Alberto Arcagni
Curriculum Vitae

Academic position

2011 – Now: Research fellow, RTDB, secs-s/01, Sapienza University of Rome, MEMOTEF department **(until June 30, 2022)**

General information

full name	Arcagni Alberto Giovanni
sex	male
date of birth	June 23rd, 1983
place of birth	Magenta (MI), Italy
citizenship	Italian
permanent address	via Cesare Beccaria 12/A, Lissone (MB), 20851, Italy
mobile phone number	++39 3281157239
e-mail	alberto.arcagni@uniroma1.it

Educational qualification

2007 - 2011	**PhD in Statistics and Applications**
Thesis Title	The determination of the parameters of a new distribution model for non-negative variables: methodological aspects and applications
	Dipartimento di Statistica e Metodi Quantitativi Edificio U7, Via Bicocca degli Arcimboldi 8, 20126, Milano, Italy
2005 - 2008	**Master's degree in Business Economics**
Final Grade	110 cum laude
Thesis Title	Stimatori del coefficiente angolare basati sul rapporto incrementale fra medie superiori e inferiori
	University of Milano-Bicocca Piazza dell'Ateneo Nuovo 1, 20126, Milano, Italy
2002 - 2005	**Bachelor of Economics, Statistics and Computer Science for the Company**
Final Grade	110 cum laude
Thesis Title	Analisi statistica sugli indicatori di occupazione e benessere delle regioni italiane

University of Milano-Bicocca
Piazza dell'Ateneo Nuovo 1, 20126, Milano, Italy

1997 - 2002	**High school - Liceo Scientifico Tecnologico**
Final Grade	100/100

IIS Alessandrini
Via Einaudi 3, 20081, Abbiategrasso (MI), Italy

Languages

First language	**Italian**
Other languages	**English**

- Understanding
  - Listening: **B2** (independent user)
  - Reading: **B2** (independent user)
- Speaking
  - Spoken interaction: **B2** (independent user)
  - Spoken production: **B2** (independent user)
- Writing: **B2** (independent user)

Work experience

Jul. 2019 - Now	Research fellow, RTDB, secs-s/01, MEMOTEF department **(until June 30, 2022)**
	Sapienza University of Rome Via Del Castro Laurenziano 9, 00161, Rome, Italy
Apr. 2015 - Aug. 2019	Postdoctoral researcher, Inequality and centrality measures in complex networks: theory and applications" secs-s/01 secs-s/06
	University of Milano-Bicocca Piazza dell'Ateneo Nuovo 1, 20126, Milano, Italy
Apr. 2011 - Mar. 2015	Postdoctoral researcher, "Stima dei tre parametri del modello di distribuzione di Zenga per variabili non-negative" secs-s/01
	University of Milano-Bicocca Piazza dell'Ateneo Nuovo 1, 20126, Milano, Italy
Aug. 2013 - Sep. 2013	Occasional collaboration for the implementation of the software package COGARCH in the R environment
	Dipartimento di Ingegneria and Università degli studi di Bergamo - via Salvecchio 19 - 24129 Bergamo
Dec. 2013	Occasional collaboration, consultancy for the analysis of data about the buying behavior.
	Sinte SRL, via Montegrappa 4, 20900, Monza (MB), Italy

Software development

- Arcagni, A. and Bagnato, L. (2014). sBF: Smooth Backfitting. R package version 1.1.1 http://CRAN.R-project.org/package=sBF
- Arcagni, A. and Fattore, M. (2018). parsec: Partial Orders in Socio-Economics. R package version 1.2.5 http://CRAN.R-project.org/package=parsec
- Arcagni, A., Valli, I., Zenga M. (2019): ineqJD: Inequality Joint Decomposition. R package version 1.0 https://cran.r-project.org/package=ineqJD
- Arcagni, A., Avellone, A., Fattore, M. (2021): POSetR: Partially Ordered Sets in R. R package version 1.0.4 https://cran.r-project.org/package=POSetR

Teaching activities

Faculty of Economics, Sapienza University of Rome
Via Del Castro Laurenziano 9, 00161, Rome, Italy

2019 – Now	Professor in Statistics at bachelor's degree
2019 – Now	Professor in Computational tools for Finance at master's degree
2019 – Now	Professor in Computational tools for Statistics at doctoral school

School of Economics and Statistical Sciences, University of Milano-Bicocca
Piazza dell'Ateneo Nuovo 1, 20126, Milano, Italy

2008 – 2019	Teaching Assistant in Statistics
2012 – 2019	Teaching Assistant in Statistical Methods
2013 – 2014	Teaching Assistant in Statistical Methods for the Management
2010 – 2012	Teaching Assistant in Probability, Distributions and Multiple Regression

School of Economics and Management, University of Milan
Via Festa del Perdono 7, 20122 Milano, Italy

2018 – 2019	Adjunct Professor in "Programming for data science lab", an R laboratory of the second level master in "Data Science for Economics, Business and Finance"
2016 – 2017	Adjunct Professor in Computational Statistics with R

Publications

Articles

1. Arcagni A., Zenga M.M.: Application of Zenga's distribution to a panel survey on household incomes of European Member States. Statistica & Applicazioni, XI(1), Vita e Pensiero, **2013**
2. Arcagni A., Porro F.: On the parameters of Zenga distribution. Statistical Methods & Applications, XXII(3), pp. 285-303, **2013**
3. Arcagni A.: Zenga distribution: parameters estimation with constraints on synthetic inequality indices. Statistica & Applicazioni, XII(1), pp. 17-38, **2014**
4. Fattore M., Arcagni A., Barberis S.: Visualizing Partially Ordered Sets for Socioeconomic analysis. Revista Colombiana de Estadística, Special issue in "Current Topics in Statistical Graphics", 37(2), **2014**
5. Arcagni A., Porro F.: The graphical representation of inequality. Revista Colombiana de Estadística, Special issue in "Current Topics in Statistical Graphics", 37(2), **2014**
6. Fattore M., Maggino F., Arcagni A.: Exploiting ordinal data for subjective well-being evaluation, Statistics in Transition new series, 16(3), 409-428, **2015**

7. Grassi, R., Fattore, M., Arcagni, A.: Structural and non-structural temporal evolution of socio-economic real networks, Quality & Quantity, 49(4), 1597-1608, **2015**

8. Arcagni A., Porro F.: A comparison of income distributions models through inequality curves, Statistica & Applicazioni 14(2), **2016**

9. Sonubi A., Arcagni A., Stefani S., Ausloos M.: Effects of competition and cooperation interaction between agents on networks in the presence of a market capacity. Physical Review E, 94, 022303, **2016**

10. Arcagni A.: On the decomposition by sources of the Zenga 1984 point and synthetic inequality indexes, Statistical Methods & Applications, 26(1), 113-133, DOI: 10.1007/s10260-016-0360-0, **2017**

11. Arcagni A., Grassi R., Stefani S., Torriero A.: Higher order assortativity in complex networks. European Journal of Operational Research 262(2), 708-719, DOI: 10.1016/j.ejor.2017.04.028, **2017**

12. Arcagni A., Barbiano di Belgiojoso E., Fattore M., Rimoldi S.M.L.: Multidimensional Analysis of Deprivation and Fragility Patterns of Migrants in Lombardy, Using Partially Ordered Sets and Self-Organizing Maps. Social Indicators Research, ISSN: 0303-8300, DOI: 10.1007/s11205-018-1856-9, **2018**

13. Fattore M., Arcagni A.: A reduced posetic approach to the measurement of multidimensional ordinal deprivation. Social Indicators Research, 136(3), 1053-1070, **2018**

14. Simin, P.T., Jafari, G.R., Ausloos, M., Caiafa, C.F., Caram, F., Sonubi, A., Arcagni, A., Stefani, S.: Dynamical phase diagrams of a love capacity constrained prey–predator model. European Physical Journal B, 91(2), 42-61, **2018**

15. Fattore M., Arcagni A.: F-FOD: Fuzzy First Order Dominance Analysis and Populations Ranking Over Ordinal Multi-Indicator Systems. Social Indicators Researc, First Online, DOI: 10.1007/s11205-018-2049-2, **2018**

16. Rimoldi S. M. L., Arcagni A., Fattore M., Terzera L.: Social and Material Vulnerability of the Italian Municipalities: Comparing Alternative Approaches. Social Indicators Research, DOI: 10.1007/s11205-020-02330-x, **2020**

17. Arcagni A., Grassi R., Stefani S., Torriero A.: Extending assortativity: An application to weighted social networks. Journal of Business Research, DOI: 10.1016/j.jbusres.2019.10.008, **2021**

18. Arcagni A., Cavalli L, Fattore M.: Partial Order Algorithms for the Assessment of Italian Cities Sustainability, FEEM Working Paper No., DOI: 10.2139/ssrn.3778559, **2021**

19. Rimoldi S. M. L., Arcagni A., Fattore M, Barbiano di Belgiojoso, E.: Targeting Policies for Multidimensional Poverty and Social Fragility Relief Among Migrants in Italy, Using F-FOD Analysis. Social Indicators Research, DOI: 10.1007/s11205-020-02485-7, **2021**

20. Alaimo L. S., Arcagni A., Fattore M., Maggino F.: Synthesis of Multi-indicator System Over Time: A Poset-based Approach. Social Indicators Research, DOI: 0.1007/s11205-020-02398-5, **2021**

21. Roig-Tierno N., Arcagni A.: Sustainable Development: Actual Trends on Synthetic Indicators, Non-aggregative and Configurational Approaches. Social Indicators Research, DOI: 10.1007/s11205-021-02658-y, **2021**

22. Arcagni A., Fattore M., Maggino F., Vittadini G.: Some Critical Reflections on the Measurement of Social Sustainability and Well-Being in Complex Societies. Sustainability, DOI: 10.3390/su132212679, **2021**

23. Arcagni A., Avellone A., Fattore M.: Complexity reduction and approximation of multidomain systems of partially ordered data. Computational Statistics & Data Analysis, DOI: 10.1016/j.csda.2022.107520, **2022**

24. Arcagni A., Candila V., Grassi R.: A new model for predicting the winner in tennis based on the eigenvector centrality. Annals of Operations Research, Big Data and Data Science in Sport, DOI:

10.1007/s10479-022-04594-7, **2022**

Book chapters

25. Fattore M., Grassi R., Arcagni A.: Measuring Structural Dissimilarity Between Finite Partial Orders. Multi-indicator Systems and Modelling in Partial Order, Ed. Rainer Brüggemann, Lars Carlsen, Jochen Wittmann, Springer New York, ISBN: 978-1-4614-8222-2 (Print) 978-1-4614-8223-9 (Online), **2014**

26. Fattore M., Arcagni A.: PARSEC: An R Package for Poset-Based Evaluation of Multidimensional Poverty. Multi-indicator Systems and Modelling in Partial Order, Ed. Rainer Brüggemann, Lars Carlsen, Jochen Wittmann, Springer New York, ISBN: 978-1-4614-8222-2 (Print) 978-1-4614-8223-9 (Online), **2014**

27. Fattore M., Maggino F., Arcagni A.: Non-aggregative Assessment of Subjective Well-Being. In: Alleva G., Giommi A. (eds) Topics in Theoretical and Applied Statistics. Studies in Theoretical and Applied Statistics. Springer, Cham, DOI: 10.1007/978-3-319-27274-0_20, **2016**

28. Arcagni A.: PARSEC: An R Package for Partial Orders in Socio-Economics. Partial Order Concepts in Applied Sciences, Ed. Marco Fattore and Rainer Brüggemann, DOI: 10.1007/978-3-319-45451-4_19, **2017**

29. Arcagni A.: Posetic Tools in Social Sciences: A Tutorial Exposition. In: Measuring and Understanding Complex Phenomena, Ed. Bruggemann R., Carlsen L., Beycan T., Suter C., Maggino F., Springer New York, DOI: 10.1007/978-3-030-59683-5_15, **2020**

Seminars and Meetings

- Zenga M.M., Arcagni A.: Estimating the Three Parameters of Zenga's Distribution for Income by Size. Conference proceedings of the ISI 58th World Statistics Congress of the International Statistical Institute, **2011**

- Zenga, M.M., Arcagni, A.: Application of Zenga's distribution to a panel survey on household incomes of 15 European Member States, Royal Statistical Society 2012 International Conference: 3-6 September, Telford UK, **2012**

- Fattore, M., Maggino, F., Arcagni, A.: Counting and partial order approaches to multidimensional poverty evaluation, International Society For Quality-of-Life Studies, Venezia, November 1-4, **2012**

- Fattore M., Arcagni A.: Measuring multidimensional polarization with ordinal data SIS 2013 statistical conference, BES-M3, **2013**

- Arcagni, A., Blangiardo, G.C., Fattore, M., Mirabelli, S.M.: Misurare il livello di integrazione della popolazione straniera in ambito economico-lavorativo. Società Italiana di Economia, Demografia e Statistica, 50ema Riunione Scientifica (Roma, 29, 30 e 31 Maggio 2013), **2013**

- Arcagni, A., Zenga, M.M.: Decomposition by sources of the ξ inequality index. Conference proceedings of the 47th Scientific Meeting of the Italian Statistical Society Cagliari, **2014**

- Arcagni, A.: Income Distribution at Flint: A Comparison of the Inequality with Other American Cities. Flint One City 100 Years Under Variability, **2014**

- Fattore, M., Busetta, A., Mendola, D., Arcagni A.: A fuzzy approach to multidimensional material deprivation measurement: the case of foreigners living in Italy, European Population Conference, Budapest, Hungary, **2014**

- Arcagni, A., D'Errico, M., Stefani, S.: Analysis of Input-Output networks via Inequality Measures. Euro Working Group for Commodities and Financial Modelling 54° Meeting - Milano, Italiy - Dec. 4-6, **2014**

- Fattore, M., Arcagni, A.: Introductory lecture on Partially ordered sets and the measurement of multidimensional ordinal deprivation, correlated event to the 11th Partial Order Workshop – Firenze, Italy – Apr. 9-10, **2015**

- Arcagni, A.: Esempi ed esercitazioni su dati simulati e reali: il package R PARSEC, corso della

Scuola Italiana di Statistica – Firenze, Italy – May 4-6, **2016**

- Arcagni, A., Grassi, R., Stefani, S., Torriero A.: Higher order assortativity in complex networks, Net 2016 – Trento, Italy – Dec. 16-17, **2016**
- Arcagni, A., Fattore, M., Maggino, F.: Comparing Well-Being Across Ages and Regions in Italy: a new "non-aggregative" procedure for ranking on multi-indicator systems, 13th Conference "Social Monitoring and Reporting in Europe" Inequalities, Fairness and Solidarity Across Generations – Measurement and Analysis, **2018**
- Fattore, M., Arcagni, A.: Using mutual ranking probabilities for dimensionality reduction and ranking extraction in multidimensional systems of ordinal variables, Advances in Statistical Modelling of Ordinal Data, ASMOD **2018**, DOI: 10.6093/978-88-6887-042-3
- Fattore, M., Arcagni, A.: Building rankings from hierarchical systems of ordinal indicators, 12th International Conference on Partial Orders in Applied Sciences, **2018**
- Alberto A., Fattore M., Rimoldi S.M.L., Barbiano di Belgiojoso E.: L'analisi F-FOD per la guida alle politiche sociali sulla povertà e la fragilità sociale dei migranti. VI Convegno Nazionale dell'Associazione Italiana per gli Studi sulla Qualità della Vita, AIQUAV, **2019**
- Arcagni A.: Spline approach for parameters estimation of Zenga distribution constrained to inequality. Distributions and Inequality Measures in Economics, **2020**
- Arcagni A., Mollica C., Fattore M: Computer skills for e-learning activities of university students: a posetic approach. 13th International Conference of the ERCIM WG on Computational and Methodological Statistics, CMStatistics, **2020**
- Arcagni A., Avellone A., Fattore M.: POSetR: a new computationally efficient R package for partially ordered data. SIS 2021 is the 50th edition of the Scientific Meeting of the Italian Statistical Society, **2021**

Reviewer activity

Social Indicators Research, Statistica & Applicazioni, Statistica, Annals of Operations Research

Conferences Organization

- Itacosm, University of Milano Bicocca, 26-28 June **2013**
- EURO Working Group for Commodities and Financial Modelling, University of Milano Bicocca, 4-6 December **2014**

Membership and service

- Società Italiana di Statistica (SIS)
- International Society for Bayesian Analysis (ISBA)

Other

- I have attended the III edition of the Summer School: "GEM: Green Energy Management", **2016**

I am researcher fellow (RTDB, secs-s/01, Sapienza University of Rome, MEMOTEF department) in methodological statistics, graduated in Economics and PhD in Statistics (University of Milano-Bicocca). The main topics of my research are income distributions, inequality, well-being, partial orders, and networks.

In the bachelor thesis I applied the cluster analysis and the principal component analysis to a set of well-being indicators related to the Italian regions. My master's degree thesis is about an estimation method for the parameters of the linear regression model alternative to the least squares method, based on lower and upper means. The PhD thesis is about a new income distribution model. I examined this topic in two papers

published on the journals Statistica & Applicazioni and Statistical Methods & Applications [1, 2]. This distribution model is strictly related to inequality indexes. A single-author paper published on Statistica & Applicazioni proposes a numerical procedure to estimate the model parameters with restrictions on the inequality indices [3]. Other papers about income distribution models and inequality curves are published on Statistica & Applicazioni and on a special issue of the Revista Colombiana de Estadística [5, 8]. Another single-author paper is published on Statistical Methods & Applications, and it is about the decomposition by sources of inequality indices [10].

I am also interested in Multi-indicator Systems (MIS). I studied partial orders and networks to analyse MIS based on a set of ordinal variables. These studies led to the publication of five chapters in specialized research books [25, 26, 27, 28, 29] and to twelve articles on the journals Revista Colombiana de Estadística, Statistics in Transition and Social Indicators Research [4, 6, 12, 13, 15, 16, 18, 19, 20, 21, 22]. An article deserves attention since it is multidisciplinary between statistics and computer science. It is about algorithms finalized to complexity reduction and to find the poset most closed to other ones that share the same set and have a different order relation. The article is published in 2022 on Computational Statistics and Data Analysis [23].

The postdoctoral position introduced me to complex networks. I delivered the presentation "Analysis of Input-Output networks via Inequality Measures" to the Euro Working Group for Commodities and Financial Modelling 54° Meeting. I'm author of an article about non-structural temporal evolution of socio-economic real networks on the Quality & Quantity journal [7] and two about on peer multi-agent networks [9, 14]. I published two papers about graphs and higher order assortativity on the European Journal of Operational Research [11] and Journal of Business Research [17]. In 2022 I published an article on the special issue "Big Data and Data Science in Sport" of the Journal Annals of Operations Research a paper about the scoring of tennis player based on an eigen centrality measure instead of the actual ELO scores [24].

I am skilled in computer science. I am an advanced user of **Office Suites** (Microsoft, LibreOffice and Google Workspace) and I write **VBA** scripts. I code in **C**, **SQL** and I am interested in **Python**. Since 2003, I'm an **R** developer for statistical applications and data analysis. I developed the "sBF" package, about Smooth Backfitting methodologies. I have also developed the "parsec" package (PARtial orders in Socio-Economics, see publications [26, 28]) and the "POSetR" package about partial orders and their application in socio economics. I realized a fourth package "ineqJD" about inequality indices and their decomposition by sources and sub-populations. All the packages are available on CRAN. Through a collaboration with the University of Bergamo I have been involved in the development of the "COGARCH" package, about the simulation and estimation of various kind of continuous-time GARCH processes. In 2016-2017 I was adjunct professor at the University of Milan of a course about computational statistics with R.

Date   Alberto Arcagni

30/05/2022