Susanna Levantesi

Curriculum Vitae

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Personal information

Place of birth	Rome, Italy
Date of birth	30 August 1973
Gender	Female
Nationality	Italian

Present position

2019–present **Associate Professor in Mathematical Methods of Economics and Actuarial and Financial Science**, *Department of Statistical Sciences*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome, Italy.

Past position

2008–2019 **Assistant Professor in Mathematical Methods of Economics and Actuarial and Financial Science**, *Department of Statistical Sciences*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome, Italy.

2005–2008 **Research fellow in Mathematical Methods of Economics and Actuarial and Financial Science**, *Department of Actuarial and Financial Science*, Faculty of Statistics, Sapienza University of Rome, Italy.
Research project: *Il ruolo del settore assicurativo nella tutela degli anziani: analisi delle basi tecnico-demografiche e ipotesi di coperture adeguate per i rischi legati all'invecchiamento* (Advisor: Lucia Vitali)

2004–2005 **Actuary at INAIL (National Institute for Insurance against Accidents at Work)**, *Rome*, Italy, Winner of the public competition *Professionista del ramo attuariale* announced 11/11/2001.

Education

20/04/2021 **Italian National Scientific Qualification for the role of Full Professor**, *Sector 13/D4*.

12/05/2004 **PhD in Actuarial Science (XVI cycle)**, *Faculty of Statistics*, Sapienza University of Rome, Italy.

27/09/1999 **Degree in Actuarial Science and Statistics**, *Faculty of Statistics*, Sapienza University of Rome, Italy.

Society memberships, awards and honors

18/06/2021 **ESSEC - AMUNDI ESG Award**, *Paper "ESG Score Prediction Through Random Forest Algorithm"*, Presented at CEMA 2020-21 (Commodity and Energy Markets Association).

2021–present **Member of the Board of the Professional Association of Italian Actuaries**.

2018–present **Member of the Scientific Committee of the Professional Association of Italian Actuaries**.

2001–present **Member (Fully Qualified Actuary) of the Professional Association of Italian Actuaries**.

2011–present **Member of the Working Group on the "Mortality of pensioners and annuitants in Italy"**, *Founded by the Professional Association of Italian Actuaries and the National Association of the Insurance Companies*.

2001–2018 **Member of AMASES (Association for Mathematics Applied to Economics and Social Sciences)**.

1/03–1/12/2011 **Expert on the validation of data on long-term care of the elderly**, *Appointed by the Committee for Statistical Information (CoGIS)*, the Prime Minister's Office.

2017 **Grant for research activity**, *(Law 240/10, art. 29)*, Sapienza University of Rome, Italy.

2014 **Grant for research activity**, *(Law 240/10, art. 29)*, Sapienza University of Rome, Italy.

2000–2003 **MIUR Scholarship for Ph.D. program in Actuarial Science (XVI course)**, *Faculty of Statistics*, Sapienza University of Rome, Italy.

Conference and seminars organization

2022 **16th International Conference on Computational and Financial Econometrics**, *King's College*, London, 17-19 December 2022.
Organizer of the stream "Advanced statistical tools in sustainable insurance and finance"

2022 **32th European Conference on Operational Research**, *Helsinki*, 3-6 July 2022, Organizer of the stream "Insurance risk management".

2021 **31th European Conference on Operational Research**, *Athens*, 11-14 July 2021, Organizer of the stream "Actuarial modeling and risk management".

2021 **COST Action: CA18232 Mathematical models for interacting dynamics on networks**, *Meeting: Mat-Dyn-Net WG3 & WG4 Meetings*, Rome, 14-16 September 2021.

2019 **Fostering the interaction between academics and actuaries**, *A joint meeting with the UNIS-Actuarial School*, Bologna, 20 May 2019.
Member of the Organizing committee

2018 **UNISActuarial School**, *Paestum (Salerno)*, 17-21 September 2018, Member of the Organizing committee.

2018 **29th European Conference on Operational Research**, *Valencia*, 8-11 July 2018, Organizer of the stream "Risk Management in Insurance".

Teaching activity

2020/2021–present **Machine Learning in Insurance**, *Undergraduate Program in Actuarial and Financial Science (Master's degree)*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome.

2019/2020–present **Pension Mathematics**, *Undergraduate Program in Actuarial and Financial Science (Master's degree)*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome.

2008/2009–2018/2019, 2022/2023 **Balance sheet of insurance companies**, *Undergraduate Program in Actuarial and Financial Science (Master's degree)*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome.

2019/2020 **Actuarial Mathematics**, *Undergraduate Program in Actuarial and Financial Science (Master's degree)*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome.

2014/2015–2021/2022 **Laboratory of Actuarial Science**, *Undergraduate Program in Actuarial and Financial Science (Master's degree)*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome.

2014/2015–2016/2017 **Advanced Financial Mathematics**, *(Supplementary contract)*, Bachelor's Degree, Faculty of Economics.
Luiss Guido Carli University, Rome

2010/2011 **Mathematics Finance**, *(Supplementary contract)*, Bachelor's Degree, Faculty of Economics.
Luiss Guido Carli University, Rome

2005/2006–2009/2010 **Actuarial Models for Health Insurance**, *Undergraduate Program in Actuarial Science and Statistics (Master's degree)*, Faculty of Economics, University of Sannio.

2004/2005–2009/2010 **Life Insurance**, *Undergraduate Program in Actuarial Science and Statistics (Bachelor's Degree)*, Faculty of Economics, University of Sannio.

2004/2005 **Risk Theory**, *Undergraduate Program in Actuarial Science and Statistics (Master's degree)*, Faculty of Economics, University of Sannio.

Master

2016-2017–present **Master course "Forecasting models in insurance and health"**, *2nd level Master (for post graduates) in: "Big data. Metodi statistici per la società della conoscenza"*, Faculty of Information Engineering, Computer and Statistics, Sapienza University of Rome.

2020/2021 **Master lecture "Mathematical methods for Pension Funds management"**, *2nd level Master (for post graduates) in: Master in Banking and Finance (Ba.Fi)*, Faculty of Economics, Sapienza University of Rome.

2016–2017 **Master lecture "Longevity risk management"**, *2nd level Master (for post graduates) in The new discipline of the Public Administration of subsidiaries and pension institutions*, Luiss Guido Carli University and Mefop.

2013–2014 **Master lecture "Longevity risk"**, *1st level Master (for undergraduates) in Public and private welfare of supplementary pension schemes*, Faculty of Economics, University of Tuscia and Mefop.

2008–2009 **Master lecture "Long Term Care benefits in pension funds"**, *2nd level Master (for post graduates) in Economics and Law for supplementary pension schemes*, Faculty of Economics, University of Tuscia and Mefop.

2005/2006 - 2009/2010 **Master course "Mathematical models for health insurance"**, *2nd level Master (for post graduates) in Analyst in Risk MAnagement for insurance (ARMA)*, Faculty of Economics, Sapienza University of Rome.

International research fellowships and teaching abroad

2-6/03/2020 **Visiting research**, *University of Copenhagen*, Denmark.

2-6/07/2019 **Member of the International Cooperation project funded by Sapienza University of Rome for the realization of an International Summer School on "Gender economics. Statistics for the Study of Gender Equality. Methods and Tools to implement Gender Sensitive Indicators"**, *Tashkent Institute of Finance*, Uzbekistan, Teaching activity: courses "Practical work on Gender Mortality" and "Practical work on Gender Financial Inclusion" (8 hours).

11-18/02/2018 **Member of the International Cooperation project funded by Sapienza University of Rome for the realization of a Summer School on "Statistics for Gender Equality: Methods and Techniques to study the violence against women"**, *EASTC Eastern Africa Statistical Training Course*, University of Dar-Es-Salaam, Tanzania.
Teaching activity: course "Prevalence, statistical indicators and analysis of risk factors for violence against women" (14 hours)

18-25/11/2017 **Cooperation expert for the project "AFRICA SUB-SAHARIANA-Rafforzamento al Settore Statistico per AFRISTAT (Observatoire Economique et Statistique d'Afrique Subsaharienne) and EASTC (Eastern Africa Statistical Training Center)**, *Task conferred by the Italian Agency for Development Cooperation (AICS)*, Teaching activity: course "Actuarial mathematics and mortality modeling" (30 hours).

30/11–31/12/2011 **Research and consultancy activity for the Social Security Institute of the Republic of San Marino**, *Funded by Department of Economics and Technology*, University of San Marino.

15-20/12/2007 **Visiting research**, *Max Planck Institute for Demographic Research*, Rostock, Germany.

15/04–07/07/2002 **Full time student - Postgraduate Occasional Actuarial Science**, *City University*, London, UK.

Research interests

Environmental, Social and Governance (ESG) factors; Machine learning in insurance and finance; Longevity risk: modeling and management; Pricing of mortality-linked securities; Solvency capital requirements for life insurance and pension funds; Actuarial models for health insurance (Long Term Care, Critical Illness).

Funding information (last 10 years)

Grants as Principal Investigator (PI) or Investigator (I)

2021 **(I) Sustainability and ESG: risk drivers and corporate profitability**, *Research project funded by Sapienza University of Rome*.

2020 **(PI) New issues in systemic risk management**, *Research project funded by Sapienza University of Rome*.

27/03–27/05/2019 **(I) Creation of an Algorithmic trading tool for the optimized management of the Securities Portfolio for Poste Italiane's Customers**, *Research project funded by Infoedge Technology S.r.l.*

2019 **(I) Quantitative models for risks managing and pricing in bank and insurance sectors under the new EU regulation**, *Research project funded by Sapienza University of Rome*.

26/06–26/12/2018 **(PI) Time series analysis of social security invalidity risk**, *Research project funded by ANIA (National Association of Insurance Companies)*.

2017 **Fund for basic research activities (FFABR)**, *Funded by MIUR*.

2016 **(I) A Risk-Based model for the evaluation of Medical Malpractice**, *Research project funded by Sapienza University of Rome*.

17/03–17/06/2014 **(I) Quantitative models for estimating probability distributions in long-term care and critical illness insurance**, *Research project funded by ANIA (National Association of Insurance Companies)*, Department of Statistical Sciences, Sapienza University of Rome.

1/01–24/02/2012 **(I) Actuarial support to the development of a risk-based pricing model for Medical Malpractice**, *Research project funded by AIBA (Italian Insurance Brokers' Association)*, Department of Statistical Sciences, Sapienza University of Rome.

Editorial activity

Referee

Annals of Operations Research; Applied mathematics; Astin Bulletin; Communications in Statistics-Theory and Methods; Decision in Economics and Finance; European Actuarial Journal; Frontiers; Genus; Insurance: Mathematics and Economics; Journal of Applied Statistics; Journal of Business Research; Journal of Economic Interaction and Coordination; Journal of Risk finance; Mathematical and Statistical Methods for Actuarial Sciences and Finance; Quantitative Finance and Economics; Risks; Scandinavian Actuarial Journal, Science of the Total Environment, Soft Computing, The European Journal of Finance.

Member of editorial boards

- Associate editor, Artificial Intelligence in Finance (`https://www.frontiersin.org`)
- Associate editor, Journal of Applied Management and Investments (`http://www.jami.org.ua/eboard.htm`)
- Topic editor, Sustainability (`https://www.mdpi.com/journal/sustainability`)

Guest editor

- Quality & Quantity. Special Issue "Methods for modelling and understanding population changes". Deadline for submission 31 January 2023 (with A. Nigri and M. Bonetti)
- Annals of Operations Research, vol. 299, issue 1-2, April 2021. Special Issue "Recent Developments in Financial Modeling and Risk Management" (with R.L. D'Ecclesia and R. Cerqueti)

Ph.D. programs

2018–present **Coordinator of the Ph.D. program in Actuarial Science**, *School of Statistical Sciences*, Department of Statistical Sciences, Sapienza University of Rome.

2012–present **Member of the Board of the Ph.D. program School of Statistical Sciences**, *Department of Statistical Sciences*, Sapienza University of Rome.

2010–2011 **Member of the Board of the Ph.D. program in Actuarial Science**, *Department of Statistical Sciences*, Sapienza University of Rome.

Ph.D. thesis supervision

- Marco Aleandri (XXXI cycle, Ph.D. program in Actuarial Science), 2016-2019
- Mario Marino (XXXIII cycle, Ph.D. program in Actuarial Science), 2018-2021
- Andrea Nigri (XXXIII cycle, Ph.D. program in Demography), 2018-2021
- Lorenzo Fratoni (XXXIV cycle, Ph.D. program in Actuarial Science), 2019-2022
- Alessandro Laporta (XXXIV cycle, Ph.D. program in Actuarial Science), 2019-2022
- Giovanni Cardillo (XXXV cycle, Ph.D. program in Actuarial Science), 2020-2023
- Matteo Lizzi (XXXV cycle, Ph.D. program in Actuarial Science), 2020-
- Alessandro D'Orazio (XXXVIII cycle, Ph.D. program in Actuarial Science), 2022-

Training activity

2022–2023 **Teaching coordination of the advanced training course "Training for pension fund managers"**, *UnitelmaSapienza*, Roma.

2022-2023 **Course "Machine Learning and data analysis"**, *Scuola di attuariato*, CISA (Centro Interaccademico per le Scienze Attuariali e la Gestione dei Rischi), Firenze.

16-03-2021; 9-04-2021 **Actuarial training (FAC)**, *"Natural hedging strategies in LTC insurance"*, Seminar of the Scientific Committee of the Professional Association of Italian Actuaries.

22-11-2019 **Lesson "Big data e modelli di Machine Learning nelle assicurazioni"**, *Course "Modelli per le assicurazioni contro i danni"*, Helvetia, Milano, CISA (Centro Interaccademico per le Scienze Attuariali e la Gestione dei Rischi).

2019 **DMBI Consultants**, *Training project "Insurance and Artificial Intelligence"*.

14-11-2017 **Training project "Life tables"**, *BNP Paribas*, CISA (Centro Interaccademico per le Scienze Attuariali e la Gestione dei Rischi).

7-10-2017 **School of Enterprise Risk Management (ERM)**, *Course "Enterprise Risk Management: basic concepts"*, INCER Institute.

6-7/04/2017 **IRSA**, *Groupama training project "Business Unit Protection"*, Groupama.

30-03-2017 **Actuarial training (FAC)**, *Actuarial models for health risks*, Sviluppo Iniziative Attuariali (S.I.A.).

10-17/01/2012 **Training project "Statistical principles"**, *Consap*.

19-20/12/2011 **Training project on Mortality forecasting methods**, *INAIL*.

22/07/2010 **Training project "Accounting of insurance companies"**, *Eurovita Assicurazioni SpA*.

27/08–15/09/2008 **IRSA**, *Training project on Health insurance*, AIG Vita.

Publications

Journal articles

1. D'Amato, V., D'Ecclesia, R.L., Levantesi, S. (forthcoming). Firms' profitability and ESG score: a machine learning approach. Applied Stochastic Models in Business and Industry.
2. Cardillo, G., Giordani, P., Levantesi, S., Nigri, A., Spelta, A. (2023). Mortality forecasting using the four-way CANDECOMP/PARAFAC decomposition. Scandinavian Actuarial Journal. DOI: 10.1080/03461238.2023.2175326
3. Levantesi, S., Nigri, A., Piscopo, G., Spelta, A. (2023). Multi-country clustering-based forecasting of healthy life expectancy. Quality & Quantity. DOI: 10.1007/s11135-022-01611-6
4. Fratoni, L., Levantesi S., Menzietti M. (2022). Measuring financial sustainability and social adequacy of the Italian NDC pension system under the COVID-19 pandemic. Sustainability, 14, 16274. DOI: DOI: 10.3390/su142316274
5. Cardillo, G., Giordani, P., Levantesi, S., Nigri, A. (2022). A tensor-based approach to cause-of-death mortality modeling. Annals of Operations Research. DOI: 10.1007/s10479-022-05042-2
6. Nigri, A., Levantesi, S., Aburto, J.M. (2022). Leveraging deep neural networks to estimate age specific mortality from life expectancy at birth. Demographic research, 47, 8: 199-232.
7. Marino, M., Levantesi, S., Nigri, A. (2022). A Neural Approach to Improve the Lee-Carter Mortality Density Forecasts. North American Actuarial Journal. DOI: 10.1080/10920277.2022.2050260

8. D'Amato, V., Levantesi, S., Piscopo, G. (2022). Deep learning in predicting cryptocurrency volatility. Physica A: Statistical Mechanics and its Applications, 596: 127-158. DOI: 10.1016/j.physa.2022.127158
9. Nigri, A., Barbi, E., Levantesi, S. (2022). The relay for human longevity: country-specific contributions to the increase of the best-practice life expectancy. Quality & Quantity. DOI: 10.1007/s11135-021-01298-1
10. Nigri, A., Levantesi, S., Piscopo, G. (2022). Causes-of-Death Specific Estimates from Synthetic Health Measure: A Methodological Framework. Social Indicators Research. DOI: 10.1007/s11205-021-02870-w
11. Levantesi, S., Nigri, A., Piscopo, G. (2022). Clustering-based simultaneous forecasting of life expectancy time series through Long-Short Term Memory Neural Networks. International Journal of Approximate Reasoning, 140: 282-297.
12. Levantesi, S., Piscopo, G. (2022). Mutual peer-to-peer insurance: The allocation of risk. Journal of Co-operative Organization and Management, 10(1), 100154. DOI: 10.1016/j.jcom.2021.100154.
13. D'Amato, V., D'Ecclesia, R.L., Levantesi, S. (2022). ESG score prediction through random forest algorithm. Computational Management Science, 19, 347-373. DOI: 10.1007/s10287-021-00419-3.
14. D'Amato, V., D'Ecclesia, R.L., Levantesi, S. (2021). Fundamental ratios as predictors of ESG scores: a machine learning approach. Decisions in Economics and Finance, 44(2): 1087-1110. DOI: 10.1007/s10203-021-00364-5.
15. Nigri, A., Barbi, E., Levantesi, S. (2021). The relationship between longevity and lifespan variation. Statistical Methods & Applications. DOI: 10.1007/s10260-021-00584-4
16. Herteliu, C., Levantesi, S., Rotundo, G. (2021). Network analysis of pension funds investments. Physica A: Statistical Mechanics and its Applications, 579: 126-139. DOI: 10.1016/j.physa.2021.126139
17. Levantesi, S., Zacchia, G. (2021). Machine Learning and Financial Literacy: An Exploration of Factors Influencing Financial Knowledge in Italy. Journal of Risk and Financial Management, 14(3), 120. DOI: 10.3390/jrfm14030120
18. Levantesi, S., Piscopo, G. (2021). COVID-19 crisis and resilience: challenges for the insurance sector. Advances in Management and Applied Economics, 11(3): 1-12. DOI: 10.47260/amae/1131
19. D'Arcangelis, A., Levantesi, S., Rotundo, G. (2021). A complex networks approach to pension funds. Journal of Business Research, 129: 687-702. DOI: 10.1016/j.jbusres.2019.10.071
20. Devolder, P., Levantesi, S., Menzietti, M. (2021). Automatic Balance Mechanisms for Notional Defined Contribution pension systems guaranteeing social adequacy and financial sustainability: an application to the Italian pension system. Annals of Operations Research, 299: 765-795. DOI: 10.1007/s10479-020-03819-x
21. Nigri, A., Levantesi, S., Marino, M. (2021). Life expectancy and lifespan disparity forecasting: a long short-term memory approach. Scandinavian Actuarial Journal, 2: 110-133. DOI: 10.1080/03461238.2020.1814855
22. Bozzo, G., Levantesi, S., Menzietti, M. (2021). Longevity risk and economic growth in sub-populations: evidence from Italy. Decisions in Economics and Finance, 44: 101-115. DOI: 10.1007/s10203-020-00275-x
23. Levantesi, S., Piscopo, G. (2020). Insurance Role for Handling the COVID-19 impact on Business and Society. Journal of Applied Management and Investments, 9 (4): 183-191.
24. Levantesi, S., Nigri, A., Piscopo, G. (2020). Longevity risk management through Machine Learning: state of the art. Insurance Markets and Companies, 11(1): 11-20. DOI: 10.21511/ins.11(1).2020.02
25. Levantesi, S., Piscopo, G. (2020). The Importance of Economic Variables on London Real Estate Market: A Random Forest Approach. Risks, 8(4), 112. DOI:10.3390/risks8040112
26. D'Amato, V., Levantesi S., Menzietti M. (2020). De-risking Long Term Care insurance. Soft Computing, 24: 8627-8641. DOI: 10.1007/s00500-019-04658-0
27. Levantesi, S., Nigri, A. (2020). A random forest algorithm to improve the Lee-Carter mortality forecasting: impact on q-forward. Soft Computing, 24: 8553-8567. DOI: 10.1007/s00500-019-04427-z
28. Nigri, A., Levantesi, S., Marino, M., Scognamiglio, S., Perla, F. (2019). A deep learning integrated Lee-Carter model. Risks, 7(1), 33. ISSN: 2227-9091. DOI:10.3390/risk7010033
29. Levantesi S., Pizzorusso, V. (2019). Application of Machine Learning to Mortality Modeling and Forecasting. Risks, 7(1), 26. ISSN: 2227-9091. DOI:10.3390/risk7010026
30. D'Amato V., Coppola M., Levantesi S. (2018). An option pricing approach for measuring Solvency Capital Requirements in Insurance Industry. Physica A: Statistical Mechanics and its Applications, 509: 717-728. ISSN: 0378-4371. DOI: 10.1016/j.physa.2018.05.113
31. Baione F., Levantesi S. (2018). Pricing Critical Illness insurance from prevalence rates: Gompertz versus Weibull. North American Actuarial Journal, 22(2): 270-288. ISSN: 1092-0277. DOI: 10.1080/10920277.2017.1397524
32. Levantesi S., Menzietti, M. (2018). Natural hedging in Long Term Care insurance. ASTIN Bulletin, 48(1): 233-274. ISSN: 0515-0361. DOI: 10.1017/asb.2017.29
33. Levantesi S., Menzietti M. (2017) Maximum Market Price of Longevity Risk under Solvency Regimes: The Case of Solvency II. Risks, 5 (2), 29. ISSN: 2227-9091. DOI: 10.3390/risks5020029.
34. D'Amato V., Coppola M., Levantesi S., Menzietti M., Russolillo M. (2017). A longevity basis risk analysis in a

joint FDM framework. The Journal of Risk Finance, 18 (1): 55-75. ISSN: 1526-5943.

35. Baione F., Levantesi S. (2014). A health insurance pricing model based on prevalence rates: application to critical illness insurance. Insurance: Mathematics and Economics, 58: 174-184. ISSN: 0167-6687.
36. Levantesi S. (2013). Solvency capital requirements for longevity risk under different stochastic mortality models. Advances and Applications in Statistics, 33 (2). ISSN: 0972-3617.
37. Levantesi S., Menzietti M. (2012). Managing longevity and disability risks in life annuities with Long Term Care. Insurance: Mathematics and Economics, 50: 391-401. ISSN: 0167-6687.
38. Coppola M., D'Amato V., Levantesi S., Menzietti M., Russolillo M. (2012). Measuring and Hedging the basis risk by Functional Demographic Models. Mathematical Methods in Economics and Finance, 7 (1), 2012: 19-39. ISSN: 1971-6419.
39. Levantesi S., Menzietti M. (2011). Modelling and managing longevity and disability risks in Long Term Care insurance. Advances and Applications in Statistical Sciences, 6 (5): 549-574. ISSN: 0974-6811.
40. Levantesi S., Menzietti M., Torri T. (2009). Longevity bond pricing models: an application to the Italian annuity market and pension schemes. Giornale dell'Istituto Italiano degli Attuari, 72 (1): 125-147. ISSN: 0390-5780.
41. Levantesi S. (2006). An actuarial model for pricing Long Term Care insurance with Dread Disease acceleration benefit. Giornale dell'Istituto Italiano degli Attuari, 69: 69-86. ISSN: 0390-5780.
42. Baione F., Levantesi S., Menzietti M. (2002). The Development of an Optimal Bonus-Malus System in a Competitive Market. ASTIN Bulletin, 32 (1): 159-170. Ed. Peeters, Leuven (Belgium). ISSN: 0515-0361.

Book chapters

43. Cardillo, G., Giordani, P., Levantesi, S., Nigri, A. (2022). An Application of the Tensor-Based Approach to Mortality Modeling. In: Corazza, M. et al. (eds): MAF 2022, Mathematical and Statistical Methods for Actuarial Sciences and Finance, 134-139. Springer, Cham.
44. Cefalo, L., Levantesi, S., Nigri, A. (2022). Modelling Life Expectancy Gender Gap in a Multi-population Framework. In: Corazza, M. et al. (eds): MAF 2022, Mathematical and Statistical Methods for Actuarial Sciences and Finance, 151-155. Springer, Cham.
45. Fratoni, L., Levantesi, S., Menzietti, M. (2022). Automatic Balance Mechanisms in an NDC Pension System with Disability Benefits. In: Corazza, M. et al. (eds): MAF 2022, Mathematical and Statistical Methods for Actuarial Sciences and Finance, 266-271. Springer, Cham.
46. Levantesi, S., Nigri, A, Piscopo, G. (2022). Predicting the second wave of COVID-19 pandemic through the Dynamic Evolving Neuro Fuzzy Inference System. In: Skiadas C.H. and Skiadas C., Quantitative Methods in Demography: Methods and Related Applications in the Covid-19 Era. The Springer Series on Demographic Methods and Population Analysis, 52. Chapter 3. Springer. ISBN: 9783030930042.
47. Levantesi, S., Nigri, A, Piscopo, G. (2021). Improving longevity risk management through machine learning. In: Abedin, M.Z., Hassan, M.K., Hajek, P., Uddin, M.M., The Essentials of Machine Learning in Finance and Accounting (1st ed.), p. 37-56. Routledge. DOI: 10.4324/9781003037903
48. Levantesi S., Menzietti M. (2021). Modelling health transitions in Italy: a generalized linear model with disability duration. In: Corazza, M. et al., Mathematical and Statistical Methods for Actuarial Sciences and Finance: eMAF2020. Springer International Publishing. ISBN: 978-3-030-78964-0.
49. Laporta, A.G., Levantesi, S., Petrella, L. (2021). Quantile regression neural network for quantile claim amount estimation. In: Corazza, M. et al., Mathematical and Statistical Methods for Actuarial Sciences and Finance: eMAF2020. Springer International Publishing. ISBN: 978-3-030-78964-0.
50. Marino, M., Levantesi, S. (2021). The Neural Network Lee–Carter Model with Parameter Uncertainty: The Case of Italy. In: Corazza, M. et al., Mathematical and Statistical Methods for Actuarial Sciences and Finance: eMAF2020. Springer International Publishing. ISBN: 978-3-030-78964-0.
51. Baione F., De Angelis P., Levantesi S., Menzietti M., Tripodi A. (2016). Modelli attuariali per la stima di basi tecniche relative ad assicurazioni di persone. In: De Angelis P. Di Falco L.. Assicurazioni sulla salute: caratteristiche, modelli attuariali e basi tecniche, p. 85-121, Il Mulino, ISBN: 978-88-15-26084-0
52. Baione F., Conforti C., Levantesi S., Menzietti M., Tripodi A. (2016). Stima di basi tecniche per assicurazioni LTC, malattie gravi e invalidità. In: De Angelis P. Di Falco L.. Assicurazioni sulla salute: caratteristiche, modelli attuariali e basi tecniche, p. 123-196, Il Mulino, ISBN: 978-88-15-26084-0
53. Levantesi S., Menzietti M., Torri T. (2012). On longevity risk securitization and solvency capital requirements in life annuities. In: Perna C., Sibillo M. Mathematical and Statistical Methods for Actuarial Sciences and Finance, p. 255-262, Milano: Springer, ISBN: 9788847023420.
54. Baione F., Levantesi S., Marchese R., Menzietti M., Tripodi A. (2012). Un approccio risk-based per il calcolo della tariffa Medical Malpractice. In: Boccadoro A. De Angelis P. Sanità pubblica e assicurazioni. Il fair price del

rischio medical malpractice, p. 49-112, Cedam, ISBN: 9788813314750

55. Levantesi S., Menzietti M. (2010). Managing Demographic Risk in Enhanced Pensions. In: Corazza M., Pizzi C. Mathematical and Statistical Methods for Actuarial Sciences and Finance, p. 173-182. Milano: Springer. ISBN: 978-88-470-1480-0
56. Levantesi S., Menzietti M., Torri T. (2010). The Securitization of Longevity Risk in Pension Schemes: The Case of Italy. In: Micocci M., Gregoriou G., Masala G. Pension Fund Risk Management: Financial and Actuarial Modeling, 15: 331-362. Chapman & Hall/CRC Finance Series. ISBN: 9781439817520
57. Levantesi S., Torri T. (2009). Setting the Hedge of Longevity Risk for Annuity Providers through Securitization. In: Angela C., Carrillo Menéndez S., Micocci M., Navarro Arribas E., Ottaviani R., Pressacco F. New Frontiers in Insurance and Bank Risk Management, 6: 69-84. McGraw-Hill Italia. ISBN: 978-88-386-6061-0
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Books

59. Levantesi S., Menzietti M. (2016). Allungamento della vita media e rischio assicurativo. Collana: Scienze Assicurative – Insurance Sciences, 2: 1-92. Napoli: Edizioni Scientifiche Italiane. ISBN: 978-88-495-3147-3.

Proceedings

60. Lizzi, M., Levantesi, S., Nigri, A. (2022). An application of contrast trees for mortality models diagnostic and boosting. Book of short papers. 10th International Conference IES 2022 Innovation & Society 5.0: Statistical and Economic Methodologies for Quality Assessment. PKE. ISBN 978-88-94593-35-8
61. Nigri, A., Levantesi, S. (2020). LI-CoD Model. From Lifespan Inequality to Causes of Death. Book of Short Papers SIS 2020, p. 1507-1512. Pearson. ISBN: 9788891910776
62. Levantesi S., Menzietti M. (2012). Hedging longevity risk in pension funds with q-forwards. In: Strumenti innovativi del calcolo attuariale per la valutazione e la gestione dei fondi pensione, p. 61-83. Roma: Ed. CompoMat. ISBN: 978-88-95706-38-2.
63. Levantesi S., Menzietti M., Torri T. (2011). Pricing Basic Survivor Swaps. In: Proceedings of the 14th Applied Stochastic Models and Data Analysis Conference, Rome, 811-818. ISBN: 97888467-3045-9.
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67. Levantesi S., Menzietti M. (2007). Longevity and disability risk analysis in enhanced life annuities. In: Proceeding of the 1st International IAA Life Colloquium, Stockholm. `http://actuaries.org/LIFE/Events/Stockholm/papers.cfm`

Prefaces

68. Cerqueti, R., D'Ecclesia, R.L., Levantesi, S. (2021). Preface: recent developments in financial modelling and risk management. Annals of Operations Research, 299: 1-5. DOI: 10.1007/s10479-021-03958-9
69. Grasso, F., Levantesi S. (2019). Preface to the Book "Data Science and machine learning in insurance" by Marco Aleandri. Aracne, Roma. ISBN: 978-88-255-2865-7.

Other publications

70. Fratoni, L., Levantesi S., Menzietti M. (2021). Measuring financial sustainability and social adequacy of the Italian NDC pension system under the COVID-19 pandemic. Rapporto Tecnico del Dipartimento di Scienze Statistiche, 1/2021. Roma. ISSN: 2279-798X.
71. Branda, A., Gava, N., Grasso, F., Lamaro, F., Levantesi S. (2020). Smart Portfolio Management con tecniche di Machine Learning. Rapporto Tecnico del Dipartimento di Scienze Statistiche, 1/2020. Roma. ISSN: 2279-798X.
72. Levantesi S. (2008). La copertura del rischio di non autosufficienza nei fondi pensione. Working paper MEFOP, 17, Roma.
73. Levantesi S., Menzietti M. (2006). Biometric risk analysis and solvency requirements in LTC insurance. Working

Paper, 30. Dipartimento di Scienze Attuariali e Finanziarie, Sapienza Università di Roma.

74. Baione F., Levantesi S. (2005). Alcune considerazioni sulle basi tecniche delle assicurazioni Dread Disease. Rapporti scientifici AMASES, 28. Napoli: Cuen. ISBN 88 7146 735-3.
75. Levantesi S. (2005). Assicurazioni long term care con garanzia dread disease. Rapporti scientifici AMASES, 25. Napoli: Cuen. ISBN 88 7146 689-6.
76. Baione F., Levantesi S. (2004). A quantitative analysis of disability surveys in five European countries. Working Paper, 25. Dipartimento di Scienze Attuariali e Finanziarie, Sapienza Università di Roma.
77. Levantesi S. (2004). Aspetti attuariali delle assicurazioni sulla salute: una proposta di garanzia assicurativa a copertura della non autosufficienza e delle malattie gravi. Tesi di dottorato, Dottorato di ricerca in Scienza Attuariali, XVI ciclo, p. 1-152. Bibl. Nazionale Centrale Firenze.
78. Baione F., Levantesi S., Menzietti M. (2002). Alcune considerazioni sull'efficienza dei sistemi Bonus-Malus. Rapporti scientifici AMASES, 10. Napoli.

Conference presentations and seminars (last 10 years)

2022 **16th International Conference on Computational and Financial Econometrics**, *King's College London*, 17-19/12/2022, Contributed session.
Paper: "Deepening the relationship between ESG score and firms' performance via machine learning" (co-authors: V. D'Amato, R.L. D'Ecclesia)

2022 **Conference of European Statistics Stakeholders**, *Rome*, 20-21/10/2022, Chair of the session "Statistics on FinTechs and innovative activities in the financial sector".

2022 **European Conference on Operational Research**, *Helsinki*, 3-6/07/2022, Contributed session.
Paper: "Firms' profitability and ESG score: a machine learning approach" (co-authors: V. D'Amato, R.L. D'Ecclesia)

2022 **Insurance Data Science Conference**, *Università Cattolica del Sacro Cuore*, Milan, 15-17/06/2022.
Paper "Multi-country clustering-based forecasting of healthy life expectancy" (co-authors A. Nigri, G. Piscopo, A. Spelta)

2021 **LV Congresso Nazionale della Cassa del Notariato**, *Roma*, 4/11/2021, Invited speaker.
Talk: Il rischio di longevità

2021 **European Conference on Operational Research**, *Athens*, 11-14/07/2021, Contributed session.
Paper: "Optimal cash back allocation in Peer to Peer Insurance" (co-authors: G.P. Clemente, G. Piscopo)

2021 **Applied Stochastic Models and Data Analysis International Conference (ASMDA)**, *1-4/06/2021*, Virtual, Contributed session.
Paper: "Predicting the second wave of COVID-19 pandemic through the Dynamic Evolving Neuro Fuzzy Inference System" (co-authors A. Nigri, G. Piscopo)

2021 **ICAS 2020 - 14th International Conference on Applied Statistics**, *25/11/2020*, On line, Paper: "Monitoring tail dependence in pension funds investments" (co-authors C. Herteliu, G. Rotundo).

2020 **Mathematical and Statistical Methods for Actuarial Sciences and Finance (eMAF) 2020**, *18-25/09/2020*, on-line, Invited session on Data driven management in actuarial science.
Paper: "Forecasting neural network Lee-Carter model with parameter uncertainty: The case of Italy" (co-author M. Marino)

2020 **Seminar "Natural hedging strategies in long term care insurance"**, *03-03-2020*, Department of Mathematical Sciences, University of Copenhagen.

2019 **NET 2019 Workshop**, *Università Cattolica del Sacro Cuore*, Milano, 14-15/11/2019.
Paper: "A complex network approach to pension funds". (co-authors: A.M. D'Arcangelis, G. Rotundo)

2018 **UNISActuarial School, Paestum (SA)**, *17-21/09/2018*, Contributed session. Paper: "Application of Application of machine learning to mortality modeling" (co-author: V. Pizzorusso).

2018 **European Conference on Operational Research**, *Valencia*, 8-11/07/2018, Contributed session.
Paper: "Adjustment mechanisms for notional defined contribution pension systems" (co-authors: P. Devolder, M. Menzietti).

2017 **RGA. Panel discussion on Long Term Care and private insurance. State of art and opportunities**, *Rome*, 5-12-2017, Invited speaker.

2017 **IME 2017 - 21st International Congress on Insurance Mathematics and Economics**, *Vienna*, 3-5/07/2017, Contributed session. Paper: "Optimal product mix in Long Term Care insurance" (co-author: M. Menzietti).

2016 **INPS. The annuitants' mortality in Italy**, *Roma*, 13-12-2016, Invited speaker.
Talk: Forecasting scenarios of pensioners' survival

2016 **Workshop Assoprevidenza on The new ANIA technical bases for Long Term Care: a starting point for hedging evolution**, *Roma*, 17-11-2016, Invited speaker.
Talk: The new ANIA technical bases for Long Term Care Insurance

2016 **12th National conference of statistics. Rome. Laboratory Numeracy**, *22-24/06/2016*, Invited speaker, Talk: "Big Data in insurance and health".

2014 **Dynamics of Social and Economic Systems (DYSES)**, *Seville*, 16-18/09/2014, Contributed session. Paper: "Immunization strategy for hedging disability and longevity risk in Long Term Care insurance" (co-author M. Menzietti).

2014 **Mathematical and Statistical Methods for Actuarial Sciences and Finance (MAF), Vietri sul mare (SA)**, *22-24/04/2014*, Contributed session. Paper: "A maximum price of longevity risk in the Solvency II framework" (co-author M. Menzietti).

2013 **Le Séminaire du laboratoire SAF**, *Institut de Sciences Financière et d'Assurances (ISFA)*, Universitè Lyon 1, France, 11-11-2013.
Invited speaker. "Managing longevity and disability risks in life annuities with Long Term Care"

2013 **IME 2013 - 17th International Congress on Insurance Mathematics and Economics**, *Copenhagen*, 1-3/07/2013, Contributed session. Paper: "Longevity risk hedging and basis risk" (co-authors: M. Coppola, V. D'Amato, M. Menzietti, M. Russolillo).

Computer skills

Operational systems	MAC OS X, Microsoft Windows
Packages	Microsoft Office, LateX
Scientific software	R, Mathematica, Python

Languages

Italian	Mothertongue
English	Intermediate

I authorize the treatment of my personal data according to the Italian Legislative Decree 196/2003.

Rome, March 2, 2023