CURRICULUM VITAE

Elisabetta Allevi

PERSONAL DATA

Full professor of Mathematical Methods for Economics,
Finance and Actuarial Sciences

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RESEARCH FIELDS

Vector equilibrium and variational inequality problems, Generalized convex functions and generalized monotone mappings, applications of equilibrium problems and variational inequalities in Economics, Energy markets and industrial sectors, models and methods for assessing the impact of different environmental policies, Stochastic programming, Utility functions on Ordered spaces.

EDUCATION

1972-1977	Degree in Mathematics, Catholic University, Brescia, Italy, July, 1977

APPOINTMENTS

2012 – present	Full professor, Department of Economics and Management, University of Brescia, Italy
2004 – 2012	Full professor, Department of Quantitative Methods, University of Brescia, Italy
2003	Associate Professor, Department of Quantitative Methods, University of Brescia, Italy
1998 – 2002	Associate Professor, Department of Mathematics, Statistics, Computer Science and Applications, University of Bergamo, Italy
1991 – 1998	Researcher, Institute of Econometrics and Mathematics for Economic, Financial and Insurance Applications, Catholic University, Milano, Italy
1984 – 1991	Researcher, Department of Mathematics, Faculty of Engineering, Politecnico of Milan, Italy

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OTHER POSITIONS

2016 – 2020	Head of the Department of Economics and Management, University of Brescia, Italy
2016 – 2020	Member of Academic Senate of University of Brescia, Italy
2012 –2016	Coordinator for Research of the Department of Economics and Management, University of Brescia, Italy
2014 –2016	Member of Commission for the coordination of research, internalization and higher education of University of Brescia
2007 – 2012	Head of the Department of Quantitative Methods, University of Brescia, Italy
2004 – 2012	Member of Commission for the implementation of new University Studies structure, University of Brescia, Italy
2003 – 2009	Delegate of University of Brescia, Italy, for the Specialization School for secondary

	teaching at the University of Bergamo
1999 – present	Member of Teachers Council of PhD in Computational methods for financial and economic forecasting and decision at the University of Bergamo, Italy, (1999 – up to Round XXVI)
	Member of Teachers Council of PhD in Economics, Applied Mathematics and Operational Research at the University of Bergamo, Italy, (from Round XXVII – up to Round XXVIII)
	Member of Teachers Council of PhD in Analytics for Economics and Business (AEB), at the University of Bergamo, Italy, (from Round XXIX - up to Round XXXII);
	Member of Teachers Council of PhD in Analytics for Economics and Management (AEM), at the University of Brescia, Italy, (from Round XXXIII);
2004 – 2012	Member of Scientific Committee of "Studies Center and of Research : Dates Methods and Systems", University of Brescia, Italy
2007 – present	Member of Scientific Committee of "MatNet: Center for the didactics of the mathematics and his applications", University of Bergamo, Italy
2004 – 2007	Chairman of under-graduate programm of Economics and Information and Comunication Management and graduate program of Theories and Methods for Information Management, Faculty of Economics and Business, University of Brescia, Italy
2006	Coordinator of course Quantitative methods for industrial applications, which will be held in the Master "Energy Risk Management", University of Milano Bicocca, Italy
1999 – 2002	Delegate of Rector for the implementation of new University Studies structure, University of Bergamo, Italy
1999 – 2002	Delegate of Rector for orientation program¸ University of Bergamo, Italy
1999 – 2002	Delegate of Rector of the University of Bergamo as member of "Education, orientation, tutoring" commission, CRUI (Conference of Italian University Rectors)
1999-2002	Coordinator of the Specialization School for secondary teaching, University of Bergamo, Italy
2001-2002	Coordinator of Stages at the Faculty of Economics and Business Administration, of University of Bergamo, Italy

SELECTED PROFESSIONAL SERVICES

2014 – 2019	Member of the Scientific Committee of the AMASES Association
2014 – 2018	Member of the scientific advisory committee of AMASES conferences
2018	Member of the scientific advisory committee of ODS2018 International Conference on Optimization and Decision Science, University of Catania, Italy, September 10-13
2015	Member of the scientific advisory committee of AIRO 2015 Conference: Optimization for Energy, Environment and Sustainability, University of Pisa, Italy, September 7-9
2012	Member of the program committee and International scientific advisory committee of *The First French-Italian Workshop on Energy Markets and Models* (FIWEM'1), University of Brescia, Italy, March 19 - 20
2007	Member of the program committee of *Spring school 2007- Stochastic programming theory and applications*, University of Bergamo, Italy, April 10 - 20
2006	Member of the program committee and International scientific advisory committee of *INTAS- Summer school "Nonlinear analysis with applications in Economics, Energy and Trasportation"* University of Bergamo, Italy, June 5 - 9
2005	Member of the program committee *8th International Symposium on Generalized Convexity/Monotonicity,* Varese, Italy, July, 4-8
2006-2007-2008	Member of the program committee and of scientific advisory committee of Summer school "Incontriamo la Matematica", San Pellegrino, Italy , September

Refeering services for several international journals such as Journal of Economic Dynamic & Control, Optimization, Journal of Optimization Theory and applications.
Reviewer (Mathematical Reviews)

COURSES DEVELOPED AND TAUGHT

Mathematics for economics and business Financial and Actuarial mathematics Insurance contracts Nonlinear Programming	Department of Economics and Management of University of Brescia, Italy Faculty of Economics and Business Administration University of Brescia, Italy Faculty of Economics and Business Administration University of Bergamo, Italy Faculty of Economics and Business Administration Catholic University, Milan, Italy
Advanced Mathematics for Economics and Finance	PhD in "Analytics for Economics and Management", at the University of Brescia, Italy
Convex Analysis and Optimization	PhD in Analytics for Economics and Business at the University of Bergamo, Italy
Nonlinear Programming	PhD in Computational Methods for Forecasting and Decisions in Economics and Finance at the University of Bergamo, Italy
Stochastic programming	PhD in Computational Methods for Forecasting and Decisions in Economics and Finance at the University of Bergamo, Italy
Quantitative methods for industrial applications	Master in "Energy Risk Management", University of Milano Bicocca, Italy
Differential Equations	PhD in Markets and financial intermediaries at the University of Bergamo, Italy.
Algebra, geometry	Faculty of Engineering, Politecnico of Milan, Italy

MEMBERSHIP IN PROFESSIONAL AND SCHOLARLY SOCIETIES

U.M.I. (Italian Mathematical Society)

A.M.A.S.E.S. (Italian Mathematical Society for Social and Economical Sciences)

S.I.E. (Italian Economic Association)

Working Group on Generalized Convexity

Gruppo nazionale per il Calcolo Scientifico (GNCS)

The Continuous Optimization Working Group (EUROPT)

RECENT GRANTS

2010-2013	Coordinator of Regional Grant on "The productive system of Lombardia: growth, innovation and environmental policies. Research project: Economic impact of the Emission Trading Scheme (ETS) on the industrial sector. A comparison between the directive 2009/29/CE and the directive 2003/87/CE".
2010-2012	Local Coordinator of Regional Grant on "Integration methods for renewable sources of energy and monitoring by satellite of the environmental impact. Research project: the equilibrium in the energy market".
2006-2007	National Coordinator of National Grant (PRIN) on "Generalized monotonicity: models and applications"
2007-2008	Member of an integrated action Italy-Belgium on "Models for the electricity markets"

SELECTED PUBLICATIONS

ALLEVI E., GNUDI A., KONNOV I.V., OGGIONI G., "Dynamic spatial equilibrium models: an application to the natural gas spot markets", *Networks and Spatial Economics*, 2019, DOI: 10.1007/s11067-019-09458-5, ISSN: 1566-113X.

ALLEVI E, BOFFINO L., DE GIULI M.E., OGGIONI G., "Analysis of long-term natural gas contracts with vine copulas in optimization portfolio problems", *Annals of Operations Research*, 2019, vol. 274, pp.1-37, DOI: 10.1007/s10479-018-2932-x. ISSN: 1572-9338.

ALLEVI E., BASSO A., BONENTI F., OGGIONI G., RICCARDI R., "Measuring the environmental performance of Green SRI funds: a DEA approach", *Energy Economics*, 2018, DOI: 10.1016/j.eneco2018.07.023. ISSN: 1873-6181.

ALLEVI E., AUSSEL D., RICCARDI R., "On a equilibrium problem with complementarity constraints formulation ofpay-as-clear electricity market with demand elasticity", *Journal of Global Optimization*, 2018, vol.70, pp.329-346, DOI: 10.1007/s10898-017-0595-9, ISSN: 0925-5001.

ALLEVI E, BOFFINO L., DE GIULI M.E., OGGIONI G., "Evaluating the impacts of the external supply risk in a natural gas supply chain: the case of the Italian market", *Journal of Global Optimization*, 2018, vol.70, pp.347-384, DOI: 10.1007/s10898-017-0584-z

ALLEVI E., GNUDI A., KONNOV I.V., OGGIONI G., "Evaluating the effects of environmental regulations on a closed-loop supply chain network: a variational inequality approach", *Annals of Operations Research*, 2018, vol.261, pp.1-43, DOI: 10.1007/s10479-017-2613-1.

ALLEVI E., A.J. CONEJO, G. OGGIONI, R. RICCARDI, C. RUIZ , "Evaluating the strategic behaviour of cement producers: an Equilibrium Problem with Equilibrium Constraints", *European Journal of Operational Research*, 2018, vol. 264, pp. 717-731, DOI: 10.1016/j.ejor.2017.06.043. ISSN: 0377-2217

ALLEVI E., GNUDI A., KONNOV I.V., OGGIONI G., "Decomposition Method for Oligopolistic Competitive Models with Common Environmental Regulation", *Annals of Operations Research*, 2017, DOI: 10.1007/s10479-017-2494-3.

ALLEVI E., GNUDI A., KONNOV I.V., OGGIONI G., "Dynamic Spatial Auction Market Models with General Cost Mappings", *Networks and Spatial Economics*, 2017, vol. 17, Issue 2, ISSN: 1566-113X , pp.367-403, DOI 10.1007/s11067-016-9330-1.

MAGGIONI F., ALLEVI E., "Bounding Multistage Stochastic Programs: A Scenario Tree Based Approach", Springer, *Proceedings in Mathematics & Statistics* , 2017, vol. 247, pp. 403-411

ALLEVI E, OGGIONI G., RICCARDI R., ROCCO M., "An equilibrium model for the cement sector: EU-ETS analysis with power contracts", *Annals of Operations Research* , S.I.: Energy And Climate Policy Modeling, 2017, vol.255, pp. 63-93, DOI 10.1007/s10479-016-2200-x

ALLEVI E, OGGIONI G., RICCARDI R., ROCCO M. "Evaluating the carbon leakage effect on cement sector under different climate policies", *Journal of Cleaner Production*, 2017, Journal of Cleaner Production, vol. 163, pp. 320-337 https://doi.org/10.1016/j.jclepro.2015.12.072

MAGGIONI F., ALLEVI E., BERTOCCHI M., "Monotonic bounds in multistage mixed-integer stochastic programming", *Computational Management Science*, 2016, vol 13, Issue 3, pp. 423-457, DOI 10.1007/s10287-016-0254-5.

ALLEVI E, OGGIONI G., RICCARDI R., ROCCO M. "Spatial equilibrium problems: the carbon leakage effect on cement sector under different environmental policies," *Journal of Information and Optimization Sciences*, 2015, vol. 36(1&2), pp. 1-21. ISSN: 0252-2667.

RICCARDI R., BONENTI F., ALLEVI E., AVANZI C., GNUDI A., "The steel industry: a mathematical model under environmental regulations" , *European Journal of Operational Research*, 2015, Vol. 242, Issue 3, pp. 1017–1027

MAGGIONI F., ALLEVI E., BERTOCCHI M., "Bounds in Multistage Linear Stochastic Programming", *Journal of Optimization Theory and Applications*, Vol. 163, Issue 1, 2014, 200-229, ISSN: 0022-3239

ALLEVI E., KONNOV I.V., ROCCO M. , "Existence Results for Generalized Vector Equilibrium Problems on Unbounded Sets", *European Journal of Pure and Applied Mathematics*, Vol. 6, No. 3, 2013, p 365-376 ISSN 1307-5543 – www.ejpam.com

ALLEVI E., BONENTI F., OGGIONI G., "Complementarity models for restructured electricity markets under environmental regulations", *Statistica & Applicazioni*, Special Issue, 7-27, 2013, ISSN: 1824-6672.

BONENTI F., OGGIONI G., ALLEVI E., MARANGONI G., "Evaluating the EU ETS impacts on profits, investments and prices of the Italian electricity market", *Energy Policy*, vol.59, p. 242-256, 2013, DOI: 10.1016/j.enpol.2013.03.026

MAGGIONI,F., BERTOCCHI, M., ALLEVI, E., POTRA, F.A., WALLACE, S.W., "Stochastic second-order cone programming in mobile ad-hoc networks: sensitivity to input parameters ", *STOCHASTIC PROGRAMMING Applications in Finance, Energy, Planning and Logistic* ISBN 978-9814407502, p 467-486, World Scientific Publishing Co.Pte.Ltd, 2013.

ALLEVI E., GNUDI A., KONNOV I.V., "Combined methods for dynamic spatial auction market models." *Optimization and Engineering*, vol. 13, p. 401-416, ISSN: 1389-4420, doi: 10.1007/s11081-011-9154-2, 2012

Allevi E., Gnudi A., Konnov I. V., Schaible S., "Gauss–Seidel method for multi-valued inclusions with Z mappings", *Journal of global optimization*, vol. 53, p. 97-105, ISSN: 0925-5001, doi: 10.1007/s10898-011-9705-2, 2012

Maggioni F., Allevi E., Bertocchi M., "Measures of information in multistage stochastic programming". *Stochastic programming for implementation and advanced applications* (STOPROG-2012). Neringa- Lituania, 3-6 luglio 2012, p. 78-82, ISBN: 9786099524146, doi: 10.5200/stoprog2012.01

Oggioni G., Smeers Y., Allevi E., Schaible S., "A Generalized Nash Equilibrium Model of Market Coupling in the European Power System" *Networks and spatial economics*, ISSN: 1566-113X, doi: 10.1007/s11067-011-9166-7, 2011

Allevi E., Gnudi A., Konnov I.V., Vespucci,~M.T., "Spatial Auction Markets with Unique Consumer Price". In: Dana M. Welton. *Transmission Lines - Theory, Types and Applications* . p. 295-308, Nova Science Publishers, Inc., ISBN: 9781617613005, 2011

Allevi E., Gnudi A., Schaible S., Vespucci,~M.T., "Equilibrium and least element problems for multivalued functions", *Journal of Global Optimization*, vol. 46; p. 561-569, 2010

Maggioni,~F., Vespucci,~M.T., Allevi,~E., Bertocchi,~M.I., Giacometti R., Innorta,~M., "A stochastic optimization model for gas retail with temperature scenarios and oil price parameters", *IMA Journal of Management Mathematics*, vol. 21; p. 149-163, 2010

Vespucci,~M.T., Allevi E., Gnudi A., Innorta M., "Cournot equilibria in oligopolistic electricity markets", *IMA Journal of Management Mathematics*, vol. 21; p. 183-193, 2010

Allevi E., Gnudi A., Konnov I.V., "An Extended Gauss-Seidel Method for Multi-Valued Mixed Complementarity Problems", *Taiwanese Journal of Mathematics*, vol 13, 2B, 2009

Maggioni F., Allevi E., Bertocchi M.I, Potra~F.A " Stochastic second order cone programming in mobile ad-hoc networks", *Journal of Optimization Theory and Applications*, 0.1007/s10957-009-9561-0 , JOTA 143/2 November 2009

Allevi E., Gnudi A., Konnov I.V., "An Extended Gauss-Seidel Method for a Class of Multi-Valued Complementarity Problems", *Optimization Letters*, vol. 2, 4, pp.543- 553, 10.1007/s11590-008-0080-y , 2008.

Maggioni F., Vespucci M.T., Allevi E., Bertocchi M.I, Innorta M., "A two-stage stochastic optimization model for a gas sale retailer", *Kybernetika*, 44(2), 2008.

Allevi E., Gnudi A., Konnov I.V., "Regularization of Non-Monotone Multi-valued variational Inequalities with Applications to Partitionable Problems", *Pure Mathematics and Applications*, 18, 1-2, pp1-12, 2007.

Maggioni F., Vespucci M.T., Allevi E., Bertocchi M.I., Innorta M., "A Gas retail stochastic optimization model by mean reverting temperature scenarios", *Communications to SIMAI Congress on-line*, ISSN 1827-9015, 2, DOI 10.1685/CSC06162, 2007.

Allevi E., Gnudi A., Konnov I.V., "Partitionable variational inequalities with Multi-valued Mappings", *Lecture Notes in Economics and Mathematical Systems*, 583, Springer, Generalized Convexity and Related Topics, editors I. Konnov, D.The Luc, A. M. Rubinov, pp.91- 100 , 2007.

Allevi E., Gnudi A., Konnov I.V., Schaible S., "Characterizations of relatively generalized monotone maps", *Mathematical Methods of Operation Research*, 2007, 65, pp.293-303, DOI: 10.1007/s00186-006-0115-z

Allevi E., Bertocchi M.I., Innorta M., vespucci M.T., "A stochastic optimization model for a gas sale company", *IMA Journal of Management Mathematics*, 2007; pp.1-14, doi: 10.1093/imaman/dpm004

ALLEVI E., BERTOCCHI M.I., INNORTA M., VESPUCCI M.T. , "A mixed integer nonlinear optimization model for gas sale company", *Optimization Letters*, 2007, 1, pp. 61-69, DOI 10.1007/s11590-006-0012-7.

ALLEVI E., GNUDI A., KONNOV I.V., SCHAIBLE S., "Infinite non-cooperative games with vector payoffs under relative pseudomonotonicity", *Journal of Global Optimization*, vol. 34, N.1, pp.79 –96, 2006.

ALLEVI E., GNUDI A., KONNOV I.V., "The proximal point method for nonmonotone variational inequalities", *Mathematical Methods of Operation Research*, 63, pp.553- 565, DOI: 10.1007/s00186-005-0052-3, 2006.

ALLEVI E., GNUDI A., KONNOV I.V., MAZURKEVICH E.O., "Partitionable mixed variational inequalities, Partitionable mixed variational inequalities". In Giannessi Franco, Maugeri Antonino, *Variational analysis and applications* , vol. 79, pp.133-146, Sprinter, 2005.

ABAFFY J., ALLEVI E., "A modified L-Shaped method", *Journal of Optimization Theory and Applications*, vol.123, 2, November, 2004.

ALLEVI E., GNUDI A., KONNOV I.V., "Generalized vector variational inequalities over countable product of sets", *Journal of Global Optimization*, 30, pp.155-167, 2004.

ALLEVI E., GNUDI A., KONNOV I.V., "Decomposable Generalized vector variational inequalities", in *Optimization and Control with Applications*, Springer, editors L.Qi, K.L. Teo e X.Q. Yang, pp.497-507, 2004.

ALLEVI E., GNUDI A., KONNOV I.V., SCHAIBLE S., "Non-cooperative games with vector payoffs under relative pseudomonotonicity", *Journal of optimization theory and applications*, vol.118, 2, pp. 245-254, 2003.

ALLEVI E., GNUDI A., KONNOV I.V., "Generalized vector variational inequalities over product sets", *Nonlinear Analysis*, vol.47/1, pp. 573-582 , 2001.

ALLEVI E., GNUDI A., KONNOV I.V., "Combined relaxation method with Frank-Wolf type auxiliary procedures for variational inequalities over product sets", *Pure Mathematics and applications*, vol.12, No.1, pp.1-9, 2001.

ALLEVI E., ZUANON M., "Representation of preference orderings on Totally Ordered Semigroups", *Pure Mathematics and applications* , vol.11, No.1, pp.13-21, 2000.

ALLEVI E., TORRIERO A., "M-functions and scale dependent input-output models", *Pure Mathematics and Applications* , vol.10, No.4, pp.413-421, 1999.

ALLEVI E., "Replicating an option under general assumptions on transaction costs", *Modelling techniques for Financial Markets and Bank Management*, Physica Verlag,Heidelberg, pp.101-110, 1996.

ALLEVI E., "On monotonicity of nonlinear functions", *Pure Mathematics and Applications* , vol.7, number 1-2, pp.25-40, 1996.

ALLEVI E., "Rings satisfying a condition on subsemigroups", *Proceedings of the Royal Irish Academy, Section A-Mathematical and Physical Sciences*, Dublin, Ireland,Vol. 88 A, No. 1, pp. 49-55, 1988.

ALLEVI E., CHERUBINI A., CRESPI REGHIZZI S., "Breadth-first phrase structure grammars and queue automata", MFCS 1988, *Lecture Notes in Computer Science,* 324, pp.162-170, 1988.

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ALLEVI E., PERELLI CIPPO C., "Semicollineazioni di spazi affini deboli", *Istituto Lombardo* (Rend. Sc.) A, vol. 116, pp.251-266, 1982.

ALLEVI E., "Una classe di semianelli (+)-inversivi", *Istituto Lombardo* (Rend. Sc.) A, vol. 119, pp.89-107, 1985.

ALLEVI E., “Alcune congruenze sui semianelli (+)-convenzionali”, *Istituto Lombardo* (Rend. Sc.) A, vol. 120, pp.3-16, 1986.

ALLEVI E., “Prodotti sottodiretti di (+,•)-bande (+)-commutative e di quasianelli distributivi”, *Istituto Lombardo* (Rend. Sc.) A, vol. 121, pp.41-53, 1987.

ALLEVI E., “Preliminari algebrici e topologici allo studio dei sistemi digitali”, *Istituto Lombardo* (Rend. Sc.) A, vol. 124 , pp.173-187, 1990.

ALLEVI E., “Una interpretazione sistemica di alcune questioni di economia”, *Istituto Lombardo* (Rend.Sc.) A, vol.126, pp.69-81, 1992.

ALLEVI E., DOLCI P.V., ZAMBRUNO G.M., “Da Assuan A Piazza Affari. Ricerca di dipendenze a lungo termine nei rendimenti di titoli azionari”, *Analisi Finanziaria*, n.15, pp.71-81, 1994.

ALLEVI E., Un’applicazione della teoria dei semigruppi ordinati nell’ambito della teoria delle decisioni, *Le Matematiche*, LI, pp.11-19, 1996.

BERTOCCHI,~M.I., MAGGIONI,~F., ALLEVI,~E., VESPUCCI,~M.T., GAMBARINI S., "Un modello stocastico per la vendita al dettaglio di gas" , *Scienza delle decisioni in Italia: applicazioni della ricerca operativa a problemi aziendali*, editors G. Felici and A. Sciomachen, cap. 6, 105-116, EGIC, Genova Italy, ISBN 978-88-7544-150-0, 2008.

SELECTED BOOKS

ABAFFY J., ALLEVI E., BERTOCCHI,~M.I., MORIGGIA V., *Programmazione stocastica e applicazioni*, Egea, 2010.

ALLEVI E., BERTOCCHI M.I., GNUDI A., KONNOV I. V., *Nonlinear analysis with applications in Economics, Energy* and *Trasportion,* Bergamo University Press, 2007