January, 2012 <ul style="list-style-type: none"><li>• Dissertation topic: <i>Spatial robust small area estimation applied on business data</i></li><li>• Advisors: Prof. Dr. Ralf Münnich (University of Trier, Germany) Prof. Dr. Ray Chambers (University of Wollongong, Australia)</li><li>• Mark: Summa cum laude</li></ul> <b>Eberhard Karls Universität Tübingen, Tübingen, Germany</b> M.Sc. (Diploma), Mathematics, January, 2008 <ul style="list-style-type: none"><li>• Master topic: <i>Numerical range of power-bounded operators</i></li><li>• Advisor: Prof. Dr. Rainer Nagel (Eberhard Karls Universität, Tübingen, Germany)</li><li>• Mark: 1.0</li></ul>	
HONORS AND AWARDS	Ph.D. scholarship of the Foundation of German Economy (Stiftung der Deutschen Wirtschaft). Eberhard Karls Universität Tübingen: Honors in Mathematics.	
ACADEMIC EXPERIENCE	<b>Otto-Friedrich-Universität Bamberg, Bamberg, Germany</b> <i>Full Professor</i> <span style="float: right;"><b>April, 2021 - present</b></span> <ul style="list-style-type: none"><li>• Head of the Bamberg center for empirical studies (BACES).</li><li>• Ongoing research in statistical modelling, spatial and survey statistics.</li><li>• Research/consulting projects.</li><li>• Teaching in graduate and undergraduate classes.</li></ul> <b>Freie Universität Berlin, Berlin, Germany</b> <i>Associate Professor</i> <span style="float: right;"><b>May, 2017 - March, 2021</b></span> <i>Assistant Professor</i> <span style="float: right;"><b>October, 2012 - May, 2017</b></span> <i>Postdoctoral Research Fellow</i> <span style="float: right;"><b>April, 2012 - September, 2012</b></span> <ul style="list-style-type: none"><li>• Head of the statistical consultancy <i>fu:stat</i> of the Freie Universität Berlin.</li><li>• Research/consulting projects.</li><li>• Teaching in graduate and undergraduate classes.</li></ul> <b>University of Trier, Trier, Germany</b> <i>Doctoral Research Fellow</i> <span style="float: right;"><b>April, 2010 - April, 2012</b></span> <ul style="list-style-type: none"><li>• Research for FP7-SSH-2009-6-BLUE-ETS: BLUE-Enterprise and Trade Statistics.</li><li>• Teaching experience included service as co-instructor.</li></ul>	

1. *Small area estimation with multiple imputed survey data*, with M. Runge, **Journal of Official Statistics**, 2023, forthcoming.
2. *Estimating regional unemployment with mobile network data for functional urban areas in Germany*, with S. Hadam, A.-K. Kreutzmann, and N. Würz, **Statistical Methods & Applications**, 2023, forthcoming.
3. *A framework for producing small area estimates based on area-level models in R*, with S. Harmening, A.-K. Kreutzmann, N. Salvati, and S. Schmidt, **The R Journal**, 2023, forthcoming.
4. *Variable selection using conditional AIC for linear mixed models with data-driven transformations*, with Y. Lee, M. Runge, and N. Rojas-Perilla, **Statistics and Computing**, 2023, 33 (27), 1 – 17.
5. *Releasing survey microdata with exact cluster locations and additional privacy safeguards*, with A. Arias-Salazar and T. Koebe, **Humanities and Social Sciences Communications**, 2023, 10, 1 – 13.
6. *Flexible domain prediction using mixed effects random forests*, with P. Krennmair, **Journal of the Royal Statistical Society: Series C**, 2022, 71, 1865 – 1894.
7. *Estimating regional income indicators under transformations and access to limited population auxiliary information*, with N. Tzavidis, and N. Würz, **Journal of the Royal Statistical Society: Series A**, 2022, 185, 1679 – 1706.
8. *Iterative kernel density estimation applied to grouped data: Estimating poverty and inequality indicators from the German Microcensus*, with M. Gross, P. Walter, and K. Weimer, **Journal of Official Statistics**, 2022, 38, 599 – 635.
9. *Intercensal updating using structure-preserving methods and satellite imagery*, with A. Arias-Salazar, T. Koebe, and N. Rojas-Perilla, **Journal of the Royal Statistical Society: Series A**, 2022, 185 (S2), 170 – 196.
10. *Kernel density smoothing of composite spatial data on administrative area level*, with K. Erfurth, M. Gross, and U. Rendtel, **AStA Wirtschafts- und Sozialstatistisches Archiv**, 2022, 16, 25–49.
11. *Experimental UK regional consumer price inflation with model-based expenditure weights*, with J. Dawber, T. Flower, P. Smith, H. Thomas, N. Tzavidis, and N. Würz, **Journal of Official Statistics**, 2022, 38, 213 – 237.
12. *The Fay-Herriot model for multiply imputed data with an application to regional wealth estimation in Germany*, with A.-K. Kreutzmann, P. Marek, M. Runge, and N. Salvati, **Journal of Applied Statistics**, 2022, 49, 3278 – 3299 .
13. *Domain prediction with grouped income data*, with M. Gross, N. Tzavidis, and P. Walter, **Journal of the Royal Statistical Society: Series A**, 2021, 184, 1501 – 1523.
14. *Data-driven transformations in small area estimation*, with N. Rojas-Perilla, S. Pannier, and N. Tzavidis, **Journal of the Royal Statistical Society: Series A**, 2020, 183, 121 – 148.
15. *Smoothing and benchmarking for small area estimation*, with R. Steorts, and N. Tzavidis, **International Statistical Review**, 2020, 88, 580 – 598.
16. *Switching between different non-hierarchical administrative areas via simulated geo-coordinates: A case study for student residents in Berlin*, with M. Gross, A.-K. Kreutzmann, U. Rendtel, and N. Tzavidis, **Journal of Official Statistics**, 2020, 36, 297 – 314.
17. *The R package emdi for estimating and mapping regionally disaggregated indicators*, with A.-K. Kreutzmann, S. Pannier, N. Rojas-Perilla, M. Templ and N. Tzavidis, **Journal of Statistical Software**, 2019, 91, 1 – 33.
18. *Analysing radon accumulation in the home by flexible M-quantile mixed effect regression*, with R. Borgoni, A. Carcagni, and N. Salvati, **Stochastic Environmental Research and Risk Assessment**, 2019, 33, 375 – 394.

19. *The fayherriot command for estimating small-area indicators*, with C. Halbmeier, A.-K. Kreutzmann, and C. Schröder, **Stata Journal**, 2019, 19, 626 – 644.
20. *From start to finish: A framework for the production of small area official statistics*, with A. Luna, N. Rojas-Perilla, N. Tzavidis and L.-C. Zhang, **Journal of the Royal Statistical Society: Series A**, 2018, Read paper, 181 (4), 927 – 979.
21. *Modelling the distribution of health related quality of life of advanced melanoma patients in a longitudinal multi-center clinical trial*, with R. Borgoni, P. Del Bianco, N. Salvati and N. Tzavidis, **Statistical Methods in Medical Research**, 2018, 27 (2), 549 – 563.
22. *Robust small area estimation under spatial non-stationarity*, with C. Baldermann and N. Salvati, **International Statistical Review**, 2018, 86 (1), 136 – 159.
23. *Constructing socio-demographic indicators for National Statistical Institutes using mobile phone data: Estimating literacy rates in Senegal*, with F. Bruckschen, N. Salvati and T. Zbiranski, **Journal of the Royal Statistical Society: Series A**, 2017, 180 (4), 1163 – 1190.
24. *Estimating the density of ethnic minorities and aged people in Berlin: Multivariate kernel density estimation applied to sensitive geo-referenced administrative data protected via measurement error*, with M. Gross, U. Rendtel, S. Schmon and N. Tzavidis, **Journal of the Royal Statistical Society: Series A**, 2017, 180 (1), 161 – 183.
25. *Outlier robust small area estimation under spatial correlation*, with R. Chambers, R. Münnich and N. Tzavidis, **Scandinavian Journal of Statistics**, 2016, 43 (3), 806 – 826.
26. *Longitudinal analysis of the strengths and difficulties questionnaire scores of the millennium cohort study children in England using quantile and M-quantile multilevel models*, with E. Flouris, E. Midouhas, N. Salvati and N. Tzavidis, **Journal of the Royal Statistical Society: Series A**, 2016, 179 (2), 427 – 452.
27. *Simulation tools for small area estimation: Introducing the R-Package saeSim*, with S. Warnholz, **Austrian Journal of Statistics**, 2016, 45, 55 – 69.
28. *Spatial robust small area estimation*, with R. Münnich, **Statistical Papers**, 2014, 55, 653 – 670.

SELECTED BOOK  
CHAPTERS

1. *Assessing discontinuities and rotation group bias in rotating panel designs*, with D. Elliott, S. Krieg, P. Smith, N. Tzavidis and J. van den Brakel, In *Advances in Longitudinal Survey Methodology* (ed. P. Lynn), 2021, 399 – 423.
2. *Refugees in undeclared employment - A case study in Turkey*, with F. Bruckschen, T. Koebe, M. Ludolph and M. Marino, In *Guide to Mobile Data Analytics in Refugee Scenarios*, 2019, 329 – 346.

PAPERS IN  
PREPARATION

1. *Small area estimation of poverty in four West African countries by integrating survey and geospatial data.*, with E. Edochie, E. Foster, A. Luna, D. Newhouse, A. Ouedraogo, A. Sanoh, A. Savadogo, and N. Tzavidis, Working paper, 2023.
2. *Agile poverty estimation using binary attributes*, with N. Frink, Working paper, 2023.
3. *Analysing opportunity cost of care work using mixed effects random forests under aggregated census data*, with P. Krennmair, and N. Würz, Working paper, 2023.
4. *The estimation of poverty indicators using mixed effects random forests: case study for the Mexican state of Veracruz*, with P. Krennmair, and N. Tzavidis, Working paper, 2022.
5. *Scale estimation and data-driven tuning constant selection for M-quantile regression*, with J. Dwaber, N. Salvati, and N. Tzavidis, Working paper, 2021.
6. *Asymptotic distribution of regression quantiles in a mixed effects model*, with S. Hensel, S. Pannier, and N. Tzavidis, Working paper, 2021.

**Civey**

*Principal investigator*

**Mai, 2021 - Mai, 2024**

The aim of the project is to develop adequate methodology for small area estimation in the context of non-probabilistic (online) surveys.

Volume: € 136,000

**DFG - German Research Foundation**

*Principal investigator*

**Mai, 2019 - October, 2022**

TESAP - The main objective is to construct time-stable estimates for the Household Finance and Consumption Survey (HFCS) for the German Central Bank.

Volume: € 140,472

**Berlin University Alliance**

*Principal investigator*

**April, 2020 - March, 2021**

The main aim is to forecast study-success or drop-out based on survey- and administrative examination data.

Volume: € 55,363

**Statistical consulting unit *fu:stat* of the Freie Universität Berlin**

*Head of consulting unit*

**October, 2012 - March 2021**

Statistical consulting for companies, statistical courses and support for students.

Volume: € 100,000 (per year)

**Economic and Social Research Council**

*Co-investigator*

**January, 2016 - May, 2019**

The project focuses on developing innovations in small area estimation methodologies.

*Principal investigator:* Nikos Tzavidis (University of Southampton)

Volume: £ 815,000

Further information

**Federal Ministry for Economic Affairs and Energy**

*Principal investigator*

**April, 2018 - March, 2019**

Deep Mobility/ Knuper - The project focuses on combining traditional survey data with mobile phone data for predicting socio-demographic indicators.

Volume: € 122,600

Further information

**Berlin Senate for Urban Development**

*Principal investigator*

**January, 2018 - May, 2019**

The aim of the project is to forecast the population in Berlin on district-level for 2018-2030.

Volume: € 25,000

Further information

**DFG - German Research Foundation**

*Principal investigator*

**April, 2016 - July, 2018**

QUESSAMI - The main objective of the project is to develop an adequate methodology for high quality estimates for the Household Finance and Consumption Survey (HFCS).

Volume: € 162,970

**MIUR-DAAD Joint Mobility Program**

*Principal investigator*

**May, 2016 - April, 2018**

The aim of the project is to investigate multidimensional poverty by using small area estimation.

Volume: € 40,000

### **Bill and Melinda Gates Foundation**

*Principal investigator*

**June, 2015 - December, 2016**

The main objective is to construct socio-demographic indicators based on mobile phone data.

Volume: € 40,000

### **Welsh Government**

*Co-Principal investigator*

**June, 2016 - December, 2016**

The primary objective is to investigate discontinuities in the National Survey.

*Principal investigator:* Paul Smith (University of Southampton)

Volume: £ 25,000

### **Berlin Senate for Urban Development**

*Principal investigator*

**January, 2016 - April, 2016**

The aim of the project is to estimate on spatially disaggregated level where students live in Berlin.

Volume: € 11,000

### **Center for Research Strategy (E-Club), Freie Universität Berlin**

*Co-Principal investigator*

**July, 2015 - March, 2016**

The main objective is to develop a novel statistical method to analyze large functional magnetic resonance imaging datasets.

*Principal investigator:* Dirk Ostwald (Freie Universität Berlin)

Volume: € 13,800

### **National Statistical Institute Mexico**

*Co-Principal investigator*

**January, 2015 - December, 2015**

The aim of the project is to produce small area estimates of income related indicators for municipalities in Mexico.

*Principal investigator:* Nikos Tzavidis (University of Southampton)

Volume: £ 15,000

### TEACHING AND SUPERVISION

#### **Lectures (ongoing):**

- Master level: Multivariate Statistics, Poverty mapping, Small area estimation I and II
- Bachelor level: Statistics I, Statistics II, Generalized linear models
- Several **best teaching awards** for the lectures Statistics I and II

#### **Seminars:**

- Master level: Computational statistics, Spatial statistics, Statistical consulting

#### **Supervision of Ph.D. candidates:**

Finalized:

1. Sandra Hadam, *On the usage of mobile phone data in official statistics*, 2023.
2. Marina Runge, *Strategies for multiply imputed survey data and modeling in the context of small area estimation*, 2023.
3. Alejandra Arias-Salazar, *Structure preserving estimators to update socio-economic indicators in small areas*, 2022.
4. Till Koebe, *Utilizing alternative data sources for official statistics*, 2022.
5. Patrick Krennmair, *A framework for the estimation of disaggregated statistical indicators using tree-based machine learning methods*, 2022.
6. Noah Mutai, *Estimating selected disaggregated socio-economic indicators using small area estimation techniques*, 2022.
7. Nora Würz, *Small area estimation under limited auxiliary population data dealing with model violations and their economic applications*, 2022.
8. Sören Pannier, *Combining data sources: A path to improved understanding and prediction*, 2021.

9. Mursala Khan, *The fade-away phenomenon of initial non-response bias in panel surveys*, 2020.
  10. Ann-Kristin Kreutzmann, *Estimation of disaggregated indicators with application to the household finance and consumption survey*, 2018.
  11. Natalia Rojas-Perilla, *The use of data-driven transformations and their applicability in small area estimation*, 2018.
  12. Paul Walter, *A selection of statistical methods for interval-censored data with applications to the German microcensus*, 2018.
  13. Claudia Baldermann, *Robust small area estimation under spatial non-stationarity for unit-level models*, 2017.
  14. Marcus Gross, *Measurement error models applied to survey statistics*, 2016.
  15. Sebastian Warnholz, *Small area estimation using robust extensions to area level models*, 2016.
  16. Beate Weidenhammer, *On the consistency of quantile regression in linear mixed models*, 2016.
- Ongoing - first supervisor:
1. Miguel Angel Cordero Alba, *Small area prediction based on machine learning approaches*.
  2. Niklas Dörner, *tba*.
  3. Nicolas Frink, *Generalized tree-based methods*.
  4. Sylvia Harmening, *Small area estimation based on area-level models*.
  5. Rachael Kyalo, *tba*.
  6. Yeonjoo Lee, *Model selection for transformed small area methods*.
  7. Paul Messer, *Small area prediction based on machine learning approaches*.
  8. Michael Mühlbauer, *Estimating commuter statistics on small geographic levels*.
  9. Franz Prücklmair, *Small area estimation in the context of non-probabilistic surveys*.
  10. Felix Skarke, *M-quantile regression: Theoretical developments and practical implementation*.

**External examiner:**

1. Jamal Hossain, *Statistical estimation and inference with aggregated and displaced georeferenced data*, 2023, University of Southampton, UK.
2. Angelina Hammon, *Analysis of survey data in the presence of non-ignorable missing-data and selection mechanisms*, 2022, Humboldt-Universität zu Berlin, Germany.
3. Mehboob Ali, *Advanced survey designs for planned missing data*, 2021, Ludwig-Maximilians-Universität Munich, Germany.
4. Sara Bahrami, *Missing by design patterns for optimizing survey response by efficient and Consistent data collection*, 2020, Otto-Friedrich-Universität Bamberg, Germany.
5. Ziyang Lyu, *Asymptotic theory for linear mixed effects models with large cluster size*, 2019, The Australian National University, Canberra, Australia.
6. Alberto Sabbi, *Mixed effect quantile and M-quantile regression for spatial data*, 2019, Sapienza University of Rome, Italy.
7. Steve Donbavand, *Mapping poverty: the application and evaluation of model-based approaches to poverty level estimation within small areas*, 2015, University of Southampton, UK.
8. Innocent Ngaruye, *Small area estimation for multivariate repeated measure data*, 2014, Linköping University, Sweden.

PROFESSIONAL  
EXPERIENCE

**A.T. Kearney**, Munich, Germany

*Consultant*

**April, 2008 - March, 2010**

Implementation of several consulting projects, including modelling of affluent clients for an international bank, benchmarking of costs for mobile operators, and advice on analysis of airline economics data.

**Roland Berger Strategy Consultants**, Munich, Germany

*Summer researcher*

**August, 2006 - October, 2006**

Carried out a consulting project for a German telecommunication company.

COMPUTER SKILLS	<ul style="list-style-type: none"> <li>• Languages: R, C++, L<sup>A</sup>T<sub>E</sub>X, SAS, JMP, STATA and SPSS.</li> <li>• R packages: emdi, saeSim.</li> <li>• Algorithms: Extensive experience programming/evaluating of simulations; parallel computing.</li> <li>• Operating Systems: Unix/Linux, Windows.</li> </ul>
PROFESSIONAL SERVICE	<p><b>Editor-in-Chief:</b> AStA Wirtschafts- und Sozialstatistisches Archiv</p> <p><b>Journal reviewer:</b> Among other, Annals of Applied Statistics, Biometrical Journal, Computational Statistics and Data Analysis, European Journal of Operational Research, International Statistical Review, Journal of American Statistical Association, Journals of the Royal Statistical Society Series A/B/C, Journal of Official Statistics, Journal of Multivariate Analysis, Mathematical Population Studies, Metron, Scandinavian Journal of Statistics, Statistical Papers, Spatial Statistics, Statistics in Transition, Survey Methodology, Survey Research Methods, Test.</p> <p><b>Memberships:</b> German Statistical Society (DStatG), International Association of Survey Statisticians (IASS), International Statistical Institute (ISI), Royal Statistical Society (RSS).</p> <p><b>Boards:</b> Board Member of the German Statistical Society (DStatG), IASS Council Member (2015-2019), ISI Young Statisticians Committee.</p>
OFFER OF PROFESSORSHIP	<p><b>Freie Universität Berlin</b>, Berlin, Germany  <i>Full Professor</i> <span style="float: right;"><b>June, 2020</b></span>  Offer of a Full Professorship in applied statistics at the Freie Universität Berlin.</p> <p><b>Otto-Friedrich-Universität Bamberg</b>, Bamberg, Germany  <i>Full Professor</i> <span style="float: right;"><b>March, 2020</b></span>  Offer of a Full Professorship in statistics and econometrics at the Otto-Friedrich-Universität Bamberg.</p> <p><b>Universität des Saarlandes</b>, Saarbrücken, Germany  <i>Associate Professor</i> <span style="float: right;"><b>August, 2017</b></span>  Offer of an Associate Professorship in quantitative methods and statistics at the Universität des Saarlandes.</p> <p><b>Freie Universität Berlin</b>, Berlin, Germany  <i>Associate Professor</i> <span style="float: right;"><b>March, 2017</b></span>  Offer of an Associate Professorship in applied statistics at the Freie Universität Berlin.</p> <p><b>University of Manchester</b>, Manchester, UK  <i>Associate Professor</i> <span style="float: right;"><b>May, 2016</b></span>  Offer of an Associate Professorship in social statistics at the University of Manchester.</p>