



## CURRICULUM VITAE

### **Pietro Giorgio Lovaglio**

Date and place of birth: February 27th 1973, Milan (Italy)

#### **ADDRESS WORK**

Department of Statistics and Quantitative Methods,  
University of Milan-Bicocca, P.zza Ateneo Nuovo, 1 U7, 20126 Milano  
Tel +39 02 6448.3217 Fax +39 02 6448.7390

E-MAIL: [piergio.lovaglio@unimib.it](mailto:piergio.lovaglio@unimib.it)

WEB SITE: <http://www.statistica.unimib.it/utenti/lovaglio/>

### **PRESENT UNIVERSITY POSITION**

**FULL Professor of Economic Statistics**, Department of Statistics and Quantitative Methods, University of Bicocca-Milan. <https://en.unimib.it/pietro-giorgio-lovaglio>

**Academic coordinator of the** Undergraduate Program in “Statistics and Information Management”, University of Milano-Bicocca. <https://www.dismeq.unimib.it/it/offerta-formativa/corsi-laurea-triennale/laurea-statistica-e-gestione-delle-informazioni/chi-siamo-e-contatti>

**Senior Researcher (Member of the Scientific Board and Coordinator of the section: “Methodologies and statistics for welfare”)** of the **Research Center CRISP** (Inter-University Research Center on the Service of Public Utility to the person), University of Bicocca Milan, since 2000. CRISP aims to promote and develop research programs on the Service of Public Utility to the person Efficacy, Efficiency, Equity, Customer Satisfaction. <https://www.crisp-org.it/people/>

Member of the Academic Committee of the **PhD program “Economics and Statistics”**, Department of **Economics, Management and Statistics**, University Bicocca- Milan (since 2017). <https://www.dems.unimib.it/en/research/phd-programme>

Member of the Scientific Board for the **Master program “Business Intelligence and Big data analytics”**, University of Bicocca Milan and CRISP (since 2011) <https://www.crisp-org.it/bimaster/faculty/>

### **FORMER UNIVERSITY POSITIONS**

**2006-2018: Associate Professor of Statistics**, Department of Statistics and Quantitative Methods, University of Bicocca-Milan.

2002-2005: Researcher in Statistics (SECS-S/01), Dept. of Statistics, University of Bicocca-Milan.

2009-2016: Member of the Academic Staff for the **PhD** program “Statistics and Mathematics for Finance”, offered by Department of Statistics and Quantitative Methods, University Bicocca- Milan.

### **EDUCATION**

2001 **PhD in Statistical Methodology**, Faculty of Economics, University of Milan-Bicocca.  
Ph.D Thesis: *Latent variables models with mixed manifest variables*.

1997 Master's degree in **Economic Statistical Sciences**, University of Bologna.  
Thesis: *Analysis, estimate and distribution of Human Capital*. (Prof. Camilo Dagum)

### **LANGUAGES**

English: Reading C2, Writing C2, Verbal C1

French: Reading C2, Writing C2, Verbal C2

## INSTITUTIONAL IMPACT of the RESEARCH

- Definition and creation of the classification algorithm for the actual classification (officially adopted by the Lombardy Region) of elderly patients in Nursing homes (SOSIA Project);

FONT: D.G.R. 14 Dicembre 2001, n. 7/7435. Requirements for the authorization for the operation and for the accreditation of the Elderly Nursing Homes (R.S.A.) Lombardy Region Official Bulletin. 2 January 2002.

- Definition of the criteria for the distribution of an economic contribution to family that decide to assist in house the not self-sufficient old (Lombardy Region, VOUCHER Project);

FONT: D.G.R. 7 April 2003, n. 7/12618. Definition of the staff standards for the authorization for the operation and the accreditation of the Nursing Homes and first revision of the regional remuneration system, Official Bulletin Lombardy Region 14 April 2003.

-Definition and creation of the algorithm for the classification (officially adopted by ASL Lecco) of patients cured in Home care within cost-homogenous packages of care.

FONT: “New characterization of territorial home care and home hospital interventions ”; National Commission for the definition and updating of essential levels of assistance”, Ministry of Health (2006).

-Definition of criteria for the assignment of Regional funds based on quality for accredited Nursing Homes. FONT: “Regional Law 3846, 20 December 2006 on the remuneration of the added quality”, Lombardy Region

## INSTITUTIONAL SCIENTIFIC BOARDS

Member of the Scientific Board of the research (2017-2019) “*Demetra: Multicentre observational study on integrated pathways of care for people with chronic diseases in advanced stages within local networks of palliative care*” (in collaboration with Catalan Institute of Oncology, Quality Catalan End of Life Observatory WHO collaborating center for palliative care public health-Barcelona, Italian Ministry of Health). <https://progettodemetra.it/index.php/en/demetra-project>

Member of the Scientific Board of the Research (2012-2014) “Observatory of Best Practices in Palliative Care”, coordinated by **Agenas and funded by Italian Ministry of Health.**

<https://fondazionefloriani.eu/wp-content/uploads/docs/PDF/Osservatorio.pdf>

Member of the Scientific Board of the Research (2013-2015) “*Multi-center observational study on the application of an integrated model of home palliative care within the local network of assistance for people with developmental diseases with limited life expectancy*”, coordinated by **Agenas and funded by Italian Ministry of Health.**

[https://www.liebertpub.com/doi/full/10.1089/jpm.2017.0404?url\\_ver=Z39.88-2003&rfr\\_id=ori%3Arid%3Acrossref.org&rfr\\_dat=cr\\_pub++0pubmed&](https://www.liebertpub.com/doi/full/10.1089/jpm.2017.0404?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub++0pubmed&)

Member of the Scientific Board of the Research (2011-12) “*Definition of management organizational models for the promotion of the participation of associations of volunteers, relatives and family members in the support pathways for terminally ill patients*”, coordinated by **Agenas and funded by Italian Ministry of Health**, aimed to benchmark Italian palliative care centers.

[https://www.simeup.it/doc/Disposizioni\\_cure\\_palliative.pdf](https://www.simeup.it/doc/Disposizioni_cure_palliative.pdf)

Member of the Scientific Board of the Research (2009) “*Palliative care at home in Italy*”, coordinated by **Agenas and funded by Italian Ministry of Health.**

[http://www.docvadis.it/assitenzadomiciliare/document/assitenzadomiciliare/quaderni\\_di\\_monitor\\_le\\_cure\\_palliative\\_domiciliari\\_in\\_italia/fr/metadata/files/0/file/Quaderno%20Monitor%207%20DEF\\_SupplMon.pdf](http://www.docvadis.it/assitenzadomiciliare/document/assitenzadomiciliare/quaderni_di_monitor_le_cure_palliative_domiciliari_in_italia/fr/metadata/files/0/file/Quaderno%20Monitor%207%20DEF_SupplMon.pdf)

## RESEARCH INTEREST

## METHODOLOGICAL

High-dimensional data, Data Mining and Machine learning, classification models and algorithms, Multivariate Analysis, Structural Equation Modelling, Latent variable modelling, Multilevel modelling, Analysis of Categorical Data, Item response theory, Rasch Analysis, Scale validation, Time series modelling (traditional and machine learning tools) and forecast, Sampling theory and representativeness for big data, Missing data treatment.

## APPLIED

Concerning the **area of applied statistics**, I have participated to several research projects on many areas such as Human Capital estimation, Earnings trajectories, Forecast of occupation, Job Web vacancy analysis, classification of career paths, Evaluation methods in Education (effectiveness and efficiency), Labour Market Outcomes and transition analysis, Analysis of labour earnings and education returns, Analysis of labour market analysis with administrative data and web data, Quality assessment and evaluation tools in public services.

## FUNDED PROJECTS

Research project (Horizon 2020), in collaboration with Goethe – University Frankfurt am Main, Germany, “**Real-time Labour Market information on Skill Requirements: Setting up the EU system for online vacancy analysis**”, funded by European Centre for the Development of Vocational Training (CEDEFOP) (AO/DSL/VKVET-GRUSSO/Real-time LMI 2/009/16). **Period: 2017-2020**  
<https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/real-time-labour-market-information-skill-requirements-setting-eu-system-online>

Research project (Horizon 2020), in collaboration with several European partners “**ISOTIS: Inclusive Education and Social Support to Tackle Inequalities in Society**”. ISOTIS aims to contribute to effective policy and practice development at different system levels in order to effectively combat early arising and persisting educational inequalities. ISOTIS will do so by generating evidence-based, contextualized and concrete recommendations **Period: 2017-2020**.  
<https://www.isotis.org/en/people/pietro-giorgio-lovaglio>

Research project (Tender) “**Real-time Labour Market Information on Skill Requirements: feasibility study and working prototype**”, funded by European Centre for the Development of Vocational Training (CEDEFOP) in collaboration with Institute for Economics, Labour and Culture (IWAK) Centre at the Goethe – University Frankfurt am Main, Germany AO/DSL/VKVET-GRUSSO/Real-time LMI 2/009/16. **Period 2014 to 2016**  
<https://www.cedefop.europa.eu/en/about-cedefop/public-procurement/real-time-labour-market-information-skill-requirements-feasibility>

Research grant FIRB (Project Future in Research 2012) “**Mixture Models and latent variable models for causal inference and for the analysis of socio-economic data**” funded by Italian Ministry of Research and Higher Education (with Lancaster University and). **Period: 2012 to 2015**.  
[http://www.research.lancs.ac.uk/portal/en/upmprojects/firb-mixture-and-latent-variable-model-for-causal-inference-and-analysis-of-socioeconomic-data\(4f210fea-471d-4f19-971d-7979121911d9\).html](http://www.research.lancs.ac.uk/portal/en/upmprojects/firb-mixture-and-latent-variable-model-for-causal-inference-and-analysis-of-socioeconomic-data(4f210fea-471d-4f19-971d-7979121911d9).html)  
[http://www.statistica.unimib.it/utenti/pennoni/FIRB\\_MB.html](http://www.statistica.unimib.it/utenti/pennoni/FIRB_MB.html)

National Research grant (Project CCM 2011, *National Center for prevention and control of diseases*), “**Use of vaccines and selective pression on bacteria population target: variability of meningococcus B antigens and emergency of *H.influenzae* not-capsulated**” funded by Italian Ministry of Health. Period 2012 to 2015. [http://www.ccm-network.it/documenti\\_Ccm/programmi\\_e\\_progetti/2011/progetti-esecutivi-approvati.pdf](http://www.ccm-network.it/documenti_Ccm/programmi_e_progetti/2011/progetti-esecutivi-approvati.pdf)

National Research grant 2007 “**Quality of care in the mental health system: indicators of accessibility, appropriateness of care and effectiveness**”, funded by Italian Ministry of Health. **Period: 2007 to 2012**.  
<https://ijmhs.biomedcentral.com/articles/10.1186/1752-4458-5-20>

National Research grant 2004 (ex. Art 12) “**Financing costs for long-term care**” (National Project ex art.12)”, funded by Italian Ministry of Health. **Period: 2004 to 2006-**  
[http://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_572\\_allegato.pdf](http://www.salute.gov.it/imgs/C_17_pubblicazioni_572_allegato.pdf) (see note 19)

## **INSTITUTIONAL EVALUATION of RESEARCH**

The Evaluation of Research Quality (VQR), conducted by ANVUR (Italian Ministry of Education and Research) aims at evaluating the research outcomes of public universities and academic researchers. Below the results of past two evaluations:

Products 2004-2010: Three papers: Excellent, good, good

Products 2011-2014: Two papers: Excellent, Excellent

## **BIBLIOMETRIC DATABASE (May 2020)**

### **ORCID**

<https://orcid.org/0000-0002-2340-0547>

**GOOGLE SCHOLAR** Publications 88, Total times cited 843 H-Index 15

[https://scholar.google.com/citations?hl=it&user=hNQB2YwAAAAJ&view\\_op=list\\_works](https://scholar.google.com/citations?hl=it&user=hNQB2YwAAAAJ&view_op=list_works)

**SCOPUS** Publications 37, Total times cited 403, H-Index 9

<https://www.scopus.com/authid/detail.uri?authorId=6505999619>

**WEB OF SCIENCE** Publications 25, Total times cited without self citations 285, H-index 8

[http://apps.webofknowledge.com/Search.do?product=WOS&SID=C2JN2xwPgCIoUDEhUEt&search\\_mode=GeneralSearch&prID=d3793f42-5670-4fa1-9f60-a05f02eb10b9](http://apps.webofknowledge.com/Search.do?product=WOS&SID=C2JN2xwPgCIoUDEhUEt&search_mode=GeneralSearch&prID=d3793f42-5670-4fa1-9f60-a05f02eb10b9)

**PUBMED** Publications 13

<http://www.ncbi.nlm.nih.gov/pubmed/?term=lovaglio+p>

**PUBLONS** Publications 20, Total times cited 319, H-index 8

<https://publons.com/researcher/2245049/pietro-giorgio-lovaglio/>

## **PUBLICATIONS**

### **SUBMITTED**

How inpatients' case-mix, cost and stay have changed over the past decade in the last year of life? Evidence from Lombardy region, **Submitted to Health Policy**

Adapting the health care system's response to the spread of Covid-19: the case of Lombardy, **Submitted to PLOS ONE**

Real Time Forecasting of Intensive Care Units Utilization during the Covid-19 Outbreak, **Submitted to International Journal of Forecasting**

### **PUBLISHED**

82. Lovaglio P. Colombo E. Mezzanzanica M. (2019) Comparing time series characteristics of official and web job vacancy data, **Quality & Quantity** 54, pp 85–98, <https://doi.org/10.1007/s11135-019-00940-3>. eid=2-s2.0-85074034926,

81. Lovaglio P., Verzillo S. Vittadini G. (2018). **Social and Migration-related Inequality in Achievement in Primary and Secondary Education**. In: G. Passaretta and J. Skopek (eds.), *Roots and Development of Achievement Gaps. A Longitudinal Assessment in Selected European Countries*, pp. 158-172, ISOTIS Report (D 1.3), Trinity College Dublin.
80. Scaccabarozzi G., Lovaglio P.G. et al., (2019) Monitoring the Italian home palliative care services. **Healthcare** 7(1), 4; <https://doi.org/10.3390/healthcare7010004>. PMID: 30609722
79. D'Avanzo B., Lovaglio P.G. et al., (2018) Health Of The Nation Outcome Scales for children and adolescents (HoNOSCA): psychometric properties of the Italian version. **Children and Youth Services Review** ISSN: 0190-7409. Vol 94, pp 340–346 .
78. Lovaglio P.G., Cesarini M., Mercorio F., Mezzanzanica M. (2018) Skills in demand for ICT and statistical occupations: evidences from web vacancies. **Statistical Analysis and Data Mining**, ISSN 1932-1872, 2(11), pp. 78-91, DOI: 10.1002/sam.11372.
77. Scaccabarozzi G., Amodio E., Pellegrini G., Limonta F., Lora Aprile P, Lovaglio P.G., Peruselli C., Crippa. M (2018) The “ARIANNA” project: an observational study on a model of early identification of patients with palliative care needs through the integration between Primary Care and Italian Home Palliative Care Units, **Journal of Palliative Medicine**, ISSN: 08258597; 21(5) 631-637. doi: 10.1089/jpm.2017.0404.
76. Scaccabarozzi G., Lovaglio P.G., (2018) Palliative care at home: quality measurement and organizational drivers: evidences from Italy. **Quality & Quantity**, ISSN: 0033-5177, 52(5), 2133-2150 DOI: 10.1007/s11135-017-0642-0, eid=2-s2.0-85032787914.
75. Sattin, D., Lovaglio P.G. et al. (2017) A comparative study on assessment procedures and metric properties of two scoring systems of the coma recovery scale-revised items: standard and modified scores. **Clinical Rehabilitation**, ISSN 0269-2155, 31(9), pp. 1226-1237. DOI [10.1177/0269215517694225](https://doi.org/10.1177/0269215517694225), WOS:000407464100010, PMID: 28605973, eid=2-s2.0-85027120751.
74. Scaccabarozzi G., Lovaglio P.G., Limonta F., Floriani M., Pellegrini G. (2017), Quality assessment of Palliative Home Care in Italy, **Journal of Evaluation in Clinical Practice**, ISSN 1356-1294, 23(4), pp. 725-733, DOI:10.1111/jep.12704, WOS:000406299200007, PMID: 28176419, eid= 2-s2.0-85012950106.
73. Lovaglio P.G., Vacca, G. (2017) %GRA: A SAS macro for generalized redundancy analysis. **Journal of Statistical Computation and Simulation** 87(5), pp.1048–1060. ISSN: 0094-9655, DOI: [10.1080/00949655.2016.1243685](https://doi.org/10.1080/00949655.2016.1243685). eid=2-s2.0-84992126866. WOS:000399502100012.
72. Lovaglio P.G., Vacca, G. (2016) ERA: A SAS Macro for extended redundancy analysis. **Journal of Statistical Software** 74-CS1. ISSN 1548-7660, DOI: [10.18637/jss.v074.c01](https://doi.org/10.18637/jss.v074.c01), eid=2-s2.0-84994614087, WOS:000392512800001.
71. Lovaglio, P.G. (2017) Are quality indicators predictive of compensated injury claims? **Quality & Quantity** 51(4), pp. 1903-1919, ISSN 1573-7845. DOI: [10.1007/s11135-016-0373-7](https://doi.org/10.1007/s11135-016-0373-7), eid=2-s2.0-84975159004, WOS:000403575600027.
70. Lovaglio P.G, Vacca G., Verzillo, S. (2016) Human capital estimation in higher education. **Advances in Data Analysis and Classification** 10(4), pp. 465-489. ISSN 1862-5355. DOI: [10.1007/s11634-016-0259-5](https://doi.org/10.1007/s11634-016-0259-5), eid=2-s2.0-84974844119, WOS:000388978900004.
69. Lovaglio P.G., Boselli, R. (2015) Simulation studies of structural equation models with covariates in a redundancy analysis framework, **Quality & Quantity** 49(3), pp. 881-890, DOI: [10.1007/s11135-014-0058-z](https://doi.org/10.1007/s11135-014-0058-z), eid=2-s2.0-84904519780, WOS:000353208800002.
68. Lovaglio P.G., Verzillo S. (2016) Heterogeneous economic returns to higher education: evidence from Italy. **Quality & Quantity** 50, pp. 791-822, DOI: [10.1007/s11135-015-0176-2](https://doi.org/10.1007/s11135-015-0176-2), eid=2-s2.0-84957954411, WOS:000370164800018.
67. Lovaglio P.G., Mezzanzanica M. (2014) La dinamica strutturale delle imprese in Italia. In: Mezzanzanica, M. (Ed.) *Le imprese e il lavoro: cambiamenti strutturali ed economici, le esigenze di professionalità, la domanda di servizi e di semplificazione normativa*, pp 21-78. DOI: 10.4399/97888548761493 **Arance editrice**, Roma. ISBN 978-88-548-7614-9.
66. Lovaglio P.G., Mezzanzanica M. (2014) Traiettorie di sviluppo delle imprese e impatto sull'occupazione. **Atlantide** 33, pp. 42-51, ISSN 1825-2168.



65. Lovaglio P.G., Vittadini, G. (2014) Structural equation models in a redundancy analysis framework with covariates. **Multivariate Behavioral Research** 49, pp. 486–501. ISSN 0027-3171 DOI: [10.1080/00273171.2014.931798](https://doi.org/10.1080/00273171.2014.931798), eid=2-s2.0-84907469319, WOS:000342323500006.
64. Lovaglio P.G. Mezzanzanica M. (2013) I flussi del mercato del lavoro. Evidenze empiriche da dati ufficiali e dati amministrativi longitudinali. In: Mezzanzanica, M. (Ed.) Ipotesi di lavoro. Le dinamiche, i servizi e i giudizi che cambiano il mercato del lavoro (pp. 19-77). ISBN 978-88-548-6541-9, **Arance Editrice**, Roma.
63. Lovaglio P.G. Vacca G., Verzillo S. (2013) Measuring human capital in higher education. In: Brentari E., Carpita M. (Eds.) **Advances in Latent Variables**, Vita e Pensiero, Milan, Italy. ISBN 978 88 343 2556 8
62. Lovaglio P.G., Boselli R. (2013) Generalized redundancy analysis. In: Brentari E., Carpita M. (Eds.) **Advances in Latent Variables**, Vita e Pensiero, Milan, Italy. ISBN 978 88 343 2556 8
61. Lovaglio P.G., Parabiaghi A. (2014) Assessment of meaningful change in routine outcome measurement (ROM) with a combination of a longitudinal and a 'classify and count' approach. **Quality & Quantity** 48(5), pp. 2479-2499. ISSN: 0033-5177. DOI: [10.1007/s11135-013-9902-9](https://doi.org/10.1007/s11135-013-9902-9), eid=2-s2.0-84905390729, WOS:000340084500007.
60. Lovaglio, P.G. Vittadini, G. (2013) Component analysis for structural equation models with concomitant indicators. In: Giudici P., Ingrassia S., Vichi, M., (Eds.) **Statistical Models for Data Analysis**. pp. 209-215. **Springer**, Heidelberg, ISBN 978-3-319-00031-2, eid=2-s2.0-84892596286.
59. Vogel U., Taha M.K, Vazquez J.A, *et al.*, Lovaglio P.G., *et al.*, Donnelly J.J., Medini D., Borrow R. (2013) Predicted strain coverage of a Meningococcal multicomponent vaccine (4cMEMB) in Europe: a qualitative and quantitative assessment. **The Lancet Infectious Diseases**, 13(5), pp. 416-425. ISSN: 1473-3099, DOI: [10.1016/S1473-3099\(13\)70006-9](https://doi.org/10.1016/S1473-3099(13)70006-9), eid=2-s2.0-84873701038, PMID: 23414709, WOS:000319534400024.
58. Lovaglio P.G., Mezzanzanica M. (2012). Mobilità del mercato del lavoro: evidenze empiriche. In: Mezzanzanica, M. (Ed.) Il mercato del lavoro negli anni della crisi . pp. 27-101, **Arance Editrice**, ISBN: 978-88-548-5159-7, DOI: [10.4399/97888548515974](https://doi.org/10.4399/97888548515974).
57. Lovaglio P.G. (2012) Il ruolo del capitale umano nella transizione Università-lavoro: fattori individuali e sociali. In: Lancellotti, R. e Pappadà, G. (Eds.) Promoting Youth Employment in Europe, **Quaderni di Economia del Lavoro** 97, pp: 71-83, DOI: [10.3280/QUA2012-097005](https://doi.org/10.3280/QUA2012-097005). Franco Angeli: Milano, ISSN 0390-105X.
56. Lovaglio P.G. Vittadini G. (2013) Multilevel dimensionality-reduction methods. **Statistical Methods & Applications** 22(2), pp.183-207. ISSN: 1613981X, DOI: [10.1007/s10260-012-0215-2](https://doi.org/10.1007/s10260-012-0215-2), eid=2-s2.0-84879551554, WOS:000320950800004.
55. Lovaglio P.G. (2012) Benchmarking strategies for measuring the quality of healthcare: problems and prospects. **The Scientific World JOURNAL** Article ID 606154. ISSN: 1537-744X. DOI:[10.1100/2012/606154](https://doi.org/10.1100/2012/606154). eid=2-s2.0-84862337198, PMID: 22666140, WOS: 000305121700001.
54. Lovaglio P.G., Monzani E. (2012) Health of the Nation Outcome Scales evaluation in a community setting population. **Quality of Life Research** 21(9) pp. 1643-1653. ISSN: 0962-9343. DOI: [10.1007/s11136-011-0071-9](https://doi.org/10.1007/s11136-011-0071-9). eid=2-s2.0-84867987651, PMID: 22120893, WOS:000314914200018.
53. Lovaglio P.G. et al. (2010) Le Cure Palliative Domiciliari In Italia, 7° Supplemento al numero 26 di Monitor 2010 (Trimestrale dell'Agenzia nazionale per i servizi sanitari regionali)
- 52\_2. Lovaglio P.G. Folloni G. (2011) The estimation of Human Capital in structural models with flexible specification **AlmaLaurea Working Papers** no. 11 AlmaLaurea Working Papers – ISSN 2239-9453. <http://www2.almaLaurea.it/universita/pubblicazioni/wp/pdf/wp11.pdf>
52. Lovaglio P.G., Mezzanzanica M., Verzillo S. (2011) Estimation of educational returns using university and labour market administrative archives. **Advances and Applications in Statistics** 23(2), pp. 77-105. ISSN: 0972-3617.
51. Lovaglio P.G., Monzani E., (2011) Validation aspects of the Health of the Nation Outcome Scales. **International Journal of Mental Health Systems** 5:20, pp. 1-11. ISSN: 1752-4458. DOI:10.1186/1752-4458-5-20, eid=2-s2.0-80052571822, PMID 21896181, WOS: 000300184300001.
50. Lovaglio P.G., Mezzanzanica M. (2013) Classification of longitudinal career paths. **Quality & Quantity** 47(2), pp. 989-1008. ISSN: 0033-5177. DOI: [10.1007/s11135-011-9578-y](https://doi.org/10.1007/s11135-011-9578-y). eid=2-s2.0-84872657418, WOS:000313802300024.
49. Lovaglio P.G. (2012) Patient safety analysis linking claims and administrative data. **International Journal of Health Care Quality Assurance** 25(8), pp. 698-711. ISSN: 0952-6862. DOI: [10.1108/09526861211270640](https://doi.org/10.1108/09526861211270640). eid=2-s2.0-84867153185, PMID:23276063
48. Lovaglio P.G. Vittadini G. (2012) The Balanced scorecard in health care: a multilevel latent variable approach. **Journal of Modelling in Management** 7(1), pp. 38-58. ISSN:1746-5664. DOI: [10.1108/17465661211208802](https://doi.org/10.1108/17465661211208802).

47. Lovaglio P.G. (2011) Model building and estimation strategies for implementing the Balanced Scorecard in Health sector. **Quality & Quantity** 45(1), pp. 199-212, ISSN: 0033-5177, DOI: [10.1007/s11135-010-9364-2](https://doi.org/10.1007/s11135-010-9364-2), eid=2-s2.0-78650213000, WOS:000285201500013.
46. Lovaglio P.G. (2011) Patient safety analyses using Lombardy administrative archives. **International Journal of Health Care Quality Assurance**, 24(2), pp. 136-148. ISSN: 0952-6862. DOI: [10.1108/09526861111105095](https://doi.org/10.1108/09526861111105095), eid=2-s2.0-79551562192, PMID 21456489.
45. Lovaglio P.G. (2010) The estimation of human capital by administrative archives in a static and longitudinal perspective: the case of Milan. **Journal of Economic Surveys** 24, pp. 280–308, ISSN: 0950-0804, DOI: [10.1111/j.1467-6419.2009.00613.x](https://doi.org/10.1111/j.1467-6419.2009.00613.x) eid=2-s2.0-77951945736, WOS: 000275673900004.
44. B Mezzanzanica M., Lovaglio P.G., Ronzoni, G. (2010) I percorsi lavorativi. In Mezzanzanica, M. (Ed.) *Dinamicità e Sicurezza: i dati del lavoro che cambia*, pp. 105-151. **Guerini e Associati**, Milano ISBN 978-88-6250-251-1.
44. Lovaglio P.G. (2009) Patient Safety Monitoring systems using regional administrative data. **The International Journal of Risk & Safety in Medicine** 21, pp. 217-227. DOI: [10.3233/JRS-2009-0480](https://doi.org/10.3233/JRS-2009-0480), eid=2-s2.0-77149150971.
43. Lovaglio P.G. (2010) Hospital Effectiveness from administrative data: the Lombardy case. **The TQM Journal** 22(5), pp. 474-486. ISSN: 1754-2731. DOI: [10.1108/17542731011072829](https://doi.org/10.1108/17542731011072829), eid=2-s2.0-77956633883.
42. Lovaglio P.G., Vittadini G. (2008) Balanced Scorecard Health system: a latent variable approach. **Statistica Applicata-Italian journal of applied statistics** 20(3), pp. 273-292, ISSN: 1125-1964.
41. Lovaglio P.G., Mezzanzanica M. (2008) Modelling longitudinal sequences by optimal scaling techniques. **Statistica Applicata-Italian journal of applied statistics** 20(3), pp. 251-272, ISSN: 1125-1964.
40. Lovaglio P.G., Scaccabarozzi G.L. (2007) Definizione di sistemi remunerativi in home care. **Statistica Applicata-Italian journal of applied statistics** 19(3), pp.1-19. ISSN: 1125-1964.
39. Lovaglio P.G. (2008) Analisi classificativa longitudinale dei percorsi lavorativi della Provincia di Milano. In: Mezzanzanica, M. Lovaglio, P.G. (Eds.) *Numeri al lavoro, il sistema statistico del mercato del lavoro: metodologie e modelli di analisi*, Quaderni dell'osservatorio del mercato del lavoro 3, pp. 59-81. **Franco Angeli**, Milano, ISBN 13: 9788846496195.
38. Lovaglio P.G. (2008) Process of accumulation of Italian human capital. **Structural Change and Economic Dynamics** 19, pp. 342-356. ISSN: 0954-349X. DOI:[10.1016/j.strueco.2008.05.001](https://doi.org/10.1016/j.strueco.2008.05.001), eid=2-s2.0-53349146098
37. Monzani E., Erlicher A., Lora A., Lovaglio P.G., Vittadini G. (2008), Does community care work? A model to evaluate the effectiveness of mental health services. **International Journal of Mental Health Systems** 2:10. ISSN: 1752-4458 DOI:[10.1186/1752-4458-2-10](https://doi.org/10.1186/1752-4458-2-10), eid=2-s2.0-77953437900, PMID 18601741.
36. Lovaglio P.G. Vittadini G., (2008) Human Capital and The Evaluation of University Efficiency, **European commission -Scientific and Technical Research series**, European Communities- EUR 23253 EN. ISSN: 1018-5593, DOI: [10.2788/68077](https://doi.org/10.2788/68077)
35. Monzani E., Pappalettera M., Erlicher A., Lora A., Lovaglio P.G., Vittadini G (2006) Effectiveness evaluation in mental health facilities. **Journal of Medicine & the Person** 4, pp. 151-156.
34. Dotti C., Casale G., Zacchi V., Lovaglio P.G., Fazzone U. (2006) SOSIA classification of the frail elderly in nursing homes of region of Lombardy. **Annali di Igiene, Medicina Preventiva e di Comunità** 18, pp. 439-451. ISSN 1120-9135, eid=2-s2.0-39049194838. PMID: 17089959.
33. Lovaglio P.G., Ronzoni G. (2007) Dropout nelle scuole superiori: l'impatto della tipologia istituzionale. **Statistica Applicata-Italian Journal of Applied Statistics** 19(1), pp. 77-96 , ISSN: 1125-1964.
32. Dagum C., Vittadini G., Lovaglio P.G. (2007) Formative indicators and effects of a causal model for household human capital with application. **Econometric Reviews** 26(5), pp. 579–596. ISSN: 0747-4938. DOI: [10.1080/07474930701512246](https://doi.org/10.1080/07474930701512246), eid=2-s2.0-34548331714, WOS:000249662500006.
31. Vittadini G., Lovaglio P.G. (2006) Recent proposal for the estimation of household human capital. **Statistica LXVI**(3), pp. 299-312. DOI: [10.6092/ISSN.1973-2201/1295](https://doi.org/10.6092/ISSN.1973-2201/1295) .
30. Vittadini G., Lovaglio P.G. (2007) Evaluation of the Dagum-Slottje method to estimate household human capital. **Structural Change and Economic Dynamics** 18, pp. 270-278, ISSN: 0954-349X. DOI:[10.1016/j.strueco.2006.11.001](https://doi.org/10.1016/j.strueco.2006.11.001), eid=2-s2.0-34047213826.
29. Lovaglio P.G. (2007) The educational and working experience household human capital in a structural model with formative and reflective indicators. **Statistica & Applicazioni** 1, pp.79-102.
28. Vittadini G., Minotti S., Fattore M., Lovaglio P.G. (2007) On the relationships among latent variables and residuals in Pls path modeling: the formative-reflective scheme. **Computational Statistics & Data Analysis** 51(12), pp. 5828-5846. ISSN: 0167-9473. DOI:[10.1016/j.csda.2006.10.023](https://doi.org/10.1016/j.csda.2006.10.023), eid=2-s2.0-34547209316, WOS: 000249316000031.

27. Scaccabarozzi G., Lovaglio P.G., Limonta F., Locatelli W., (2006) La remunerazione delle attività sanitarie: le attività di assistenza domiciliare. In: Falcitelli, N., Langiano, T. (Eds.) *La Remunerazione delle attività sanitarie*, pp. 89-118. **Il Mulino**, Bologna, ISBN 978-88-15-11493-8.
26. Lovaglio P.G., Vittadini (2007) G. Human Capital Growth for University Education Evaluation. In: Fabbris, L. (Ed.) *Effectiveness of university education in Italy: employability, competences, human capital*, pp. 357-368. **Physica Verlag (Spinger)**, Heidelberg Germany, eid=2-s2.0-84895404873, ISBN-10: 379081749X.
25. Vittadini G., Lovaglio P.G., (2006) Il capitale umano in Italia. In: Crocetta, C. (Ed.) *Metodi e modelli per la valutazione del sistema universitario*, pp. 1-23. Cleup, Padova, ISBN 88-7178-791-9.
24. Scaccabarozzi G., Lovaglio P.G., Limonta F., Colombo C., Locatelli W., (2005) Caratterizzazione e valorizzazione dei percorsi di cura in Home care: i DRG domiciliari. **Tendenze nuove** 3, pp. 335-350, ISSN 1010-1010.
23. Dagum C., Lovaglio P.G., Vittadini G. (2005) Il capitale umano in Italia: analisi della distribuzione. In: Cammelli, M. (Ed.) *Lavorare dopo la laurea. Caratteristiche e percorsi occupazionali*, pp. 135-162, **Il Mulino**, Bologna, ISBN 88-15-10831-9.
22. Lovaglio P.G. (2005) Efficacia relativa e di impatto di iniziative nell'ambito dei servizi alla persona di pubblica utilità. **Statistica**, LXV(1), pp. 93-109. ISSN 1973-2201. DOI: [10.6092/ISSN.1973-2201/1289](https://doi.org/10.6092/ISSN.1973-2201/1289).
21. Vittadini G. Lovaglio P.G., (2004) the estimate of human capital from two sets of observed indicators: formative and reflective. (Paper presented to the American Statistical Association 2004 Toronto, Business & Economics Statistics Section) **2004 Proceedings of the American Statistical Association**, Statistical Education Section [CD-ROM], Alexandria, VA: American Statistical Association, pp. 1362-1369.
20. Lovaglio, P.G. (2004) La stima di risultati clinici con la Rasch analysis. **Statistica** LXIV(1), pp. 127-144. ISSN 1973-2201. DOI: [10.6092/issn.1973-2201/1288](https://doi.org/10.6092/issn.1973-2201/1288).
19. Lovaglio, P.G. (2004) Investimento in capitale umano e disuguaglianze sociali. In: Vittadini, G. (Ed.) *Capitale umano, la ricchezza dell'Europa*, pp. 147-167. **Guerini e Associati**, Milano, ISBN-10: 8883355164.
18. Vittadini G. e Lovaglio, P.G. (2004). Fattori materiali e immateriali del capitale umano. In: Vittadini, G. (Ed.) *Capitale umano, la ricchezza dell'Europa*, pp. 35-69. **Guerini e Associati**, Milano, ISBN-10: 8883355164..
17. Lovaglio, P.G. (2004) Modelli strutturali con variabili ordinali. In: Pelagatti, M. (Ed.) *Studi in ricordo di Marco Martini*, pp. 273-291, **Giuffrè**, Milano, ISBN: 8814113459.
16. Lovaglio P.G. e Vittadini G. (2004) Il concetto di capitale umano e la sua stima. In: Pelagatti, M. (Ed.) *Studi in ricordo di Marco Martini*, pp. 119-140, **Giuffrè**, Milano, ISBN: 8814113459.
15. Lovaglio P.G., Casale G. Simone A., (2003) Relative Stress Scale e analisi di Rasch. Contributo all'oggettivazione della persona negli studi socio-sanitari. In: Tesio, L. (Ed.) *Il Buono Socio-sanitario, anziani non autosufficienti: il monitoraggio del Buono in Lombardia*, pp.109-142, **Guerini e Associati**, Milano, ISBN 9788883353482.
14. Dagum C., Vittadini G., Lovaglio P.G., Costa M., (2003) a microeconomic recursive model of human capital, income and wealth determination: specification and estimation. (Paper presented to the American Statistical Association 2003 San Francisco, Business & Economics Statistics Section) **2003 Proceedings of the American Statistical Association**, Business and Economic statistics Section [CD-ROM], Alexandria, VA: American Statistical Association: pp. 1119-1126.
13. Vittadini G., Dagum C., Lovaglio P.G., Costa M., (2003) A method for the estimation of the distribution of human capital from sample surveys on income and wealth. (Paper presented to the American Statistical Association 2003 San Francisco, Business & Economics Statistics Section) **2003 Proceedings of the American Statistical Association**, Statistical Education Section [CD-ROM], Alexandria, VA: American Statistical Association, pp.4381-4388.
12. Lovaglio P.G. (2003) La stima dell'efficacia relativa e di impatto, *Atti della XLI Riunione Scientifica della Società Italiana di Statistica*, Napoli 9-11 Giugno 2003.
11. Lovaglio P.G. (2003) I fondamenti statistici per la costruzione di scale in psicometria. **Psicomotricità** 18, p. 34-38.
10. Lovaglio P.G. (2002) La stima di Variabili Latenti da variabili osservate miste. **Statistica** LXII(2), pp. 203-213.
9. Lovaglio P.G. (2004) Customer satisfaction in a reduced rank regression framework. **The TQM Magazine** 16, 33-44. ISSN: 0954-478X. DOI: [10.1108/09544780410511461](https://doi.org/10.1108/09544780410511461), eid=2-s2.0-1142276098.
8. Lovaglio P.G. (2003) La stima di outcome clinici con la Rasch Analysis e la valutazione di impatto: il caso del Buono socio sanitario della regione Lombardia. *Atti del convegno: La valutazione in ambito sanitario e sociale: approcci statistici ed applicazioni*, 30-31 Gennaio 2003, Udine.
7. Lovaglio P.G. (2002) The estimate of customer satisfaction. *Atti della XLI Riunione Scientifica della Società Italiana di Statistica*, pp. 427-430, Cleup Padova.
6. Vittadini, G., Lovaglio, P.G., (2001) The estimate of latent variables in structural models: an alternative approach to



- PLS. In: Vinzi, E., Lauro, C., Morineau, A., Tenenhaus, M. (Eds.) PLS and related methods, pp. 423-434. **Cisia-Ceresta**, Montreuil, France, ISBN 2-906711-48-9.
5. Lovaglio P.G. (2001) La stima di outcome latenti, *Atti del Convegno Intermedio della Società Italiana di Statistica*, Processi e Metodi Statistici di Valutazione, Cisu, pp. 393-396, Roma 2001.
  4. Lovaglio P.G., (2001) Proposta metodologica per lo studio delle relazioni spaziali tra unità microterritoriali con dati aggregati. **Statistica** LXI(3), pp. 443-459, ISSN 1973-2201.  
[http://www2.stat.unibo.it/rivista/sum2001/sum3\\_01.htm](http://www2.stat.unibo.it/rivista/sum2001/sum3_01.htm).
  3. Lovaglio P.G. (1999) La stima del capitale umano delle famiglie americane. *Scritti di Statistica Economica* 5, pp.175-188, Università di Napoli.
  2. Lovaglio P.G. (1999) Modelli multivariati con variabili qualitative: una proposta alternativa, *Note di Ricerca* n. 6, Dipartimento di Scienze Statistiche, Università di Udine.
  1. Lovaglio P.G., (1997) Un Algoritmo di regressione multipla con dati categoriali. *Quaderni di Statistica e Matematica Applicata alle Scienze Economico-Sociali* XIX(3), pp. 281-291, Università di Trento.

## REVIEWER FOR JOURNALS

Applied Psychological Measurement, Communications in Statistics: Theory and Methods, International Journal of Quality in Health Care, Econometric Review, Health and Quality of Life Outcomes, BMC Health Services Research, Structural Change and Economic Dynamics, Statistica Applicata, Statistica & Applicazioni, Health Care management.

## University PROFESSORSHIPS

Academic Year 2017/2018: teaching course of “**Foundations in Probability and Statistics**” and “Data Science Lab” in post-graduate degree (**Data Science**), University of Bicocca-Milan

Since Academic Year 2014/2015 until now: teaching courses of “**Computational statistics**”, “**Data Mining**” undergraduate and post-graduate degree (Statistics and Information management, and Statistics and Economic Sciences), University of Bicocca-Milan

Since Academic Year 2007/2008 until 2013/2014: teaching course of “**Data analysis**”, “**Multivariate Analysis**”, undergraduate and post-graduate degree (Statistics and Information management, and Statistics and Economic Sciences), University of Bicocca-Milan

Since Academic Year 1998/1999 until 2006/2007: teaching course of “**Descriptive Statistics**”, “**Statistic and Probability**”, “**Statistic and Calculus**”, “**Laboratory of Inference**”, “**Statistics and Control Quality**” undergraduate and post-graduate degree (Statistics, Sociology, Statistics and Economic Sciences) University of Bicocca-Milan (Statistics, Sociology, Statistics and Economic Sciences), and (Political Sciences) University of Milan.

## Master's degree PROFESSORSHIPS

Since Academic Year 2011/2012 teaching course of **Data Mining at Master's degree** “**Business Intelligence and Support Decision Systems**” and “**Business Intelligence & Big data analytics**”

## Thesis awarded

SAS University Challenge: The challenge awards the best thesis made using SAS Software by students of all the Italian universities. The advisory board is composed by academic professors.

My students won or were mentioned in the following editions:

A.A. 2011/2012.

A Venerus: *Validation Techniques of the HoNOS scales.*

L. Perego: *Routine Outcome assessment of Lombard psychiatric services*

A.A. 2012-2013

R. Fino: *Transition analysis of Italian labour market*

G. Vacca: *Evaluation of economic impacts of human capital with Extended Redundancy Analysis*

A.A. 2013-2014

S. Bordogna: *Latent transition analysis: a labour market analysis in three Italian regions.*

### **Ph.D. PROFESSORSHIPS**

**2017/2018, 2016/2017:** “Statistical models” c/o **PhD program “Statistics and Financial Mathematics”**, University of Milan-Bicocca.

2015/2016 to 2013/2014: “Statistical models” c/o **PhD program “Statistics and Mathematics for Finance”**, University of Milan-Bicocca.

2010/2011 to 2012/2013: “Applied Multivariate Analysis” c/o **PhD program “Statistics and Applications”**, University of Milan-Bicocca.

2006/2007 to 2009/2010: “Multivariate Analysis” c/o **PhD program “Statistics”**, University of Milan-Bicocca.

### **Ph.D. SUPERVISION at UNIMIB**

2010 C. Menni: “Population stratification in **genome-wide association studies**: comparison between multivariate analysis methods for dimensionality reduction”.

2014 P. Pafundi: “Specification and estimation of **complex structural models** with covariate effects”.

2015 L. Moraschini: “Bioassay characterization for assessing antibody functionality from clinical samples”. Joint supervision with Fabio Rigat, Novartis Vaccines and Diagnostics.

2017 G. Vacca: “Redundancy Analysis models with **categorical endogenous variables**: new estimation techniques based on Vector GLM and **Artificial Neural Networks**”

### **Research grant SUPERVISION**

2015 R. De Paola: “Acquisition and elaboration of Meningococcal Antigen Typing System data”. Joint supervision with Duccio Medini, Novartis Vaccines and Diagnostics.

### **INVITED SPEECH IN MEETINGS**

“La stima di outcome latenti”, Convegno Intermedio della Società Italiana di Statistica, Processi e Metodi Statistici di Valutazione, Roma. dal 04-06-2001 al 06-06-2001

“The estimate of latent variables in a structural model: an alternative approach to PLS, "International Symposium on PLS01”, Capri. dal 01-09-2001 al 05-09-2001

“The Estimate of Customer Satisfaction”, Società Italiana di Statistica Meeting, Università Milano-Bicocca, Milano dal 05-06-2002 al 07-06-2002

“La stima dell’efficacia relativa e di impatto”, Convegno Intermedio della Società Italiana di Statistica, Analisi Statistica Multivariata per le Scienze Economico-Sociali, le Scienze Naturali e la Tecnologia, Napoli. dal 09-06-2003 al 11-06-2003

“A Method to Estimate Latent Variables in Structural Models”, 13th International Meeting of Psychometric Society, Cagliari. dal 07-07-2003 al 10-07-2003

“A method for the estimation of the distribution of human capital from sample surveys on income and wealth” e “A Multiequational Recursive Model of Human Capital, Income, and Wealth of Households with Application”, Joint Statistical Meeting of the American Statistical Association, San Francisco (US). dal 03-08-2003 al 07-08-2003

“The estimate of human capital from two sets of observable indicators: formative and reflective”, Joint Statistical Meetings of American Statistical Association, Toronto (CA). dal 09-08-2004 al 12-08-2004

“The educational and work experience household human capital in a structural model with formative and reflective indicators”, “Gini–Lorenz International Conference”, Certosa di Pontignano, Università di Siena. dal 24-05-2005 al 26-05-2005

“Latent variables with structured errors”, Meeting “Valutazione e Customer Satisfaction per la qualità dei servizi” del Gruppo permanente della Società Italiana di Statistica “Valutazione e la Qualità nei Servizi”, Università La Sapienza, Roma, 8 Settembre 2005 dal 08-09-2005 al 08-09-2005

“Human capital growth as a measure of university educational effectiveness”, International symposium” Methodological tools for accountability systems in education”, Centre for research and lifelong learning of European Commission, Ispra. dal 06-02-2006 al 08-02-2006

“Il capitale umano: stima e distribuzione, capitale umano e disuguaglianza economica” Giornata di studio dedicata a Paolo Fortunati e Camilo Dagum”, Dipartimento di Sc. Statistiche, Università di Bologna. dal 26-05-2006 al 26-05-2006

Organiser of the session: “Human capital measurement”, e Relazione: “Human capital from administrative data: the case of Milan”, ISA International Conference on “Social Science Methodology”, Napoli. 01-09 a 05-09-2008

“The patient satisfaction analysis”, Scientific Meeting on Health Evaluation with Statistics Norway, Università Bicocca, Milano. dal 17-09-2008 al 17-09-2008

“On the use of latent variables in education and health systems evaluation”, NTTS (New Techniques and Technologies for Statistics) Conference, European Commission, Brussels. 18-02 a 20-02-2009

“Misure e analisi della performance del sistema scolastico italiano” Banca d’Italia, Roma. dal 06-03-2009 al 06-03-2009

“The role of human capital on the university-job transition: individual and social factors” International conference on “Human Capital and Transition from University to Work”, Parma. dal 28-10-2010 al 28-10-2010

“Human capital measurement, methods and problems”, Convegno Scientifico AlmaLaurea “Capitale umano e occupazione nell’area europea e mediterranea”, Bologna. dal 10-03-2011 al 11-03-2011

“Component Analysis for Structural Equation Models with Concomitant Indicators”, Meeting of Classification and Data Analysis Group (CLADAG), Pavia. dal 07-09 a 09-09-2011

Relazione invitata: “Analisi dei percorsi occupazionali e Clustering delle dinamiche contrattuali”, SAS campus, Milano. dal 21-11-2011 al 21-11-2011

“Efficacia nella pratica clinica”, Convegno scientifico “Valutare l’esito per migliorare la pratica clinica”, Dipartimento di salute mentale A.O Niguarda, Milano. dal 13-06-2012 al 13-06-2012

“Evaluating Routinely Quality Of Care In Severe Mental Illness”, 11th World congress of World Association for Psychosocial Rehabilitation (Milano) dal 10-11-2012 al 13-11-2012

“Generalized Redundancy Analysis”, Società Italiana di Statistica Meeting, “Advances in Latent Variables - Methods, Models and Applications”, Brescia. dal 19-06-2013 al 21-06-2013

“Measuring Human Capital in Higher Education“, Meeting della Società Italiana di Statistica, “Advances in Latent Variables - Methods, Models and Applications”, Brescia. dal 19-06 a 21-06-2013

“Application of the BSC in the Health Sector with Generalized Redundancy Analysis”, IES-Innovation and Society conference, Bari 8-9 July dal 08-07-2015 al 09-07-2015

Keynote speaker “Misurare la qualità nell’ambito delle reti locali”, Meeting Scientifico della Società Italiana di Cure palliative e Società Italiana di Medicina generale, Sorrento. dal 04-11-2015 al 07-11-2015

## **Languages.**

English good, French good.

## **SOFTWARE.**

R, SAS, SAS Enterprise MINER, Stata, JMP, SPSS, Answer Tree, AMOS, LISREL, HLM, RUMM, WINSTEPS, Latent gold.

*In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.*

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**Milan, May 2020**