

# Silvia De Nicolò

ASSISTANT PROFESSOR (RTD-A) AT THE UNIVERSITY OF BOLOGNA

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## Research

### Università di Bologna

Department of Statistical Sciences "P. Fortunati"

Bologna, Italy

ASSISTANT PROFESSOR (RTD-A) IN ECONOMIC STATISTICS

Sept. 2023 - Present

"Quantitative analysis of consumer choices, private strategies and food policies" within the **ONFOODS** project, Research and innovation network on food and nutrition Sustainability, Safety and Security – Working ON Foods (PNRR, PE10) under the supervision of Prof. M. Mazzocchi

POST-DOCTORAL FELLOWSHIP

Sept. 2022 - Aug. 2023

"Social exclusion and territorial disparities: poverty and inequality mapping through advance methods of small area estimation" within the **ALMA IDEA 2022** project under the supervision of Prof. S. Capacci and Prof. F.P. Greco.

RESEARCH COLLABORATION

July 2022

"Longitudinal and geo-referenced data to understand the determinants of healthy and sustainable food consumption choices" within the **COMFOCUS** (Communities on Food Consumer Science) project under the supervision of Prof. M. Mazzocchi.

## Education

### Università degli Studi di Padova

PH.D. IN STATISTICS, XXXIV CYCLE

2018 - 2022

- Thesis title: "Small Area Estimation of Inequality Measures". Supervisor: Prof. M.R. Ferrante; Final Exam on May 4<sup>th</sup>, 2022.

### Alma Mater Studiorum Università di Bologna

MASTER DEGREE IN STATISTICS, ECONOMICS AND BUSINESS (QUANTITATIVE METHODS FOR ECONOMICS),

2016 - 2018

FINAL GRADE: 110/110 CUM LAUDE

- Thesis research at CMA-IADCOM (Research Center on Quantitative Methods Applied to Economics and Management) — *Universidad de Buenos Aires, Buenos Aires, Argentina.*

### Università degli Studi di Padova

BACHELOR DEGREE IN STATISTICS AND BUSINESS MANAGEMENT, FINAL GRADE: 103/110

2012 - 2016

- Semester Abroad (Erasmus+ Mobility Programme) — *Universitat Pompeu Fabra, Barcelona, Spain.*

## Teaching

### Università di Bologna

Department of Economics

Bologna, Italy

ADJUNCT PROFESSOR OF THE COURSE:

- **Data Science for Policy Analysis**, BSc in Economics, Politics and Social Science (Module 2, 20 lecture hours, SSD: SECS-S/03, Teaching language: English, a.y. 2023 - 2024, 2024 - 2025)

Department of Management

Forlì, Italy

ADJUNCT PROFESSOR OF THE COURSE:

- **Statistics**, BSc in Business Economics (Module 2, 16 lecture hours, SSD: SECS-S/01, Teaching language: Italian, a.y. 2023 - 2024, 2024 - 2025)
- **Business Statistics**, MSc in Economics and Management (Module 2, 30 lecture hours, SSD: SECS-S/03, Teaching language: Italian, a.y. 2022 - 2023, 2023 - 2024, 2024 - 2025)

#### TUTOR OF THE COURSE:

- **Business Statistics**, MSc in Economics and Management (28 hours, SSD: SECS-S/03, Teaching language: Italian, Teacher: Prof. S. Capacci, a.y. 2021 - 2022)

Department of Statistical Sciences "P. Fortunati"

Bologna, Italy

#### TUTOR OF THE COURSES:

- **Analysis of Income, Poverty and Inequality**, MSc in Statistics, Economics and Business (15 hours, SSD: SECS-S/03, Teaching language: Italian, Teacher: Prof. M.R. Ferrante, a.y. 2019 - 2020, 2020 - 2021, 2021 - 2022)
- **Economic Statistics**, BSc in Statistical Sciences (15 hours, SSD: SECS-S/03, Teaching language: Italian, Teacher: Prof. M.R. Ferrante, a.y. 2019 - 2020, 2020 - 2021, 2021 - 2022)

## Awards

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Honorable mention for the 2023 SIS best PhD thesis award in Applied Statistics

Ancona, Italy

SIS - ITALIAN STATISTICAL SOCIETY

June 2023

Thesis Research Mobility Grant

Bologna, Italy

DEPARTMENT OF STATISTICAL SCIENCES (UNIVERSITÀ DI BOLOGNA)

June 2018

Study Grant for Deserving Students A.Y. 2016/17, 2017/18

ALMA MATER STUDIORUM, UNIVERSITÀ DI BOLOGNA AND MAGNIFICA COMUNITÀ DI CADORE

## Talks

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#### As co-author:

- Contributed Session at the 3<sup>rd</sup> Italian Conference on Economic Statistics, Napoli (Italy), February 2025. *Assessing the targeting of Austrian social assistance schemes: who is left behind?* (joint work with Broka, A., Angel, S.).
- **Invited** Session at the the SIS 2024: 53<sup>rd</sup> Scientific Meeting of the Italian Statistical Society, Università degli Studi di Bari Aldo Moro, Bari (Italy), June 2024. *A Mixture-of-Experts model to deal with the rural/urban dichotomy in small area estimation* (joint work with Fabrizi, E. and Gardini, A.).
- Contributed Session at the ITACOSM 2023, New Challenges for sample survey: Innovation through Tradition, Università della Calabria (Rende, Italy), June 2023. *Dealing with multiple spatial scales in poverty mapping: a Bayesian benchmarked approach* (joint work with Fabrizi, E. and Gardini, A.).
- **Invited** Session at the the SAE 2022: Small Area Estimation, Surveys and Data Science, College Park (Maryland, US), May 2022. *Inflated Beta Models for Poverty Mapping. An Application Integrating Survey and Remote Sensing Data* (joint work with Fabrizi, E. and Gardini, A.).
- Contributed Session at the SAE 2022: Small Area Estimation, Surveys and Data Science, College Park (Maryland, US), May 2022. *The R Package tipsae: Tools for Mapping Proportions and Indicators on the Unit Interval* (joint work with Gardini, A.).
- **Invited** Session at the 58<sup>th</sup> Conference of Statisticians, Econometricians, and Mathematicians from Southern Poland, online, April 2022. *Bayesian Methods for Poverty Mapping: an Application Integrating Survey and Remote Sensing Data* (joint work with Fabrizi, E. and Gardini, A.).

#### As speaker:

- **Invited** Session at the 3<sup>rd</sup> Italian Conference on Economic Statistics, Napoli (Italy), February 2025. *Estimating price pass-through from changes in VAT: a case study on the tampon tax in Italy* (joint work with Biondi, B. and Mazzocchi, M.).
- **Invited** Session at the 15<sup>th</sup> European Evaluation Biennial Conference, Rimini (Italy), September 2024. *An evaluation of the direct impact and spillovers of Special Economic Zones in Italy* (joint work with Biondi, B. and Mazzocchi, M.).
- Contributed Session at the 63<sup>rd</sup> ERSa Congress, Terceira Island, Azores (Portugal), August 2024. *Policy targeting assessment of Austrian social assistance schemes among federal provinces and rural-urban trends* (joint work with Broka, A. and Angel, S.).
- **Invited** Seminar at Statistics Seminars- Department of Statistical Sciences "P.Fortunati", Novembre 2023. *Small area estimation of inequality measures via mixtures of Beta* (joint work with Ferrante, M.R. and Pacei, S.).
- **Invited** Session at the XLIX AISRe Conference 2023, Università degli Studi di Napoli Parthenope (Italy), September 2023. *Mapping income inequality trends between spatial and socio-demographic disparities* (joint work with Ferrante, M.R.).
- **Invited** Talk at "StanConnect 2022, Stan through Space and Time", online workshop, October 2022. *The tipsae package: mapping indicators through space and time via small area estimation* (joint work with Gardini, A.).

- **Invited** Session at the XLIII AISRe Conference 2022, Politecnico di Milano (Italy), September 2022. *Extended Beta Models for Poverty Mapping: An Application Integrating Survey and Remote Sensing Data in Bangladesh* (joint work with Fabrizi, E., Gardini, A.).
- **Invited** Session at the SIS 2022: 51<sup>st</sup> Scientific Meeting of the Italian Statistical Society, Università della Campania Luigi Vanvitelli, Caserta (Italy), June 2022. *Small Area Estimation of Relative Inequality Indices using Mixture of Beta* (joint work with Pacei, S.).
- Contributed Session at the SIS 2022: 51<sup>st</sup> Scientific Meeting of the Italian Statistical Society, Università della Campania Luigi Vanvitelli, Caserta (Italy), June 2022. *Mapping Indicators on the Unit Interval: the tipsae Shiny App* (joint work with Gardini, A.).
- Contributed Session at the the SAE 2021, Conference on Big Data for Small Area Estimation, online, September 2021. *Flexible Small Area Estimation of Theil Index using Mixture of Beta* (joint work with Ferrante, M.R. and Pacei, S.).
- **Invited** Session at the the XLII AISRe Web Conference 2021, AISRe and Joint Research Center, online, September 2021. *Small Area Estimation of Inequality Measures* (joint work with Ferrante, M.R. and Pacei, S.).
- Contributed Session at the 9<sup>th</sup> Meeting of the ECINEQ Society, online, July 2021. *Mind the Income Gap: the Estimation of Inequality Indexes in Small Samples* (joint work with Ferrante, M.R. and Pacei, S.).
- Contributed Session at the SIS 2021: 50<sup>th</sup> Scientific Meeting of the Italian Statistical Society, online, June 2021. *Small Area Estimation of Inequality Measures via Simplex Regression* (joint work with Ferrante, M.R. and Pacei, S.).
- **Invited** Seminar at the CMA-IADCOM Research Center, Universidad de Buenos Aires, Buenos Aires (Argentina), July 2018. *Trade and the Environmental Kuznets Curve: evidences from Latin America* (joint work with Patuelli, R.).

## Publications

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- Benedetti, E., Biondi, B., De Nicolò, S., Mazzocchi, M. (2025+) A structured, collaborative and open access database of food policies in Europe: Introducing EU F-POD, Eurochoices, in press.
- De Nicolò, S., Ferrante, M.R. (2025+). Mapping income inequality trends between spatial and socio-demographic disparities. Review of Income and Wealth, in press.
- Gardini, A., De Nicolò, S., Fabrizi, E. (2025+). A Mixture-of-Experts model to deal with the rural/urban dichotomy in small area estimation, *Journal of the Royal Statistical Society Series C: Applied Statistics*, in press.
- De Nicolò, S., Fabrizi, E., Gardini, A. (2024). Extended Beta models for poverty mapping. An application integrating survey and remote sensing data in Bangladesh, *Annals of Applied Statistics*, 18(4), pp. 3229-3252.
- De Nicolò, S., Fabrizi, E., Gardini, A. (2024). Mapping non-monetary poverty at multiple geographical scales, *Journal of the Royal Statistical Society Series A: Statistics in Society*, 187 (4), pp. 1096 - 1119.
- De Nicolò, S., Ferrante, M.R., Pacei, S. (2024). Small area estimation of inequality measures using mixtures of Beta, *Journal of the Royal Statistical Society Series A: Statistics in Society*, 187 (1), pp. 83 - 107.
- De Nicolò, S., Ferrante, M.R., Pacei, S. (2024). Small-sample bias correction of inequality estimators in complex surveys, *Journal of Official Statistics*, 40, pp. 238 - 261.
- De Nicolò, S., Gardini, A. (2024). SAE models for indicators in the unit interval: The tipsae R package and its Shiny interface. Invited contribution to *The Survey Statistician*, 2024, Vol. 89, 76–85. ISSN: 2521-991X.
- De Nicolò, S., Gardini, A. (2024). The R package tipsae: Tools for mapping proportions and indicators on the unit interval, *Journal of Statistical Software*, 108 (1), pp. 1 - 36.

## Submitted & Working Papers

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- D'Alberto, A., De Nicolò, S., Gardini, A. (2025+). Estimating poverty transitions from repeated cross-sections: A statistical perspective.
- Pacei, S., De Nicolò, S., Ferrante, M.R. (2025+) The measurement of economic resilience: A proposal.

## Proceedings

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- Gardini, A., De Nicolò, S., Fabrizi, E. (2025). Mapping Well-Being Through a Mixture-of-Experts Fay-Herriot Model. In: Pollice, A., Mariani, P. Methodological and Applied Statistics and Demography I. SIS 2024. Italian Statistical Society Series on Advances in Statistics, pp 57–62. Springer, ISBN 978-3-031-64346-0.
- De Nicolò, S., Pacei, S. (2022). Small Area Estimation of Relative Inequality Indices using Mixture of Beta, in Balzanella, A., Bini, M., Cavicchia, C., Verde, R. *Book of short papers - SIS 2022*, Pearson, pp. 301-305, ISBN 9788891932310.
- De Nicolò, S., Gardini, A. (2022). Mapping Indicators on the Unit Interval: the tipsae Shiny App, in Balzanella, A., Bini, M., Cavicchia, C., Verde, R. *Book of short papers - SIS 2022*, Pearson, pp. 881-886, ISBN 9788891932310.
- De Nicolò, S., Ferrante, M.R., Pacei, S. (2021). Flexible Small Area Estimation of Theil Index using Mixture of Beta, in Pratesi, M., Siciliano, R., Bertarelli, G., D'Ambrosio, A. *Book of short papers – SAE2021 BIG4small*, Edizioni Zaccaria, pp. 57-62, ISBN 9788899594138.
- De Nicolò, S., Ferrante, M.R., Pacei, S. (2021). Small Area Estimation of Inequality Measures via Simplex Regression, in Perna, C., Salvati, N., Schirripa Spagnolo, F. *Book of short papers - SIS 2021*, Pearson, pp. 1051-1056, ISBN 9788891927361.

## Skills

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<b>Languages</b>	Italian (Mother tongue), English (IELTS Band 7.0), Spanish (Certified B2)
<b>Programming Languages</b>	R, Python, C++, Stan, BUGS, SAS, SQL, Latex
<b>Other Frameworks</b>	Gretl, JMulti, SPSS, SAP

## Miscellanea

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**Member** of the Associazione Italiana di Scienze Regionali (AISRe), Regional Science Association International (RSAI) and Società Italiana di Statistica (SIS)

**Served as Referee** for the Journal of Official Statistics, the Journal of the Royal Statistical Society: Series C, Social Indicators Research and Statistical Methods & Applications

**Chair** of the Local Organizing Committee of the ITACOSM2025-IASS Satellite Conference

*Bologna, Italy*

**Discussant** of the session *Small area estimation under limited access to population auxiliary information* at ITACOSM 2023

*July 2025*

*Rende, Italy*

UNIVERSITÀ DELLA CALABRIA

*June 2023*

**Chair** of the session *Estimation Methods* at the 9<sup>th</sup> Meeting of the ECINEQ

*London, UK*

LONDON SCHOOL OF ECONOMICS

*July 2021*

**Co-advisor** of the master thesis *Rural-urban analysis in poverty mapping: an application to Austrian EU-SILC data* by A. Broka, WIFO visiting fellow

*Wien, AT*

WIFO - AUSTRIAN INSTITUTE OF ECONOMIC RESEARCH

*October 2023*

**Member** of the committee in 3 public selections for research grant awarding

*Bologna, Italy*

UNIVERSITÀ DI BOLOGNA - DEPARTMENT OF STATISTICAL SCIENCES "P. FORTUNATI"

**Tutor** for Internationalization

*Bologna, Italy*

UNIVERSITÀ DI BOLOGNA - DEPARTMENT OF STATISTICAL SCIENCES "P. FORTUNATI"

*2021-2023*

Autorizzo il trattamento dei miei dati personali ai sensi del Dlgs 196 del 30 giugno 2003 e dell'art. 13 GDPR (Regolamento UE 2016/679).