

## CURRICULUM VITAE - Marzia Marcheselli

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### CURRENT POSITION

Since December 2018, Full Professor of Statistics, Department of Economics and Statistics, University of Siena, Italy.

### PREVIOUS EXPERIENCE

2006-2018: Associate Professor of Statistics (SECS-S/01), University of Siena.

2000-2006: Assistant Professor of Statistics (SECS-S/01), University of Siena.

### EDUCATION

1993 - Degree in Scienze Statistiche ed Economiche (110/110 cum laude), Università di Siena.

1998 - PhD in Applied Statistics, University of Florence.

### PUBLICATIONS

Di Noia, A., Marcheselli, M., Pisani, C., Pratelli, L. (2023) Censoring heavy-tail count distributions for parameter estimation with an application to stable distributions, *Statistics and Probability Letters*, **202**, 109903. DOI: 10.1016/j.spl.2023.109903.

Di Noia, A., Marcheselli, M., Pisani, C., Pratelli, L. (2023) A family of consistent normally distributed tests for Poissonity, *Asta Advances in Statistical Analysis*. Published online: 15 June 2023. DOI: 10.1007/s10182-023-00478-8.

G. Collodel, L. Gambera, A. Stendardi, F. Nerucci, C. Signorini, C. Pisani, M. Marcheselli, F. L. Vellucci, S. E. Pizzasegale, L. Micheli, E. Moretti (2023) Follicular fluid components in reduced ovarian reserve, endometriosis, and idiopathic infertility, *International Journal of Molecular Sciences*, **24**, 2589. DOI: 10.3390/ijms24032589.

L.Fattorini, S. Franceschi, M. Marcheselli, C. Pisani, L. Pratelli (2023) Design-based spatial interpolation with data driven selection of the smoothing parameter, *Environmental and Ecological Statistics*, **30**, 103–129. DOI: 10.1007/s10651-023-00555-w.

Di Noia, L. Fattorini, M. Marcheselli, C. Pisani, Pratelli, L. (2023). Goodness-of-fit test for count distributions with finite second moment, *Journal of Nonparametric Statistics*. DOI: 10.1080/10485252.2022.2137728.

- L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2022). Design-based properties of the nearest neighbour spatial interpolator and its bootstrap mean squared error estimator, *Biometrics*, **78**, 1454–1463. DOI: 10.1111/biom.13505.
- L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2021). Two-phase sampling strategies for design-based mapping of continuous spatial populations in environmental surveys, *Annals of Applied Statistics*, **15**, 287–303. DOI: 10.1214/20-AOAS1392.
- L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2020). Design-based consistency of the Horvitz-Thompson estimator under spatial sampling with applications to environmental surveys, *Spatial Statistics*, **35**, 100404. DOI: 10.1016/j.spasta.2019.100404.
- L. Fattorini, R.M. Di Biase, D. Giularelli, M. Marcheselli, C. Pisani, P. Corona (2019) Mapping the diversity of forest attributes: a design-based approach, *Canadian Journal of Forest Research*, **49**, 190–197. DOI: 10.1139/cjfr-2018-0204.
- P. Corona, L. Fattorini, S. Franceschi, M. Marcheselli, C. Pisani, U. Chiavetta, N. Puletti (2019). Estimating tree diversity in forest ecosystems by two-phase inventories, *Environmetrics*, **30**, e2502. DOI: 10.1002/env.2502.
- L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2019). Design-based mapping for finite populations of marked points, *Electronic Journal of Statistics*, **13**, 2121–2149. DOI: 10.1214/19-EJS1572.
- S. Franceschi, M. Marcheselli, S. Naddeo, C. Pisani (2019) Design-based inference on Bernstein type estimators for continuous populations, *Biometrical Journal*, **61**, 166–186. DOI: 10.1002/bimj.201800106.
- M. Marchetti, V. Garfi, C. Pisani, S. Franceschi, M. Marcheselli, P. Corona, N. Puletti, M. Vizzarri, M. di Cristofaro, M. Ottaviano, L. Fattorini (2018). Inference on forest attributes and ecological diversity of trees outside forest by a two-phase inventory, *Annals of Forest Science*, **75**, art. 37. DOI: 10.1007/s13595-018-0718-6.
- A. Chiarucci, R. M. Di Biase, L. Fattorini, M. Marcheselli, C. Pisani (2018). Joining the incompatible: exploiting purposive lists for the sample-based estimation of species richness, *Annals of Applied Statistics*, **12**, 1679–1699. DOI: 10.1214/17-AOAS1126.
- L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2018). Design-based maps for continuous spatial populations, *Biometrika*, **105**, 419–429. DOI: 10.1093/biomet/asy012.
- L. Fattorini, M. Marcheselli, L. Pratelli (2018). Design-based maps for finite populations of spatial units, *Journal of the American Statistical Association*, **113**, 686–697. DOI: 10.1080/01621459.2016.1278174.
- L. Barabesi, C. Becatti, M. Marcheselli (2018). The discrete Linnik distribution, *Statistical Methods and Applications*, **27**, 45–68. DOI 10.1007/s10260-017-0386-y.
- L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2017). Design-based asymptotics for two-phase sampling strategies in environmental surveys, *Biometrika*, **104**, 195–205. DOI: 10.1093/biomet/asw062.
- L. Barabesi, L. Fattorini, M. Marcheselli, C. Pisani, L. Pratelli (2015). The estimation of diversity indexes by using stratified allocations of plots, points or transects, *Environmetrics*, **26**, 202–215. DOI: 10.1002/env.2330.
- P. Corona, G. Chirici, S. Franceschi, D. Maffei, M. Marcheselli, C. Pisani, L. Fattorini (2014). Design-based treatment of missing data in forest inventories using canopy heights from aerial laser scanning, *Canadian Journal of Forest Research*, **44**, 892–902. DOI: 10.1139/cjfr-2013-0521.
- L. Pratelli, A. Baccini, L. Barabesi, M. Marcheselli (2012). Statistical analysis of the Hirsch index, *Scandinavian Journal of Statistics*, **39**, 681–694. DOI: 10.1111/j.1467-9469.2011.00782.x.
- A. Baccini, L. Barabesi, M. Marcheselli, L. Pratelli (2012). Statistical inference on the h-index with an application to top-scientist performance, *Journal of Informetrics*, **6**, 721–728. DOI: 10.1016/j.joi.2012.07.009.

- L. Barabesi, M. Marcheselli, S. Franceschi (2012). A randomized response procedure for multiple-sensitive questions, *Statistical Papers*, **53**, 703-718. DOI: 10.1007/s00362-011-0374-5.
- L. Barabesi, S. Franceschi, M. Marcheselli (2012). Properties of design-based estimation under stratified spatial sampling with application to canopy coverage estimation, *Annals of Applied Statistics*, **6**, 210-228. DOI: 10.1214/11-AOAS509.
- L. Barabesi, M. Marcheselli (2011). Parameter estimation in the classical occupancy model, *Statistical Methods and Applications*, **20**, 305-327. DOI: 10.1007/s10260-010-0155-7.
- L. Fattorini, M. Giordano, M. Marcheselli, A. Meriggi (2011). Species abundance and diversity index estimation in point transect sampling using composite approach, *Environmetrics*, **22**, 587-596. DOI: 10.1002/env.1091.
- L. Barabesi, M. Marcheselli (2010). Bayesian estimation of proportion and sensitivity level in randomized response procedures, *Metrika*, **72**, 75-88. DOI: 10.1007/s00184-009-0242-7.
- A. Baccini, M. Marcheselli, L. Barabesi (2009). How are statistical journals linked? A network analysis, *Chance*, **22**, 35-45. ISSN: 0933-2480.
- L. Barabesi, M. Marcheselli (2008). Improved strategies for coverage estimation by using replicated line-intercept sampling, *Environmental and Ecological Statistics*, **15**, 215-239. DOI: 10.1007/s10651-007-0048-6.
- M. Marcheselli, A. Baccini, L. Barabesi (2008). Parameter estimation for the discrete stable family, *Communications in Statistics – Theory and Methods*, **37**, 815-830. DOI: 10.1080/03610920701570298.
- L. Fattorini, M. Marcheselli, A. Monaco, C. Pisani (2007). A critical look at some widely-used estimators in mark-resighting experiments, *Journal of Animal Ecology*, **76**, 957-965. DOI: 10.1111/j.1365-2656.2007.01275.x.
- M. Marcheselli, L. Pratelli (2007). Some asymptotic results on the sum of variances of order statistics, *International Journal of Contemporary Mathematical Sciences*, **2**, 103 -113. ISSN: 1312-7586.
- M. Marcheselli, L. Barabesi (2006). A generalization of Huang's randomized response procedure for the estimation of proportion and sensitivity level, *Metron*, **LXIV**, 145-159. ISSN: 00261424.
- L. Barabesi, M. Marcheselli (2006). A practical implementation and Bayesian estimation in Franklin's randomized response procedure, *Communications in Statistics – Simulation and Computation*, **35**, 563-573. DOI: 10.1080/03610910600716548.
- L. Fattorini, M. Marcheselli, C. Pisani (2006). A three-phase sampling strategy for large-scale multiresource forest inventories, *Journal of Agricultural, Biological and Environmental Statistics*, **11**, 296-316. DOI: 10.1198/108571106X130548.
- L. Barabesi, M. Marcheselli (2005). Some large-sample results on a modified Monte Carlo integration method, *Journal of Statistical Planning and Inference*, **135**, 420-432. DOI:10.1016/j.jspi.2004.05.010.
- L. Barabesi, M. Marcheselli (2005). Monte Carlo integration strategies for design-based regression estimator of the spatial mean, *Environmetrics*, **16**, 803-817. DOI: 10.1002/env.735.
- L. Barabesi, M. Marcheselli (2005). Riemann estimation for replicated environmental sampling designs, *Journal of Mathematics and Statistics*, **1**, 291-295. ISSN: 1549-3644.
- L. Fattorini, M. Marcheselli, C. Pisani (2004). Two-phase estimation of coverages with second-phase corrections, *Environmetrics*, **15**, 357-368. DOI:10.1002/env.647.
- L. Barabesi, M. Marcheselli (2004). Design-based ranked set sampling using auxiliary information, *Environmental and Ecological Statistics*, **11**, 415-430. DOI: 10.1007/s10651-004-4187-8.
- M. Marcheselli (2003). Asymptotic results in jackknifing non-smooth functions of the sample mean vector, *Annals of Statistics*, **31**, 1885-1904. DOI:10.1214/aos/1074290330.

- M. Marcheselli (2002). Assessing the biotic distance between groups of biological populations by means of replicated counts, *Environmetrics*, **13**, 215-223. DOI: 10.1002/env.515.
- L. Barabesi, M. Marcheselli (2002). Species abundance estimation using point-to-plant sampling in a design-based setting, *Environmental and Ecological Statistics*, **9**, 393–403. DOI: 10.1023/A:1020966723737.
- L. Fattorini, M. Marcheselli (2002). Empirical investigation about statistical properties of abundance estimates based on line-intercept and network sampling of tracks, *Statistical Methods and Applications*, **11**, 217-226. DOI: 10.1007/bf02511488.
- M. Marcheselli (2000). A generalized delta method with applications to intrinsic diversity profiles, *Journal of Applied Probability*, **37**, 504-510. DOI: 10.1239/jap/1014842553.
- L. Fattorini, M. Marcheselli (1999). Inference on intrinsic diversity profiles of biological populations, *Environmetrics*, **10**, 549-599. DOI: 10.1002/(SICI)1099-095X(199909/10)10:5 <589::AID-ENV374>3.0.CO;2-0.
- M. Marcheselli (1999). Some singularities in jackknifing non-smooth functions of the sample mean vector, *Metron*, **LVII**, 127-139. ISSN: 00261424.
- M. Marcheselli (1999). Some considerations concerning r-Gaussian random variables, *Rendiconti dell'Accademia Nazionale delle Scienze (detta dei XL)*, *Memorie di Matematica e Applicazioni XXIII*, 167-171.

#### PRESENTED PAPERS AT CONFERENCE

- Di Biase, R.M., Marcheselli, M., Pisani, C. (2023) Achieving spatial balance without tears: the tessellation sampling schemes, *8<sup>th</sup> Italian Conference on Survey Methodology ITACOSM*, Cosenza, 7-9 giugno.
- P. Corona, L. Fattorini, S. Franceschi, C. Pisani, M. Marcheselli, L. Pratelli (2019) Design-based mapping of forest resources from two-phase inventories, *A century of national forest inventories – informing past, present and future decisions*, Sundvolden Hotel, Norway, 19-23 maggio.
- L. Fattorini, M. Marcheselli, C. Pisani (2018). Design-based mapping in environmental surveys, *XLIX Riunione della SIS*, Palermo, 20-22 giugno.
- M. Marcheselli, C. Pisani (2015). Replicated environmental sampling for diversity indexes estimation, Specialized invited session *Fourth Italian Conference on Survey Methodology ITACOSM*, Roma, 24-26 giugno.
- M. Marcheselli, C. Pisani (2013). The estimation of diversity indexes by stratified allocation of plots, points or transects, *1st Southern European Conference on Survey Methodology (SESM)*, Barcellona, 12-14 dicembre.
- L. Barabesi, S. Franceschi, M. Marcheselli (2012). A randomized response procedure for multiple-sensitive questions, *Strategie complesse di campionamento per le indagini ambientali e sociali*, Riunione Finale PRIN 2008, Siena, 17 febbraio.
- L. Barabesi, S. Franceschi, M. Marcheselli (2012). How to select sample sites onto a study area? *XLVI Riunione Scientifica della SIS*, Roma 20-22 giugno.
- L. Barabesi, S. Franceschi, M. Marcheselli (2011). Design-based estimation under stratified spatial sampling, *1st Conferenze on Spatial Statistics 2011*, Enschede, 23-25 marzo.
- L. Fattorini, M. Marcheselli, C. Pisani (2008). Confidence intervals for abundance in point-transect surveys, *GRASPA Conference 2008 - Intermediate meeting of GRASPA-PRIN 2006 on Environmental Statistics*, Siena.

L. Fattorini, M. Marcheselli, C. Pisani (2008). Alcune considerazioni critiche sull'uso del software DISTANCE nelle indagini di tipo line-transect e point-transect, presentato al *Secondo Convegno Nazionale AGIF, Distance sampling methods: applicabilità e limiti - Qualificazione e ambito professionale del tecnico faunistico*, Serra San Quirico (Ancona), 10 maggio.

M. Marcheselli, C. Pisani (2007). A critical look at some widely-used estimators in mark-resighting experiments, *L'inter-disciplinarietà nelle problematiche ambientali: analisi dei contributi di tre progetti PRIN 2004*, Lecce, 19-20 aprile.

M. Marcheselli, C. Pisani (2006). Estimating population size by mark-resighting counts: theoretical and empirical results, *Spatial Data Methods for Environmental and Ecological Processes*, Foggia, 14-15 Settembre.

M. Marcheselli, C. Pisani (2005). Estimating population size by mark-resighting counts: theoretical and empirical results, *Convegno Intermedio della SIS - Statistica e Ambiente*, Messina, 21-23 settembre.

M. Marcheselli, L. Pratelli (2002). Conservative confidence bands for intrinsic diversity profiles, *XLI Riunione Scientifica della SIS*, Milano, 5-7 giugno.

L. Fattorini, M. Marcheselli, C. Pisani (2001). Two-stage estimation of abundance at large scale: design-based and model-based approaches, *SPRUCE Advanced Workshop on Environmental Sampling and Monitoring*, Estoril 22-24 Marzo.

L. Fattorini, M. Marcheselli (2001). Statistical properties of abundance estimates based on line-intercept and network sampling of tracks, *Modelli Complessi e Metodi Computazionali Intensivi per la Stima e la Previsione*, S.Co. 2001, Bressanone, 24-26 settembre.

L. Barabesi, L. Fattorini, G. Ridolfi (1997). Incomplete area surveys in environmental studies, *Bullettin of 51st Session of the International Statistical Institute*, Istanbul, 19-27 agosto.

#### SERVICES IN SCIENTIFIC CONFERENCES ORGANIZATION

Member of the Organizing Committee of ITACOSM2009 - *The First ITALian Conference on Survey Methodology*, Siena, June, 10-12, 2009.

Member of the Program Committee of *XLIX Riunione Scientifica della SIS*, Salerno, June, 8-10, 2016.

Member of the Organizing Committee of *International Workshop on Statistical Inference for assessing and monitoring natural resources*, Siena, November, 10-11, 2016.

Member of the Program Committee of *TIES-GRASPA 2017 Conference on Climate and Environment*, Bergamo, July, 23-26, 2017.

Member of the Organizing Committee of *International Workshop on Statistical inference for assessing and monitoring natural resources and biodiversity*, Siena, November, 8-9, 2022.

#### PROFESSIONAL SERVICES

Research activity for Agriconsulting S.p.A. (July, 6th – September, 12<sup>th</sup>, 2012) to define the estimation methods of agri-environmental parameters, sample selection, data validation and estimation.

#### MAIN GRANT

PRIN 2004. Member of the Research Unit of the University of Siena.

Project title: “*Statistical methods for handling complexity and uncertainty in environmental studies*”

Principal investigator: Daniela Cocchi, University of Bologna.

PRIN 2006. Member of the Research Unit of the University of Siena.

Project title: “*Methods for collecting and analysing environmental data*”

Principal investigator: Lucio Barabesi, University of Siena.

PRIN 2008. Member of the Research Unit of the University of Siena.

Project title: “*New developments in sampling theory and practice*”

Principal investigator: Daniela Cocchi, University of Bologna.

PRIN2020. Associated Investigator of the Research Unit of the University of Siena.

Project title: “*Wildlife in the Anthropocene: behavioral, genetic and physiological responses to urbanization in two mammal species*”.

Principal Investigator: Marco Apollonio, Università di Sassari.

PRIN2020PNRR. Member of the Research Unit of the University of Siena.

Project title: “*Statistics for vegetation biodiversity: estimation and mapping (SVeBio)*”.

Principal Investigator: Sara Franceschi, Università di Siena.

#### TEACHING

Mathematical Statistics, Environmental Statistics, Statistics, Multivariate Statistics.

#### MEMBERSHIP

Since 2000, Italian Statistical Society.

Since 2006, Member of work group SIS S2G – Methods for sampling Surveys.

Since 2017, Member of work group SIS GRASPA - Research Group for Statistical Applications to Environmental Problems since 2017.

Since 2023, Member of the International Statistical Institute (ISI) and of The International Environmetrics Society (TIES).