

Raffaella Piccarreta

Associate Professor



Knowledge Group: Economics, Politics and Decision Sciences

Research Domains: Business Data Analytics

Teaching Domains:

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Biography

Raffaella Piccarreta is an Associate Professor of Statistics at Università Bocconi. She is a fellow of Dondena (Centre for Research on Social Dynamics and Public Policy), of BIDSA (Bocconi Institute for Data Science and Analytics) and of the CovidCrisis Lab (Laboratory for Coronavirus Crisis Research). She is a member of the SIS (Italian Statistics Society) and of SAA (Sequence Analysis Association), and one of the members of the Executive Committee of SAA.

Her work focuses on data analysis. Most of her research relates to the study of life course trajectories and events. She has a specific interest for Sequence Analysis, a technique aimed at identifying patterns in categorical longitudinal data, as well as for all the approaches to deal with this type of data. She coauthored a number of papers focused on different data. In particular, recently she worked on data on COVID-19. She is the author of numerous articles on her topics of interest. Her works have been published in the Epidemiology Journal, Studies in Classification, Data Analysis and Knowledge Organization and Studies in Classification, Data Analysis and Knowledge Organization, among others.

She has a Degree in Economics and Social Sciences (DES) from Università Bocconi and a Phd in Statistics from University of Trento.

Textbooks

Applied Statistical Methods

TRENTINI, F., D. TONINI, R. PICCARRETA - "Applied Statistical Methods" - 2025, Egea, Milano, Italy

Statistica Descrittiva: Esercizi risolti e guida alla soluzione usando Excel

PICCARRETA, R., M. MEZZETTI - "Statistica Descrittiva: Esercizi risolti e guida alla soluzione usando Excel" - 2002, Egea, Milano, Italy

Lezioni di inferenza statistica

PICCARRETA, R., P. VERONESE - "Lezioni di inferenza statistica" - 2001, Schönenfeld & Ziegler, Italy

Note di statistica descrittiva

MOLTENI, L., R. PICCARRETA - "Note di statistica descrittiva" - 2001, Egea, Milano, Italy

Articles in Scholarly Journals

Identifying and Qualifying Deviant Cases in Clusters of Sequences: The Why and The How

PICCARRETA, R., E. STRUFFOLINO, "Identifying and Qualifying Deviant Cases in Clusters of Sequences: The Why and The How", European Journal of Population - Revue Européenne de Démographie, 2024, vol. 40, no. 1

Tools for analysing fuzzy clusters of sequences data

PICCARRETA, R., E. STRUFFOLINO, "Tools for analysing fuzzy clusters of sequences data", Demographic Research, 2024, vol. 51, pp. 553-576

Pressure on the Health-Care System and Intensive Care Utilization During the COVID-19 Outbreak in the Lombardy Region of Italy: A Retrospective Observational Study in 43,538 Hospitalized Patients

TRENTINI, F., V. MARZIANO, G. GUZZETTA, M. TIRANI, D. CEREDA, P. POLETTI, R. PICCARRETA, A. BARONE, G. PREZIOSI, F. ARDUINI, P. G. DELLA VALLE, A. ZANELLA, F. GROSSO, G. DEL CASTILLO, A. CASTROFINO, G. GRASSELLI, A. MELEGARO, A. PIATTI, A. ANDREASSI, M. GRAMEGNA, M. AJELLI, S. MERLER, "Pressure on the Health-Care System and Intensive Care Utilization During the COVID-19 Outbreak in the Lombardy Region of Italy: A Retrospective Observational Study in 43,538 Hospitalized Patients", American Journal of Epidemiology, 2022, vol. 191, no. 1, pp. 137-146

Life-course perspective on personality traits and fertility with sequence analysis

MENCARINI, L., R. PICCARRETA, M. LE MOGLIE, "Life-course perspective on personality traits and fertility with sequence analysis", Journal of the Royal Statistical Society. Series A - Statistics in Society, 2022, vol. 185, no. 3, pp. 1344-1369

Sequence analysis: Its past, present, and future

LIAO, T. F., D. BOLANO, C. BRZINSKY-FAY, B. CORNWELL, A. E. FASANG, S. HELSKE, R. PICCARRETA, M. RAAB, G. RITSCHARD, E. STRUFFOLINO, M. STUDER, "Sequence analysis: Its past, present, and future", Social Science Research, 2022, vol. 107, pp. 102772

Colombian Women's Life Patterns: A Multivariate Density Regression Approach

WADE, S., R. PICCARRETA, A. CREMASCHI, I. ANTONIANO-VILLALOBOS, "Colombian Women's Life Patterns: A Multivariate Density Regression Approach", Bayesian Analysis, 2022, vol. 17, no. 2, pp. 405 - 433

Association of Age With Likelihood of Developing Symptoms and Critical Disease Among Close Contacts Exposed to Patients With Confirmed SARS-CoV-2 Infection in Italy

POLETTI, P., M. TIRANI, D. CEREDA, F. TRENTINI, G. GUZZETTA, V. MARZIANO, G. SABATINO, A. CASTROFINO, F. GROSSO, G. DEL CASTILLO, R. PICCARRETA, A. ANDREASSI, A. MELEGARO, M. GRAMEGNA, M. AJELLI, S. MERLER, ATS LOMBARDY COVID-19 TASK FORCE, "Association of Age With Likelihood of Developing Symptoms and Critical Disease Among Close Contacts Exposed to Patients With Confirmed SARS-CoV-2 Infection in Italy", JAMA Network Open, 2021, vol. 4, no. 3, pp. 1-10

A Bayesian Approach for Model-Based Clustering of Several Binary Dissimilarity Matrices: The Package in

VENTURINI, S., R. PICCARRETA, "A Bayesian Approach for Model-Based Clustering of Several Binary Dissimilarity Matrices: The Package in", Journal of Statistical Software, 2021, vol. 100, no. 16, pp. 1-35

Seroprevalence of and Risk Factors Associated With SARS-CoV-2 Infection in Health Care Workers During the Early COVID-19 Pandemic in Italy

POLETTI, P., M. TIRANI, D. CEREDA, G. GUZZETTA, F. TRENTINI, V. MARZIANO, C. TOSO, A. PIATTI, R. PICCARRETA, A. MELEGARO, A. ANDREASSI, M. GRAMEGNA, M. AJELLI, S. MERLER, "Seroprevalence of and Risk Factors Associated With SARS-CoV-2 Infection in Health Care Workers During the Early COVID-19 Pandemic in Italy", JAMA Network Open, 2021, vol. 4, no. 7

The early phase of the COVID-19 epidemic in Lombardy, Italy

CEREDA, D., M. MANICA, M. TIRANI, F. ROVIDA, V. DEMICHELI, M. AJELLI, P. POLETTI, F. TRENTINI, G. GUZZETTA, V. MARZIANO, R. PICCARRETA, A. BARONE, M. MAGONI, S. DEANDREA, G. DIURNO, M. LOMBARDO, M. FACCINI, A. PAN, R. BRUNO, E. PARIANI, G. GRASSELLI, A. PIATTI, M. GRAMEGNA, F. BALDANTI, A. MELEGARO, S. MERLER, "The early phase of the COVID-19 epidemic in Lombardy, Italy", Epidemics, December 2021, vol. 37, pp. 100528

Clustering longitudinal life-course sequences using mixtures of exponential-distance models

MURPHY, K., T. B. MURPHY, R. PICCARRETA, I. C. GORMLEY, "Clustering longitudinal life-course sequences using mixtures of exponential-distance models", Journal of the Royal Statistical Society. Series A - Statistics in Society, 2021, vol. 184, no. 4, pp. 1414-1451

A quantitative assessment of epidemiological parameters required to investigate COVID-19 burden

ZARDINI, A., M. GALLI, M. TIRANI, D. CEREDA, M. MANICA, F. TRENTINI, G. GUZZETTA, V. MARZIANO, R. PICCARRETA, A. MELEGARO, M. AJELLI, P. POLETTI, S. MERLER, "A quantitative assessment of epidemiological parameters required to investigate COVID-19 burden", Epidemics, December 2021, vol. 37, pp. 100530

Age-specific SARS-CoV-2 infection fatality ratio and associated risk factors, Italy, February to April 2020

POLETTI, P., M. TIRANI, D. CEREDA, F. TRENTINI, G. GUZZETTA, V. MARZIANO, S. BUORO, S. RIBOLI, L. CROTTOGINI, R. PICCARRETA, A. PIATTI, G. GRASSELLI, A. MELEGARO, M. GRAMEGNA, M. AJELLI, S. MERLER, "Age-specific SARS-CoV-2 infection fatality ratio and associated risk factors, Italy, February to April 2020", Eurosurveillance, 2020, vol. 25, no. 31, pp. 2001383

Holistic analysis of the life course: Methodological challenges and new perspectives

PICCARRETA, R., M. STUDER, "Holistic analysis of the life course: Methodological challenges and new perspectives", *Advances in Life Course Research*, September 2019, vol. 41, pp. 100251

Households' changing structure and consumption: the effect of the economic crisis during the period 2008-2013

MACCHERONI, C., R. PICCARRETA, "Households' changing structure and consumption: the effect of the economic crisis during the period 2008-2013", *Rivista di Statistica Ufficiale*, 2018, vol. 2-3, pp. 37-76

Joint Sequence Analysis

PICCARRETA, R., "Joint Sequence Analysis", *Sociological Methods & Research*, 2017, vol. 46, no. 2, pp. 252-287

Transition to Parenthood and HIV Infection in Rural Zimbabwe

DEL FAVA, E., R. PICCARRETA, S. GREGSON, A. MELEGARO, P. ANGLEWICZ, "Transition to Parenthood and HIV Infection in Rural Zimbabwe", *Plos One*, 2016, vol. 11, no. 9

The Relationship Between Clinical Instability and Endurance Tests, Pain, and Disability in Nonspecific Low Back Pain

VANTI, C., C. CONTI, F. FARESIN, S. FERRARI, R. PICCARRETA, "The Relationship Between Clinical Instability and Endurance Tests, Pain, and Disability in Nonspecific Low Back Pain", *Journal of Manipulative and Physiological Therapeutics*, 2016, vol. 39, no. 5, pp. 359-368

Pain, Disability, and Diagnostic Accuracy of Clinical Instability and Endurance Tests in Subjects With Lumbar Spondylolisthesis

FERRARI, S., C. VANTI, R. PICCARRETA, M. MONTICONE, "Pain, Disability, and Diagnostic Accuracy of Clinical Instability and Endurance Tests in Subjects With Lumbar Spondylolisthesis", *Journal of Manipulative and Physiological Therapeutics*, 2014, vol. 37, no. 9, pp. 647-659

Parametric and Nonparametric Analysis of Life Courses: An Application to Family Formation Patterns

BONETTI, M., R. PICCARRETA, G. SALFORD, "Parametric and Nonparametric Analysis of Life Courses: An Application to Family Formation Patterns", *Demography*, 2013, vol. 50, no. 3, pp. 881-902

Italian Version of the Physical Therapy Patient Satisfaction Questionnaire: Cross-Cultural Adaptation and Psychometric Properties

VANTI, C., M. MONTICONE, D. CERON, F. BONETTI, R. PICCARRETA, A. A. GUCCIONE, P. PILLASTRINI, "Italian Version of the Physical Therapy Patient Satisfaction Questionnaire: Cross-Cultural Adaptation and Psychometric Properties", *Physical Therapy*, 2013, vol. 93, no. 7, pp. 911-922

Cross-cultural adaptation and validation of the Physical Therapy Outpatient Satisfaction Survey in an Italian musculoskeletal population

VANTI, C., F. BONETTI, D. CERON, R. PICCARRETA, F. S. VIOLANTE, A. GUCCIONE, P. PILLASTRINI, "Cross-cultural adaptation and validation of the Physical Therapy Outpatient Satisfaction Survey in an Italian musculoskeletal population", *BMC Musculoskeletal Disorders*, 2013, vol. 14, no. 1

Faster Route to the CEO Suite: Nepotism or Managerial Proficiency?

SALVATO, C., A. MINICHILLI, R. PICCARRETA, "Faster Route to the CEO Suite: Nepotism or Managerial Proficiency?", *Family Business Review*, 2012, vol. 25, no. 2, pp. 206-224

Graphical and Smoothing Techniques for Sequence Analysis

PICCARRETA, R., "Graphical and Smoothing Techniques for Sequence Analysis", *Sociological Methods & Research*, 2012, vol. 41, no. 2, pp. 362-380

Binary trees for dissimilarity data

PICCARRETA, R., "Binary trees for dissimilarity data", *Computational Statistics & Data Analysis*, 2010, vol. 54, no. 6, pp. 1516-1524

Exploring sequences: a graphical tool based on multi-dimensional scaling

PICCARRETA, R., O. LIOR, "Exploring sequences: a graphical tool based on multi-dimensional scaling", *Journal of the Royal Statistical Society. Series A - Statistics in Society*, 2010, vol. 173, no. 1, pp. 165-184

Classification trees for ordinal variables

PICCARRETA, R., "Classification trees for ordinal variables", *Computational Statistics*, 2008, vol. 23, no. 3, pp. 407-427

Clustering work and family trajectories by using a divisive algorithm

PICCARRETA, R., F. C. BILLARI, "Clustering work and family trajectories by using a divisive algorithm", *Journal of the Royal Statistical Society. Series A - Statistics in Society*, 2007, vol. 170, no. 4, pp. 1061-1078

Strings of Adulthood: A Sequence Analysis of Young British Women's Work-Family Trajectories

AASSVE, A., F. C. BILLARI, R. PICCARRETA, "Strings of Adulthood: A Sequence Analysis of Young British Women's Work-Family Trajectories", *European Journal of Population - Revue Européenne de Démographie*, 2007, vol. 23, no. 3-4, pp. 369-388

Analyzing Demographic Life Courses through Sequence Analysis

BILLARI, F. C., R. PICCARRETA, "Analyzing Demographic Life Courses through Sequence Analysis", *Mathematical Population Studies*, 2005, vol. 12, no. 2, pp. 81-106

Genetic algorithms for the analysis of Bayesian hierarchical partition models

BORRONI, C. G., R. PICCARRETA, "Genetic algorithms for the analysis of Bayesian hierarchical partition models", *Statistical Methods and Applications*, 2001, vol. 10, no. 1-3, pp. 113-121

A new measure of nominal-ordinal association

PICCARRETA, R., "A new measure of nominal-ordinal association", *Journal of Applied Statistics*, 2001, vol. 28, no. 1, pp. 107-120

Genetic Algorithms for Optimal Grouping of Categories in Two-way contingency Tables

BORRONI, C., R. PICCARRETA, "Genetic Algorithms for Optimal Grouping of Categories in Two-way contingency Tables", *Statistica Applicata*, 2000, vol. 12, pp. 435-444

Sharp bounds for the maximum of the Goodman-Kruskal τ index in a class of $I \times J$ tables with given row and column totals

PICCARRETA, R., "Sharp bounds for the maximum of the Goodman-Kruskal τ index in a class of $I \times J$ tables with given row and column totals", Computational Statistics, 1999, vol. 14, no. 3, pp. 397-418

Proceedings/Presentations

Enhancing Fuzzy Clusters' Interpretation Through Visualization

PICCARRETA, R., E. STRUFFOLINO, "Enhancing Fuzzy Clusters' Interpretation Through Visualization" in Society for Longitudinal and Life-course Studies (SLLS) Conference, 25 - 27 September, 2019, Potsdam, Germany

Heuristics for Validation in Sequence Analysis

PICCARRETA, R., E. STRUFFOLINO, "Heuristics for Validation in Sequence Analysis" in Society for Longitudinal and Life-course Studies (SLLS) Conference, 9-11 July, 2018, Milano, Italy

Clustering-based measurement of dependence

VENTURINI, S., R. PICCARRETA, M. BONETTI, "Clustering-based measurement of dependence" in 6th Scientific Meeting of the CLADAG of the Italian Statistical Society - 12-14 September, 2007, Macerata, Italy

Life Course Data: A prediction problem

PICCARRETA, R., F. C. BILLARI, "Life Course Data: A prediction problem" in 5th Scientific Meeting of the CLADAG of the Italian Statistical Society - 6-8 June, 2005, Parma, Italy

Grouping and Classifying using CART

PICCARRETA, R., "Grouping and Classifying using CART" in 5th Scientific Meeting of the CLADAG of the Italian Statistical Society - 6-8 June, 2005, Parma, Italy

Clustering Life Courses: A New Divisive Approach

PICCARRETA, R., F. C. BILLARI, "Clustering Life Courses: A New Divisive Approach" in Atti della XLII Riunione Scientifica della Società Italiana di Statistica - 9-11 June, 2004, Bari, Italy

Studying demographic life courses with sequence analysis

PICCARRETA, R., F. C. BILLARI, "Studying demographic life courses with sequence analysis" in European Population Conference EPC - 26-30 August, 2003, Warsaw, Poland

Comments, Discussions, Replies in Journal

Comment: Implying sequences using scores - some considerations

PICCARRETA, R., "Comment: Implying sequences using scores - some considerations", Sociological Methodology, 2015, vol. 45, no. 1, pp. 76-81

Contribution to Chapters, Books or Research Monographs

Mining for Association between life courses

PICCARRETA, R., C. H. ELZINGA, "Mining for Association between life courses" in Contemporary Issues in Exploratory Data Mining in the Behavioral Sciences (Quantitative Methodology Series), J.J. McArdle, G. Ritschard (Eds.), Routledge, Taylor and Francis Group, pp. 190-220, 2013

Reputazione e attrattività del Sistema Paese: l'Italia attraverso l'analisi della stampa anglosassone

DALPIAZ, E., R. PICCARRETA, "Reputazione e attrattività del Sistema Paese: l'Italia attraverso l'analisi della stampa anglosassone" in L'attrattività del sistema paese – Territori, Settori, Imprese., P. Dubini (Ed.), Il Sole 24 Ore, pp. 121-162, 2006

La metodologia di indagine

PICCARRETA, R., E. BIANCHI, "La metodologia di indagine" in L'attrattività del sistema paese – Profili territoriali e idealtipi per le imprese., P. Dubini (Ed.), Il Sole 24 Ore, pp. 57-109, 2005

Ordinal classification trees based on impurity measures

PICCARRETA, R., "Ordinal classification trees based on impurity measures" in Advances in Multivariate Data Analysis., Bock Hans-Hermann, Chiodi Marcello, Mineo Antonio (Eds.), Springer, pp. 39-51, 2004

Sequence Analysis of BHPS Life Courses Data

AASSVE, A., F. C. BILLARI, R. PICCARRETA, "Sequence Analysis of BHPS Life Courses Data" in New Developments in Classification and Data Analysis., M. Vichi, P. Monari, S. Mignani, A. Montanari (Eds.), Springer, pp. 275-284, 2004

Stable clusters: a new approach for clustering binary variables

PICCARRETA, R., "Stable clusters: a new approach for clustering binary variables" in Advances in Classification and Data Analysis., S. Borra, R. Rocci, M. Vichi, M. Schader (Eds.), Springer, pp. 35-42, 2001

Life Courses as Sequences: An Experiment in Clustering via Monothetic Divisive Algorithms

BILLARI, F. C., R. PICCARRETA, "Life Courses as Sequences: An Experiment in Clustering via Monothetic Divisive Algorithms" in Advances in Classification and Data Analysis., S. Borra, R. Rocci, M. Vichi, M. Schader (Eds.), Springer, pp. 351-358, 2001