

Curriculum Vitae of Giulio Bottazzi

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Date: 29 February 2020

Date of Birth: 30 January 1969

Nationality: Italian

Brief BIO

Giulio Bottazzi is a Professor of Economic Policy in the Social Science Department of the Scuola Superiore Sant'Anna in Pisa. He graduated from Parma University and holds a PhD in Theoretical Physics from Milano University. He is the author of several papers published in international journals. His research interests range from industrial dynamics to financial economics, encompassing experimental economics (coordination and bounded rationality), economic geography (industrial districts and localized spillovers), theoretical and empirical aspects of market interactions (firm growth and diversification; competition and technical efficiency) and applied econometrics (characterization of extreme events). He has been the Principal Investigator and Co-Investigator of projects financed by the Italian Ministry of University and Research, the European Commission and the Tuscany Regional Council, both in partnership with other research institutions and private companies.

Academic Career

November 2013-October 2019 Dean of the Academic Class of Social Sciences,
Scuola Superiore Sant'Anna, Pisa, Italy

since June 2013 Full Professor of Economic Policy, Scuola Superiore Sant'Anna, Pisa,
Italy

2010-2013 Deputy director of the Master Program in Economics jointly offered by
Scuola Sant'Anna and Università di Pisa.

since 2008 Research associate, BRICK Center, Collegio Carlo Alberto, Torino, Italy.

2007-2012 Invited Professor, Université Pantheon-Assas Paris II.

2004-2013 Associate Professor of Economic Policy, Scuola Superiore Sant'Anna, Pisa,
Italy.

since 2002 Director of the Center for the Analysis of Financial and Economic Dynamics (CAFED), Scuola Superiore Sant'Anna Pisa, Italy.

1999-2004 Assistant Professor of Economics, Scuola Superiore Sant'Anna, Pisa, Italy.

1998-1999 Post-doc position at the laboratory of Economic and Management, Scuola Superiore Sant'Anna, Pisa, Italy.

Education

1993 Degree in Physics, University of Parma, Italy.

1998 Ph.D. in Theoretical Physics, University of Milano, Italy.

Attended International Schools

1998 School on the mathematics of economics, at SISSA, Trieste, Italy.

1997 Cracow School of Theoretical Physics XXXVII Course, Zakopane, Poland.

1995 CTEQ-DESY School on Theory and Phenomenology, Bad Lauterberg, Germany.

1995 International School of Physics 'Enrico Fermi', CXXX Course 'Selected Topics in Non Perturbative QCD', Varenna, Italy.

1994 International School of Subnuclear Physics, 32nd Course, Erice, Italy.

1994 St.Petersburg Winter School in theoretical physics, San Petersburg, Russia

Languages

English: excellent in reading, fluent in speaking and writing

French: excellent in reading, working knowledge in speaking and basic knowledge in writing.

Italian: native language, excellent in reading, speaking and writing

Teaching Activities

1998-1999 Mathematics (Calculus) at the Department of Food Science of the University of Parma, Italy.

1998-1999 Mathematics (Calculus and Linear Algebra) at the Department of Social Sciences, Scuola Superiore Sant'Anna, Italy

2000-2001 Mathematics (Calculus) at the Department of Engineering of the University of Modena and Reggio, Italy.

1999-2003 Coordinator of the courses of Mathematics and Statistics of the PhD Program in Economics and Management of Scuola Superiore Sant'Anna.

since 2004 Industrial Dynamics and Quantitative Methods, Graduate Course in Economics, Scuola Superiore Sant'Anna.

2007 and 2010 DIMETIC Program Lecturer, Pecs University, Hungary.

since 2008 Quantitative Methods for Economics, International PhD Program in Economics, Scuola Superiore Sant'Anna.

***since 2010* Mathematics for Economics, Undegraduate and Master** levels, Scuola Superiore Sant'Anna.

2010-2011 Microeconomics, Master Degree in Economics, University of Pisa.

since 2011 Financial Economics, Master Degree in Economics, University of Pisa.

since 2018 Financial Economics, Ph.D in Economics, Scuola Superiore Sant'Anna.

Fellowships

Since 2003 member of the Italian Society for Chaos and Complexity.

Since 2004 member of the Italian Economic Association.

Since 2005 member of the International Schumpeterian Society.

Since 2006 member of the European Economic Association.

2007 Member of the Scientific Commission of the 'Società Italiana di Statistica' (Italian Statistical Society) for the Economic and Environmental Research.

Scientific Activity

Referee

Since 1998 collaboration as referee for many scientific journals, among which:

- Empirical Economics
- Europhysics Journal-B
- International Journal of Industrial Organization
- Industrial and Corporate Change
- Information Sciences
- Journal of Business and Economic Statistics
- Journal of Economic Dynamics and Control
- Journal of Evolutionary Economics
- Journal of Econometrics

- Journal of Mathematical Economics
- Physica A
- Research Policy
- Review of Social Studies
- Review of Industrial Organization
- Regional Studies
- Small Business Economics
- Structural Change and Economic Dynamics

Main event organized or advised

September 2022, Summer School of Mathematics for Economics and Social Sciences, Ninth Edition, San Miniato, Italy

September 2019, Summer School of Mathematics for Economics and Social Sciences, Eight Edition, San Miniato, Italy

September 2018, Summer School of Mathematics for Economics and Social Sciences, Seventh Edition, San Miniato, Italy

September 2017, Summer School of Mathematics for Economics and Social Sciences, Sixth Edition, San Miniato, Italy

September 2016, Summer School of Mathematics for Economics and Social Sciences, Fifth Edition, San Miniato, Italy

September 2015, Summer School of Mathematics for Economics and Social Sciences, Fourth Edition, San Miniato, Italy

September 2014, Summer School of Mathematics for Economics and Social Sciences, Third Edition, San Miniato, Italy

October 2013, "The growth of firms and countries", PRIN final workshop, Rome, Italy.

September 2013, Summer School of Mathematics for Economics and Social Sciences, Second Edition, San Miniato, Italy

December 2012, "The growth of firms and countries: distributional properties and economic determinants", PRIN mid-term workshop, Pisa, Italy.

September 2012 "Summer School of Mathematics for Economics and Social Sciences", First Edition, San Miniato, Italy.

October 2011, "The growth of firms and countries", PRIN Project kick-off meeting, Pisa, Italy.

February 2011, "EMAEE 2011: 7th European Meeting on Applied Evolutionary Economics", Pisa, Italy.

December 2009, "Markets and firms dynamics: from micro patterns to aggregate behaviors", Université des Antilles et de la Guyane, Pointe-à-Pitre, Guadeloupe, France.

October 2009 "Evolution and market behavior in economics and finance", Mathematics Research Center "Ennio De Giorgi", Pisa, Italy.

October 2008 "The dynamics of firm evolution: productivity, profitability and growth", Scuola Superiore Sant'Anna, Italy.

June 2008 "ENTREPRENEURSHIP AND INNOVATION", 25th DRUID Celebration Conference 2008, Copenhagen Business School, Denmark.

July 2007 "The Emergence and Impact of Market : The Case of Fish Markets", Tromsø, Norway.

September 2007 "Agent Based Models for Spatial Systems in Social Sciences & Economic Science with Heterogeneous Interacting Agents", La Londe les Maures, France.

September 2006 "Artificial Economics 2006", Aalborg, Denmark.

May 2006 "Complexity 2006", Aix-en-Provence, France.

August 2004 IWAMEM -- "Data Mining and Adaptive Modeling Methods for Economics and Management", University of Pisa, Pisa, Italy.

April-July 2002 "Financial Markets: mathematical, statistical and economic analysis", Centro di Ricerca Matematica E. De Giorgi, Pisa, Italy.

Main attended meetings

June 2019 , Computing in Economics and Finance, Mila, Italy.

August 2018 invited speaker, AMMCS-2019, Waterloo, Ontario, Canada.

October 2017 speaker, Meeting of the Association of Southern-European Economic Theorists (ASSET), Algiers, Algeria.

June 2017 invited speaker, SAET Conference, Ancao, Portugal.

June 2016 speaker, 22th Annual Workshop on Economic Heterogeneous Interacting Agents, Università Cattolica del Sacro Cuore , Milan.

June 2017 invited speaker, SAET Conference, Ancao, Portugal.

December 2016 invited speaker, ICC Conference: Beyond Technological Innovation and Diffusion, University of California, Berkeley, US.

October 2016 speaker, Meeting of the Association of Southern-European Economic Theorists (ASSET), Thessaloniki, Greece.

June 2016 speaker and invited teacher, 21th Annual Workshop on Economic Heterogeneous Interacting Agents, University of Castellon, Spain.

October 2015 speaker, Meeting of the Association of Southern-European Economic Theorists (ASSET), Grenada, Spain.

July 2015 invited speaker, IWH Workshop on Firm Exit and Job Displacement, Halle Institute for Economic Research, Halle, Germany.

May 2015 speaker, 20th Annual Workshop on Economic Heterogeneous Interacting Agents, University of Nice, France.

June 2014 speaker, Governance of a Complex World 2014, Torino, Italy.

May 2013 speaker and invited teacher, 18th Annual Workshop on Economic Heterogeneous Interacting Agents, University of Reykjavik, Island.

June 2012 speaker and tutorial teacher, 17th Annual Workshop on Economic Heterogeneous Interacting Agents, University of Pantheon-Assas, Paris II, France.

February 2012 invited speaker, Financing Innovation and Growth: Reforming a Dysfunctional System, London, UK

February 2012 invited speaker, External Developments Division of the European Central Bank, Frankfurt, Germany.

June 2011 invited speaker, SAET Conference, Ancao, Portugal.

June 2011 invited speaker, International Conference STOCHASTIC ECONOMICS AND FINANCE, University of Bergen, Bergen, Norway.

January 2011 invited speaker, Second International Meeting of TOM Society, Universitat Pompeu Fabra, Barcelona, Spain.

October 2010 invited speaker "Quantifying and Understanding Dysfunctions of Financial Markets", Luvein, Belgium

September 2010 invited speaker "Toward an Alternative Macroeconomic Theory" Central European University, Budapest

June 2010 "11th Workshop on Optimal Control, Dynamic Games and Nonlinear Dynamics", University of Amsterdam, The Netherlands.

June 2010 "International Schumpeter Conference", Aalborg University, Denmark.

June 2009 invited speaker "Common Complex Collective Phenomena: implications for economic and social policy making", Cracow, Poland.

January 2009 invited speaker at the Workshop "Ten Years of CeNDEF", University of Amsterdam, The Netherlands.

November 2008 invited speaker at the Workshop "Revolving Doors: Entrepreneurial Survival and Exit", Rotterdam School of Management, The Netherlands.

October 2008 invited speaker at the 3rd Toyota CRDL Workshop "Mathematical Methods in Complex Systems", Gemenos, France.

August 2008 EEA-ESEM 2008, Milano, Italy.

June 2008 "Computing in Economics and Finance", Paris, France.

April 2008 session organizer "DIME Scientific Conference", BETA/PEGE, Strasbourg, France.

February 2008 invited speaker "FIG workshop", CIRCLE, Lund, Sweden.

November 2007 invited speaker 'Second European PhD Complexity School', Torino, Italy.

October 2007 invited speaker 'S.I.E. Annual Conference', Torino, Italy.

October 2007 invited speaker "Complexity in Economics and Finance", Leiden University, the Netherlands.

August 2007 EEA-ESEM 2007, Budapest, Hungary.

September 2006 invited speaker "Policy Implications from Recent Advances in the Economics of Innovation and Industrial Dynamics", Open University, London.

June 2006 'International Schumpeter Conference', Nice, France.

May 2006 'Complexity 2006', Aix-en-Provence, France.

September 2005 'Artificial Economics 2005', Lille, France.

May 2005 invited speaker 'Third SPIE International Symposium Fluctuations and Noise' Austin, Texas

November 2004 invited speaker 'Workshop On Interactions and Markets', Pisa, Italy.

June 2004 invited speaker 'Workshop On Nonlinear Dynamics in Economics' Trieste, Italy.

June 2004 'Schumpeter 2004 Conference', Milano, Italy.

October 2003 invited speaker 'Workshop on Economic Dynamics', Bolzano, Italy.

October 2003 '[Wild@Ace](#)' Torino, Italy.

September 2003 '13th European Colloquium on Quantitative and Theoretical Geography', Lucca, Italy.

September 2003 'Clusters, Industrial Districts and Firms. The Challenge of Globalization' Modena, Italy.

April 2003 'European Meeting on Applied Evolutionary Economics', Augsburg, Germany.

April 2003 'Reinventing Regions in the Global Economy', Pisa, Italy.

March 2003 invited speaker 'The Evolution of Innovation and Market Structure in the Pharmaceutical and Biotech Industry: Alternative Models and Interpretations', Londra, United Kingdom.

March 2003 '11th Annual Symposium of the Society for Non Linear Dynamics and Econometrics' SNDE-2003, Firenze, Italy.

September 2002 EARIE'29 29-th Annual Conference of the European Association for Research in Industrial Economics' Madrid, Spain.

June 2002 'Evolutionary Finance Conference', Zurich, Switzerland.

May 2002 WHEIA2002 'Workshop on Economics with Heterogeneous Interacting Agents', Trieste, Italy.

April 2002 'Local Models of Development, Clusters of Firms and Local Innovative Systems' Varese, Italy.

September 2001 'European Meeting on Applied Evolutionary Economics', Vienna, Austria.

June 2001 'Society for Computational Economics 2001 Conference' Yale University, New Haven, Connecticut.

June 2001 'Complexity and Industrial Clusters', Milan, Italy.

June 2001 WHEIA2001 'Workshop on Economics with Heterogeneous Interacting Agents', Maastricht, Netherland.

June 2000 'Third ESSY workshop', Berlin, Germany.

June 1999 WHEIA1999 'Workshop on Economics with Heterogeneous Interacting Agents', Genova, Italy.

Luglio 1998, 'ICHEP 98, XXIX International Conference on High Energy Physics' Vancouver, Canada.

Giugno 1998, 'Low x Physics at HERA', DESY Zheuten, Berlin, Germany.

Settembre 1996, V National Seminary of Theoretical Physics, Parma, Italy.

Maggio 1996, 'Cortona 96: Convegno Nazionale Informale di Fisica Teorica ' (Cortona 96: National Informal Conference of Theoretical Physics), Cortona.

Grants received

OPENMUSE

period: 2022-2024
type: Horizon 2022
sponsor: European Commission
role: Research group coordinator

DOLFINS

period: 2015-2018
type: Research and Innovation Action project FP 7
sponsor: European Commission
role: Member

Economia dei Media Sociali: Informazione e Reputazione nella Rete

period: 2013-2015
type: FORTEC Research Grant
sponsor: Tuscany Regional Council
role: Lead Scientist

Market Selection and Aggregate Economic Outcomes

period: 2013-2015
type: MARIE CURIE INTERNATIONAL OUTGOING FELLOWSHIPS
sponsor: European Commission
role: Primary Coordinator

The growth of firms and countries

period: 2011-2013
type: PRIN (Project of Relevant National Interest)
sponsor: Italian Ministry of University and Research
role: National Coordinator

Micro-dyn

period: 2006-2010
type: Integrated Project in FP 6
sponsor: European Commission
role: External Expert

Dissemination to and Interaction with Industry and other stakeholders

period: 2007-2009
type: Work Package, DIME Network of Excellence
sponsor: European Commission
role: Coordinator

CO3 - Common Complex Collective Phenomena in Statistical Mechanics , Society, Economics and Biology

period: 2005-2009
type: Specific Targeted Research Project
sponsor: European Commission
role: Member

Market Dynamics: analytical tools, empirical regularities and experimental results

period: 2006-2008
type: Work Package, DIME Network of Excellence
sponsor: European Commission
role: Coordinator

Apprendimento e interazioni competitive nei modelli di evoluzione delle industrie

period: 2004-2006
type: PRIN
sponsor: Italian Ministry of University and Research
role: Member

Modelli dinamici dei mercati finanziari e analisi delle serie storiche ad alta frequenza: dai processi stocastici alla gestione del rischio

period: 2002-2003
type: Programma di Ricerca di Rilevante Interesse
sponsor: Scuola Superiore Sant'Anna
role: Coordinator

Mercati ed istituzioni: dinamiche di apprendimento e strutture di interazione

period: 2001-2002
type: Programma di Ricerca di Rilevante Interesse
sponsor: Scuola Superiore Sant'Anna
role: Member

Structures and dynamics of industries and markets

period: 2001-2002
type: FIRB
sponsor: Italian Ministry of University and Research
role: Member

Metodi e modelli statistici per dati macroeconomici e industriali: analisi sezionali e temporali

period: 2002
type: Coordinated project - AGENZIA 2000
sponsor: CNR
role: Member

Modelli dinamici per la crescita e diversificazione dell'impresa

period: 1999-2001
type: Progetti Giovani Ricercatori
sponsor: CNR
role: Coordinator

Main publications in Economics

Publications in international journals

G. Bottazzi and D. Giachini, A general equilibrium model of investor sentiment, Economics Letters, Volume 218, September 2022.

G. Bottazzi and D. Giachini, STRATEGICALLY BIASED LEARNING IN MARKET INTERACTIONS, Advances in Complex Systems, Vol. 25, No. 02n03, 2250004, 2022.

G. Bottazzi, On the Pareto Type III Distribution, Frontiers in Physics, Sec. Interdisciplinary Physics, 14 April 2022.

G. Bottazzi and P. Dindo, Drift criteria for persistence of discrete stochastic processes on the line, Journal of Mathematical Economics, Volume 101, 2022.

G. Bottazzi, Dindo P., Giachini D., Momentum and reversal in financial markets with persistent heterogeneity, Annals of Finance, vol. 15(4), pages 455-487, 2019.

- G. Bottazzi, Li L., Secchi A. . Aggregate fluctuations and the distribution of firm growth rates, *Industrial and Corporate Change*, vol. 28, p. 635-656, 2019
- G. Bottazzi and D. Giachini, Far from the Madding Crowd: Collective Wisdom in Prediction Markets, *Quantitative Finance*, vol. 19, p. 1461-1471 , 2019.
- G. Bottazzi and D. Giachini, Betting, Selection, and Luck: A Long-Run Analysis of Repeated Betting Markets, *Entropy* 21(6), 585, June, 2019.
- G. Bottazzi, P. Dindo and D. Giachini, Long-run Heterogeneity in an Exchange Economy with Fixed-Mix Traders, *Economic Theory*, Volume 66, pp 407-447, August 2018.
- G. Bottazzi and D. Giachini Wealth and price distribution by diffusive approximation in a repeated prediction market, *Physica A*, Volume 471, pp 473-479, 1 April 2017.
- G. Bottazzi, U. Gragnolati and F. Vanni Non-linear externalities in firm localization *Regional Studies*, November 2016.
- S. Bianchini, G. Bottazzi and F. Tamagni, What does (not) determine persistent corporate high-growth? *Small Business Economics*, July, 2016.
- G. Bottazzi, D. Pirino and F. Tamagni, Zipf law and the firm size distribution: a critical discussion of popular estimators, *Journal of Evolutionary Economics*, 25 (3), 585-610, 2015.
- G. Bottazzi and U. Gragnolati, Cities and clusters: economy-wide and sector-specific effects in corporate location, *Regional Studies* 49 (1),pp 113-129, 2015.
- G. Bottazzi and M. Grazi, Dynamics of productivity and cost of labor: Evidence from Italian manufacturing firms, *Bulletin of Economic Research*, DOI:10.1111/boer.12014
- G. Bottazzi and P. Dindo, Globalizing knowledge: how technological openness affects output, spatial inequality and welfare levels, *Journal of Regional Science*, DOI:10.1111/jors.12034
- G. Bottazzi and U. Gragnolati, Cities and clusters: economy-wide and sector-specific effects in corporate location, *Regional Studies*, DOI:10.1080/00343404.2012.739281
- G. Bottazzi, A. Secchi, F. Tamagni, Financial Constraints and Firm Dynamics, *Small Business Economics*, DOI:10.1007/s11187-012-9465-5
- G. Bottazzi and P. Dindo, Selection in asset markets: the good, the bad, and the unknown, *Journal of Evolutionary Economics*, Volume 23, Issue 3, pp 641-661, July 2013.
- G. Bottazzi and P. Dindo, Evolution and Market Behavior in Economics and Finance: introduction to the special issue, *Journal of Evolutionary Economics*, Volume 23, Issue 3, pp 507-512, July 2013
- M. Anufriev and G. Bottazzi, Asset Pricing with Heterogeneous Investment Horizons, *Studies in Nonlinear Dynamics & Econometrics*, 16(4), 2012.
- G. Bottazzi and A. Secchi, Productivity, profitability and growth: the empirics of firm dynamics, *Structural Change and Economic Dynamics*, 23(4), pp.325–328, 2012.
- M. Anufriev, G. Bottazzi, M. Marsili and P. Pin, Excess Covariance and Dynamic Instability in a Multi-Asset Model, *Journal of Economic Dynamics and Control*, 36(8), pp.1142-1161, 2012.
- G. Bottazzi and F. Tamagni, Big and fragile: when size does not shield from defaults, *Applied Economics Letters*, 18(14), pp. 1401-1404, 2011.

- G. Bottazzi and A. Secchi, A New Class of Asymmetric Exponential Power Densities with Applications to Economics and Finance, *Industrial and Corporate Change*, 20(4), pp. 991-1030, 2011.
- G. Bottazzi, M. Grazzi, A. Secchi, F. Tamagni, Financial and Economic Determinants of Firm Default, *Journal of Evolutionary Economics*, 21(3), pp. 373-406, 2011.
- G. Bottazzi, G. Devetag, F. Pancotto, Does Volatility matter? Expectations of price return and variability in an asset pricing experiment, *Journal of Economic Behavior & Organization*, 77, pp. 124-146, 2011.
- G. Bottazzi, A. Coad, N. Jacoby and A. Secchi, Corporate growth and industrial dynamics: evidence from French manufacturing, *Applied Economics*, 43 (1), pp.103-116, 2011.
- M. Anufriev and G. Bottazzi, Market Equilibria under Procedural Rationality, *Journal of Mathematical Economics*, 46 (6), pp. 1140-1172, 2010.
- G. Bottazzi, G. Dosi, N. Jacoby, A. Secchi, F. Tamagni, Corporate performances and market selection. Some comparative evidence, *Industrial and Corporate Change*, 19 (6), pp. 1953-1996, 2010.
- G. Bottazzi and M. Grazzi, Wage-size relation and the structure of work-force composition in Italian Manufacturing Firms, *Cambridge Journal of Economics*, Volume 34, Number 4 pp. 649-669, 2010.
- G. Bottazzi, On the Irreconcilability of Pareto and Gibrat Laws, *Physica A*, 388, 7, pp. 1133-1136, 2009.
- G. Bottazzi, A. Secchi and F. Tamagni, Productivity, Profitability and Financial Performance, *Industrial and Corporate Change*, 17, pp.711-751, 2008.
- G. Bottazzi, G. Fagiolo, G. Dosi and A. Secchi, Sectoral and Geographical Specificities in the Spatial Structure of Economic Activities, *Structural Change and Economic Dynamics*, 19, pp. 189-202, 2008.
- G. Bottazzi, On the relationship between firms' size and growth rate, *Economics Bulletin*, 3, 8, pp. 1-7, 2008.
- G. Bottazzi, G. Fagiolo, G. Dosi and A. Secchi, Modeling Industrial Evolution in Geographical Space, *Journal of Economic Geography*, 7, pp. 651-672, 2007.
- G. Bottazzi and G. Devetag, Competition and Coordination in Experimental Minority Games, *Journal of Evolutionary Economics*, 17, pp. 241-275, 2007.
- G. Bottazzi, E. Cefis, G. Dosi and A. Secchi, Invariances and Diversities in the Evolution of Italian Manufacturing Industry, *Small Business Economics*, 29, pp. 137-159, 2007.
- G. Bottazzi and A. Secchi, Gibrat's Law and Diversification, *Industrial and Corporate Change*, 15, pp. 847-875, 2006.
- M. Anufriev, G. Bottazzi and F. Pancotto, Equilibria, Stability and Asymptotic Dominance in a Speculative Market with Heterogeneous Agents, *Journal of Economic Dynamics and Control*, 30, pp. 1787-1835, 2006.
- G. Bottazzi and A. Secchi, Explaining the Distribution of Firms Growth Rates, *Rand Journal of Economics*, vol. 37, no. 3, 2006.
- G. Bottazzi, M. Grazzi and A. Secchi, Characterizing the Production Process: A Disaggregated Analysis of Italian Manufacturing Firms, *Rivista di Politica Economica*, I-II, pp. 243-270, 2005.

- G.Bottazzi and A.Secchi, Growth and Diversification Patterns of the Worldwide Pharmaceutical Industry, *Review of Industrial Organization*, 26, pp. 195-216, 2005.
- G.Bottazzi, G.Dosi and I.Rebesco, Institutional Architectures and Behavioral Ecologies in the Dynamics of Financial Markets, *Journal of Mathematical Economics*, vol. 41, pp. 197-228, 2005.
- G.Bottazzi, M.Grazzi and A.Secchi, Input Output Scaling Relations in Italian Manufacturing Firms, *Physica A*, 355, pp. 95-102, 2005.
- G.Bottazzi, S.Sapio and A.Secchi, Some Statistical Investigations on the Nature and Dynamics of Electricity Prices, *Physica A*, 355, pp. 54-61, 2005.
- G.Bottazzi, A.Secchi, Common Properties and Sectoral Specificities in the Dynamics of U.S. Manufacturing Companies, *Review of Industrial Organization*, vol. 23, pp. 217-232, 2003.
- G.Bottazzi, A.Secchi, Why are distributions of firm growth rates tent-shaped , *Economic Letters* vol. 80 pp.415-420, 2003.
- G.Bottazzi, G. Devetag, A Laboratory Experiment on the Minority Game, *Physica A* vol. 324 pp. 124-132, 2003.
- G.Bottazzi, A. Secchi, A Stochastic Model of Firm Growth, *Physica A* vol. 324 pp. 213-219, 2003.
- G.Bottazzi, G.Devetag, G.Dosi, Learning and emergent coordination in speculative markets: some properties of "minority game" dynamics, *Simulation Modeling Practice and Theory*, 10, 321-347 (2002).
- G.Bottazzi, E.Cefis, G.Dosi, Corporate Growth and Industrial Structure. Some Evidence from the Italian Manufacturing Industry, *Industrial and Corporate Change* 2,4 (2002).
- G.Bottazzi, G.Dosi and G.Rocchetti, Modes of Knowledge Accumulation, Entry Regimes and Patterns of Industrial Evolution, *Industrial and Corporate Change* 10,3 (2001)
- G.Bottazzi, G.Dosi, M.Lippi, F.Pammolli, M.Riccaboni, Innovation and Corporate Growth in the Evolution of the Drug Industry, *International Journal of Industrial Organization* 19 (2001) pp.1161-1187

Articles in Monograph and Collections

- G.Bottazzi and A.Secchi, Financial fragility and the distribution of firm growth rates, in A.M.Ferragina and E. Taymaz (eds) "Innovation, Globalization and Firm Dynamics: Lessons for Enterprise Policy", 2013.
- G.Bottazzi and P.Dindo, An evolutionary model of firms location with technological externality, in R.A.Boschma and R.Martin (eds.) "Handbook on Evolutionary Economic Geography", Edward Elgar, Cheltenham, 2010.
- G.Bottazzi and M.Grazzi, Dinamiche della produttività e del costo del lavoro nelle imprese manifatturiere italiane, in *Produttività e cambiamento nell'industria italiana*, Laura Rondi e Francesco Silva (eds.), il Mulino, 2009.

- G.Bottazzi and S.Sapio, Power Exponential Price Returns in Day-ahead Power Exchanges, in A. Chatterjee and B. K. Chakrabarti (eds) "Econophysics of Markets and Business Networks", New Economic Windows, Springer Verlag, Berlin, 2007.
- G.Bottazzi, M. Grazzi and A. Secchi, Characterizing the Production Process: A Disaggregated Analysis of Italian Manufacturing Firms, in M. Malgarini and G. Piga (eds) "Capital Accumulation, Productivity and Growth", Palgrave Macmillan, New York, 2006.
- G.Bottazzi and A. Secchi, Self-reinforcing Dynamics and the evolution of business firms, in A.Pyka and H.Hanusch (eds.) "Applied Evolutionary Economics and the Knowledge-Based Economy", Edward Elgar, Cheltenham, 2006.
- M.Anufriev and G. Bottazzi, Noisy Trading in the Large Market Limit, in P.Mathieu, B.Beaufils and O.Brandouy (eds.) "Artificial Economics: Agent-based Methods in Finance, Game Theory and Their Applications", Lecture Notes in Economics and Mathematical Systems vol.564, Springer-Verlag, Berlin, 2006.
- G.Bottazzi, G Dosi, and G. Fagiolo, On Sectoral Specificities in the Geography of Corporate Location, in Breschi, S. and Malerba, F. (Eds.) "Clusters, networks and innovation", Oxford University Press, Oxford, U.K., 2006.
- G.Bottazzi, F.Pammolli and A.Secchi, The Dynamics of Growth and Diversification of the Large Pharmaceutical Company, in M. Mazzucato and G. Dosi (Eds.) 'Knowledge Accumulation and Industry Evolution: the Case of Pharma-Biotech', Cambridge University Press, 2005.
- G.Bottazzi, M. G. Devetag, Expectations structure in asset pricing experiments, in T.Lux, S.Reitz and E.Samanidou (Eds.) "Nonlinear Dynamics and Heterogeneous Interacting Agents" Lecture Notes in Economics and Mathematical Systems 550, Springer Verlag, Berlin, 2005.
- G.Bottazzi, M. G. Devetag, Coordination and Self-Organization in Minority Games: Experimental Evidence, in M.Gallegati A. Kirman and M.Marsili (Eds.) "The Complex Dynamics of Economic Interaction", Lecture Notes in Economics and Mathematical Systems (531) pp. 283-300, Springer Verlag, Berlin, 2004.
- G.Bottazzi, A Simple Micro-Model of Market Dynamics, in M.Gallegati A. Kirman and M.Marsili (Eds.) "The Complex Dynamics of Economic Interaction", Lecture Notes in Economics and Mathematical Systems (531) pp. 283-300, Springer Verlag, Berlin, 2004.
- G.Bottazzi, G.Devetag, G.Dosi, Adaptive Learning and Emergent Coordination in Minority Games, in R.Cowan and N.Jonard Eds. "Heterogeneous Agents, Interactions and Economic Performance" Lecture Notes in Economics and Mathematical Systems 521, Springer Verlag, Berlin, 2003.
- G.Bottazzi, E.Cefis, G.Dosi e A.Secchi, Crescita dell'impresa e struttura industriale: evidenze empiriche sull'industria manifatturiera italiana, in D. Delli Gatti e M.Gallegati (eds.) Eterogeneita' degli agenti economici ed interazione sociale: teorie e verifiche empiriche, Il Mulino, Bologna, 2003.
- G.Bottazzi, G.Fagiolo, G.Dosi, On the ubiquitous nature of the agglomeration economies and their limits, in A. Quadro Curzio and M.Fortis eds. 'Complexity and Industrial Cluster', Physica-Verlag, Heidelberg, 2002.

G.Bottazzi, G.Fagiolo, G.Dosi, Sulla onnipresenza delle economie di agglomerazione e le loro diverse determinanti: alcune note, in A. Quadro Curzio and M. Fortis (a cura di) 'Complessita' e distretti industriali: dinamiche, modelli, casi reali', Il Mulino Collana della Fondazione Edison, pp. 265-298, Bologna, 2002.

Referred Contributions to Proceedings

M.Anufriev, G. Bottazzi and F. Pancotto, Speculative Equilibria and Asymptotic Dominance in a Market with Adaptive CRRA Traders, in Abbot, D., Bouchard, J.P., Gabaix, X., and McCauley, J.L. "Noise and Fluctuations in Econophysics and Finance" SPIE Conference Proceedings, vol. 5848, SPIE, WA, 2005.

Editorial work

Evolution and market behavior in economics and finance, Giulio Bottazzi and Pietro Dindo (eds), Journal of Evolutionary Economics, Volume 23(3), 2013.

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Software developed for research and teaching purposes

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gbutils A set of command line statistical utilities. Parametric and non-parametric models together with various tests are implemented. All the programs are written in C. Their output is designed in a format suitable to be sent to popular plotting programs. Since 2016 they are part of the scientific collection of Debian/Ubuntu.

subbotools A set of programs written to deal with the Subbotin and antisymmetric Subbotin distributions. Programs for maximum likelihood estimation of parameters are included, together with generators of random numbers. All the programs are written in C.

YAFiMM This package contains programs providing a simulation framework for the analysis of a specific financial market model. For the description of the model, see the Working Paper A Simple Micro-Model of Market Dynamics Part I: The "Homogenous Agents" Deterministic Limit in the WP page. All the programs are written in C++.

bose This package contains various programs related to the Bottazzi-Secchi model of industry dynamics described in Bottazzi G. and Secchi A. On the Laplace Distribution of Firms Growth Rates (see the WP page). Some of the programs are written in Python, some in C.

NAIF NAIF (Numerical Analysis of Investment Functions) is a program to for simulating the trading activities of an heterogeneous group of agents in a simple two-good economy.

bdr This package contains the file needed to perform simulations of the model of industrial dynamics described in G.Bottazzi, G.Dosi and G.Rocchetti Modes of Knowledge Accumulation, Entry Regimes and Patterns of Industrial Evolution Industrial and Corporate Change 10,3 (2001). All the programs are written in Python and require various packages and modules that are freely and publicly available.

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