

Ai fini della pubblicazione

Decreto Rettore Università di Roma “La Sapienza” n. 3227/2021 del 02.12.2021

ROBERTA VARRIALE Curriculum Vitae

Rome
20.01.2022

Part I – General Information

Full Name	Roberta Varriale
Citizenship	Italian
Spoken Languages	Italian, English

Part II – Education

Type	Master, II level (ISCED 97: 5)
Year	2018 (Thesis 2019)
Institution	Faculty of Information Engineering, Informatics and Statistics University "La Sapienza" of Rome
Notes	<i>Big Data. Metodi statistici per la società della conoscenza</i> Project work: <i>Modelli Hidden Markov per la stima dello stato occupazionale in Italia</i> Certification SAS Certified Predictive Modeler Using SAS Enterprise Miner 14

Type	PhD (ISCED 97: 6)
Year	2005/2007 (Thesis 2008)
Institution	Department of Statistics “G.Parenti”, University of Florence
Notes	<i>Ph.D in Applied Statistics</i> Thesis: <i>Multilevel Mixture Models for the analysis of the University Effectiveness</i> The research activity focused mainly on three topics, from a theoretical and applied point of view: latent variable models (multilevel factor models and multilevel mixture factor models); multilevel regression models; forward search. From an applied point of view, socio-economic phenomena were analyzed, such as the evaluation of the internal and external effectiveness of the university system, also from a longitudinal perspective. Visiting PhD Student (4 months), Department of Methodology and Statistics, Tilburg University (NL)

Type	University graduation (ISCED 97: 5A)
Year	2004
Institution	Faculty of Economics, University of Florence
Notes	B.S. in Business and Management (4 years), level 7 QEQ Thesis: <i>Time needed to graduate in the University of Florence: application of a hierarchical linear model upon graduates during the calendar year 2000</i>

Thesis subject: statistics. Mark: 110/110 cum laude.
The research dealt with the study of linear and nonlinear multilevel regression models to evaluate the effectiveness of the Italian university system, with particular attention to the study of its critical issues, such as career duration and university drop-out.
Exchange student (6 months), Socrates/Erasmus Project at University of Reading (UK)

Part III – Appointments

IIIA – Academic Appointments

Start - End	01/03/2009 – 31/08/2011
Institution	Department of Statistics “G.Parenti”, University of Florence
	Viale Morgagni 59, Firenze
Position	Research fellow on <i>Orienteering and formative processes in education</i>
Description	<p>The activities included:</p> <ul style="list-style-type: none"> - research activities (see Part VIIB), with active participation in working groups and national and international projects (see Part VIIC); - training: teaching and seminars (see Part IVA and Part IVC); - participation in national and international conferences (see Part X, Conference proceedings). <p>The research activity concerned mainly the development and the use of statistical methodologies for the evaluation of the self-assessment test administered to university students.</p>
Start - End	15/04/2008 – 31/07/2010
Institution	Department of Methodology and Statistics, Tilburg University
	Warandelaan 2, 5037 AB Tilburg (NL)
Position	Researcher
Description	<p>The activities included:</p> <ul style="list-style-type: none"> - research activities (see Part VIIB), with active participation in working groups and national and international projects (see Part VIIC); - training: teaching and seminars (see Part IVA and Part IVC); - participation in national and international conferences (see Part X, Conference proceedings). <p>The research mainly focused on the study of latent variables models, in particular multilevel factor mixture models and latent class multilevel models, with application in social science. The research activity was aimed at publishing articles on international journals.</p>

IIIB – Other Appointments

Start - End	09/2011 – PRESENT
Institution	Italian National Institute of Statistics, ISTAT Via Cesare Balbo 16, 00184 Roma
Position	Researcher, methodological statistician Permanent researcher, Methodological statistical area, 4th place in the ranking, Resolution no. 211 / PER of 21/03/2017 Fixed-term researcher, Methodological statistical area, 1st place in the ranking, Resolution no. 474 / PER of 26/05/2011
Description	The activities included: <ul style="list-style-type: none"> - statistical/methodological activities; - training (teaching and seminars, see Part IVA and Part IVB) and research activities (see Part VIIA), with active participation in working groups and national and international projects (see Part VIIC); - participation at national and international conferences (see Part X, Conference proceedings); - referee for international journals (see Part VIIA); - participation in international cooperation projects as Istat Expert (see Part VIIA).

Start - End	2003 – 2008
Institution	University/Public Institutions
Position	Collaborator for research activities , various projects
Description	Research activity on the following topics: <ul style="list-style-type: none"> ▪ Students' career and living conditions ▪ Project FINVALI 2005 ▪ Dynamics of the agro-food system and the rural world of Maremma ▪ Teaching evaluation (First Level Degree Programs) ▪ Methodologies and analysis of the socio-economic characteristics of rural districts ▪ CampusOne (teaching evaluation action).

Part IV – Teaching experience

IVA – Seminars

2021/2022	
Istat	Organization of the event <i>Registro Esteso delle Unità della Pubblica Amministrazione (REPA), stato di avanzamento dei lavori e prospettive</i> Presentation: <i>Gruppo di Lavoro REPA: obiettivi e stato di avanzamento dei lavori</i>
University "La Sapienza" of Rome	Organization and active participation, on-line seminar of prof. Agresti: <i>Simple Ways to Interpret Effects in Modeling Binary and Ordinal Data Machine learning methods for estimating the employment status in Italy</i>
2020/2021	
Escuela de Estadística National University of Rosario, Argentina	Active participation, on-line seminar of prof. Agresti: <i>Simple Ways to Interpret Effects in Modeling Binary and Ordinal Data</i>

Center For Biostatistics, The Ohio State University

Active participation, on-line seminar of prof. Agresti: *Simple Ways to Interpret Effects in Modeling Binary and Ordinal Data*

2019/2020

Istat

Organization of the event *Registro Esteso delle Unità della Pubblica Amministrazione (Frame PA), stato di avanzamento dei lavori e prospettive*

Presentation: *Registro Esteso delle Statistiche della Pubblica Amministrazione (Frame PA), Stato di avanzamento dei lavori*, with S. Mantegazza

University of Florence

Machine learning methods for estimating the employment status in Italy

University "La Sapienza" of Rome

Machine learning methods for estimating the employment status in Italy

Istat

Advisory Board Istat

Machine learning methods for estimating the employment status in Italy, supervisor M.Alfò

2018

Istat

Workshop of the Advisory Committee on Statistical Methods

Integration of administrative sources and survey data through Hidden Markov Models for the production of labour statistics, with D.Filipponi (presenter) and U.Guarnera

A new framework for quality assessment of processes based on survey, administrative and register combined data, con F.Rocci e O.Luzi

Istat

Advisory Board Istat

A new framework for quality assessment of processes based on integrated administrative data (advancements), with con F.Rocci and O.Luzi

A new framework for quality assessment of processes based on survey, administrative and register combined data, with F.Rocci and O.Luzi

Istat

Organization of the seminar *Combine Latent Class Analysis and Multiple Imputation*

Presentation: *The use of Latent Markov Models in the employment register*, with D.Filipponi

2017

Eurostat conference, Minsk (Bielorussia)

Invited seminar as Istat expert for the “High-Level Seminar for Eastern Europe, Caucasus and Central Asia (EECCA)”: *Quality of Admin Data Sources, Experience of Istat*

2013

Istat

Methodological Research Days in ISTAT

Modelli a variabili latenti per il Predictive Mean Matching, with U.Guarnera

2009/2010

Tilburg University (NL)

*Robust ANalysis Of Variance and Robust Random Effect Model: an approach based on the Forward Search***2008/2009**

University “Commerciale Luigi Bocconi”

Robust Random Effect Models: a diagnostic approach based on the forward search

University of Padova

Multilevel Latent Class model: Determining the number of mixture components

University of Naples “Federico II”

*Multilevel Mixture Factor Models***2006/2007**

Tilburg University (NL)

Multilevel mixture factor model, the analysis of students' satisfaction

IVB – Teaching experience and tutoring, Istat

2021*Software BANFF (on-line)***2020***Software BANFF (on-line)***2019***Modelli e strumenti per il controllo e la correzione dei dati***2018**Tutor of the PhD student Laura Boeschoten (CBS-Tilburg University), Project Agreement Istat-CBS
*Hidden Markov models to estimate employment rates***2017***Selective editing at Istat, cooperation project with Montenegro*

IVC – Teaching experience and tutoring, university

2021/2022

European University of Rome

Course (48 hours, 6 CFU): *Statistics for business* (in English)

Degree course: Economics and Business Management

2020/2021

University of Calabria

Course (8 hours): *Errors in data* (in English)Master - II level *Data science*

European University of Rome

Course (48 hours, 6 CFU): *Statistics for business* (in English)

Degree course: Economics and Business Management

Tutor for the thesis *Commercio all'ingrosso alimentare: indagine sulle potenzialità di un'innovazione*

University of Pisa

Module (7 hours): *Use of Administrative Data in Official Statistics*, course Survey methods: traditional and new techniques in official statistics (European Master on Official Statistics, EMOS)

University of Bergamo

Tutor for the internship (EMOS)

Project: Tecniche di Machine Learning in contesto multifonte

2019/2020, 2018/2019, 2017/2018

University of Pisa

Module (7 hours): *Use of Administrative Data in Official Statistics*, course Survey methods: traditional and new techniques in official statistics (EMOS)

University of Florence

Module (2 hours): *Use of Administrative Data in Official Statistics* (EMOS)

2016/2017

University of Florence

Module (2 hours): *Use of Administrative Data in Official Statistics* (EMOS)

2015/2016

University of Florence

Module (2 hours): *Problemi di editing and imputation* (EMOS)

2011/2012

University of Florence

Tutor for the thesis *Classe di laurea e condizione occupazionale dei laureati specialistici: un'analisi statistica multilivello*, master degree "Scienze dell'Economia"

European University of Rome

Teaching support for the courses:

- *Statistica* (10 CFU), Prof. C.Crocetta
- *Statistica economica per la gestione delle imprese* (10 CFU), Prof.ssa M.Bini
- *Statistica economica (corso progredito)* (10 CFU), Prof.ssa M.Bini

University of Florence, Department of Statistics "G.Parenti"

Teaching support and tutoring for the SIS course *Teoria e Pratica dei Modelli ad Effetti Casuali per Dati Multilivello e Longitudinali*

2010/2011

University of Florence

Teaching support for the courses:

- *Statistica 1*, Prof. A.Giommi
- *Inferenza Statistica* (12 CFU), Prof. B.Chiandotto
- *Statistica* (12 CFU), Prof. L.Grilli

2009/2010

University of Florence

Teaching support for the courses:

- *Inferenza Statistica* (12 CFU), Prof. B.Chiandotto and Dr. B.Bertaccini
- *Statistica* (12 CFU), Prof. L.Grilli

University of Florence, Department of Statistics “G.Parenti”

Teaching support and tutoring for the SIS course *Teoria e Pratica dei Modelli ad Effetti Casuali per Dati Multilivello e Longitudinali*

2008/2009

University of Padova

Tutor for the thesis *Consumatore europeo e canali di acquisto: segmentazione del mercato mediante un approccio a classi latenti*, master degree “Scienze Statistiche Economiche Finanziarie e Aziendali”

Tilburg University (NL)

Teaching Assistants at Department of Methodology and Statistics, Faculty of Social and Behavioural Sciences

2007/2008

University of Florence, Department of Statistics “G.Parenti”

Teaching support and tutoring for the SIS course *Teoria e Pratica dei Modelli ad Effetti Casuali per Dati Multilivello e Longitudinali*

2006/2007

University of Florence

Teaching support for the courses:

- *Analisi di mercato*, Prof. A.Viviani
- *Statistica Economica (Aziendale)*, Prof.ssa M.Bini

Part V - Society memberships, Awards and Honors

Year	Title
2019	<p>Scholarship for Master Executive “Big Data. Metodi statistici per la società della conoscenza” (INPS)</p> <p>Best project work Master Executive “Big Data. Metodi statistici per la società della conoscenza” (INPS)</p>
2004	Award “Giuseppe Parenti” for the best graduate in 2004, Associazione Villa Favard, Faculty of Economics, University of Florence
2003	Scholarship for Socrates/Erasmus Project at University of Reading (UK)

Part VII – Research Activities

The description of my research activity is divided into two parts mainly for simplicity of presentation, despite the presence of interconnections and overlaps. The first part relates to activities mainly carried out at the Italian national institute of statistics (Istat), while the second part concerns the activities carried out mainly during the period of work at the university, in Italy and in the Netherlands.

Symbols “#.” refer to *Part X – Publications (complete)*.

VIIA – Istat

Keywords

Latent variable models
Multi-source statistics
Editing and Imputation
Statistical register
Quality evaluation

	<p>The research at Istat mainly concerns the study of latent variable models for official statistics, with different applications: statistical registers, multi-source statistics, quality assessment, editing and imputation, mixed mode data collection, etc. Such arguments show interconnections and overlaps.</p> <p>- <i>Latent variable models in multi-source statistics, estimation and machine learning</i></p> <p>As far as the estimation methodologies are concerned, study and experimentation activities were carried out on methodologies that allow to produce "optimal" estimates in situations in which more measures of the investigated phenomena are available (PJ#14, CP#21). Particular interest was in unsupervised methodological approaches in which the target variables are modeled as latent variables and the available sources as imperfect observed measures of these variables. In the employment statistics context, the research mainly focused on an unsupervised approach based on the use of latent class Markov models, <i>Hidden Markov Models</i> (TH#02, CP#35, CP#34). As part of this activity, the candidate supervised a PhD student within the international project (Istat-CBS) "Hidden Markov models to estimate employment rates" (PJ#17). The study of information from multiple sources that do not agree with each other was deepened by using machine learning techniques. The latter topic was presented in seminars for PhD courses of Italian universities.</p> <p>Latent variable models (mainly confirmatory factor models) were also used for the analysis of the data collection (selection and measurement) mode effect in social surveys (PV #10).</p> <p>- <i>Latent variable models, editing and imputation</i></p> <p>As regards the editing and imputation methodologies, there were two main research areas: (i) study of an innovative imputation method - Predictive Mean Matching based on the use of a factorial model - assessed both with simulation both with application to real data (PV#09, CP#18, CP#16); (ii) study of new approaches based on latent class models in situations with data from different sources (PJ#15, CP#27, CP#25, CP#22, CP#17). The candidate is also an expert in the use and application of the <i>SeleMix</i> R package for selective editing (WP#04, CP#32, CP#26).</p> <p>- <i>Framework for the quality assessment of registers and multi-source production processes</i></p> <p>Development of a framework for assessing the quality of registers and production processes based on the use of multiple data sources (PJ#18, WP#06, CP#33, CP#31, CP#28). This framework has been applied to the so-called SBS Frame (PJ#16), and to the statistical Register of Public Administration Units (CP#36). The results of this research were presented at international conferences, the Istat Advisory Board, and an Istat seminar. Given the experience on the quality assessment of multi-source production processes, the candidate presented - as an Istat expert - the <i>Quality of Admin Data Sources, Experience of Istat</i> report at the High-Level Seminar for Eastern Europe, Caucasus and Central Asia (EECCA) (see</p>
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Part IVA – Teaching experience - Seminars).
<ul style="list-style-type: none"> - <i>Binary data models</i>
<p>Research in the context of models for binary data, to investigate alternatives to the odds ratio in the interpretation of effects in logistic regression models for binary response data (PV#12, PV#11).</p>
<ul style="list-style-type: none"> - <i>Assignments (selection)</i>
<ul style="list-style-type: none"> - Methodological expert in projects aimed at the construction of multi-source statistical systems, based on the combined use of micro-data from administrative and survey data: (i) register for structural business statistics, (ii) database on employees and (iii) register of Public Administration Units (with coordination activities). - Project on the implementation and organization of the experimental survey on the consumption of energy products by Italian companies (B#02, CP#19). - Design and implementation of editing and imputation activities for social and business surveys, and multi-source data (WP#05, CP#24). - Member of the working group on the methodological standards in Istat, as expert in editing and imputation.
<p><i>Referee:</i> Statistica Applicata - Italian Journal of Applied Statistics, Higher education, Survey Methodology, Biometrical Journal, Rivista di Statistica Ufficiale, IAOS, Methodology.</p>
<p><i>International cooperation projects:</i> Moldavia, Libano, Tanzania (expected), Palestina (eligible), Vietnam (eligible).</p>

VIIB – University

Keywords

Multilevel regression models
Latent variable models
Forward search
Longitudinal data

Advanced inferential methods for multilevel and longitudinal data
A substantial part of the scientific research activity concerned the study of linear and non-linear *multilevel regression models*, both in their theoretical and application aspects (B#01, PJ#01, PV#01, PV#02). The studies have highlighted how the use of the multilevel approach for the analysis of nested data allows to study the net effect of the possible determinants of the phenomenon being analyzed and, at the same time, to provide indications on the merit and quality of the grouping unit. With regard to this last consideration, among the theoretical aspects that have been studied in depth, there is the evaluation of the quality of the rankings of the grouping units obtained through the application of multilevel linear regression models, in presence of an incorrect specification of the model itself (WP#03, PJ#04, CP#08, CP#06).

The candidate participated in the research program *Advances in Multilevel and Longitudinal Modeling*, with the main objectives: (i) deepening of methodologies for bounded outcomes (zero-inflated, hurdle, sample selection models) with multilevel structure, (ii) empirical applications of innovative and advanced multilevel solutions to the perception and evaluation of the teaching by students and dynamic market segmentation. The results of the project were presented at national and international conferences (CP#30, CP#29), and published on international journals (PJ#12, PJ#11).

Latent variable models

Latent variables are constructs that are not directly observable and, therefore, not measurable, which influence the realization of a phenomenon. Recently, various authors have proposed a generalized context of analysis, the general latent variable modelling, which integrates specific statistical methodologies, such as multilevel

models, longitudinal and structural models, response theory items, factorial models, etc. in a single theoretical area. In this context, the *multilevel factor* and *multilevel mixture factor* models represented the specific topic of the research activity carried out during the PhD and the postdoctoral research period at the University of Tilburg (NL) (TH#01, PJ#03, PJ#07, PV#04, PV#05, CP#02, CP#01). Within the class of latent variable models, in the last decades there has been a widespread use of multilevel mixture models, also known as *latent class multilevel models*. In this context, a theoretical work based on the analysis of a substantial set of simulations had the aim of suggesting which is the best method for the simultaneous choice of the number of latent classes at both levels of analysis (PJ#05), while applied works suggested using multilevel models with latent classes for the segmentation of both first and second level statistical units (PJ#09, PJ#13, PV#08, CP#07). *Growth models with multiple indicators* are also included in the class of latent variable models, where the growth model is imposed on a latent factor measured over time by the same indicators. The work (PJ#10, CP#12, CP#11, CP#10, CP#09) aims to evaluate the effect of different structures of measurement errors on the estimation of parameters of the model.

Anomalous data

In literature, outliers are recognized as having the power to invalidate the results of any statistical analysis. The approach *forward search* has been proposed, which has as its objective the identification of outliers. In particular, the research activity aimed to develop new forward search algorithms for fixed-effect regression models and random effects (PJ#02, PV#07, WP#02, WP#01, CP#04).

Advanced method for the study of University admission test and students' careers
The research activity concerned mainly the development and the use of statistical methodologies for the evaluation of the self-assessment test administered to university students (PJ#08, CP#20, CP#15, CP#14).

VIIC – Participation and coordination of national and international research projects, committees and working groups

Year	Project
2020 (from)	<p>Member of the Istat <i>Advisory Committee on Statistical Methods</i></p> <p>Participation at UNECE group on Machine Learning in official statistics</p> <p>Participation at the international research project on Smart Surveys (Eurostat ESSnet)</p> <p>“Istat Innovation laboratory” for the recovery of accounting data from unstructured texts of company financial statements available on the Telemaco website through text-mining and advanced webscraping techniques</p>
2018	<p>Participation at the international research project “<i>Cooperation on Multi-Mode Data Collection – Mixed Mode Design for Social Surveys</i>” MIMOD</p> <p><i>Participation at the Project Agreement Istat-CBS Hidden Markov models to estimate employment rates (tutor of Phd candidate)</i></p>
2016-2018	Project SID, University of Padova: <i>Advances in Multilevel and Longitudinal Modelling</i>
2010-2012	Project PRIN (Progetto di Ricerca di Interesse Nazionale): <i>Modelli a classi latenti e multilivello: aspetti metodologici e applicativi per la valutazione e l'inferenza causale</i> , national responsible Prof.ssa P.Monari (University of Bologna)
2011	<p>Member of the local organizing committee of the conference - IES 2011 – Innovazione e Società</p> <p>Member of the organizing committee of the Scuola di specializzazione SIS <i>Teoria e Pratica dei Modelli ad Effetti Casuali per Dati Multilivello e Longitudinali</i></p>
2010	Head of the Local Research Unit for FIRB 2010 (unfunded project): <i>Analisi statistico-strutturale dei dati di monitoraggio e definizione di un modello di previsione per la conservazione e il consolidamento del patrimonio culturale. Il caso della Cupola del Brunelleschi, a Firenze</i>
2007-2009	Project PRIN (Progetto di Ricerca di Interesse Nazionale: <i>Metodi e modelli statistici per la valutazione dei processi formativi</i> , national responsible Prof.ssa P.Monari (University of Bologna)
2009	Member of the organizing committee of the Scuola di specializzazione SIS <i>Teoria e Pratica dei Modelli ad Effetti Casuali per Dati Multilivello e Longitudinali</i>
2006	Member of the organizing committee of the conference <i>ROBCL 2006 (Robust Classification and Discrimination With High Dimensional Data)</i>

Part VIII – Summary of Scientific Achievements

Number of papers (see the table): 35¹

Number of papers in “classe A” journals: 5

Number of books: 1

Product type²	Number, last 5 years from 01/01/2016	Number, 6 - 10 years from 01/01/2011 to 31/12/2015	Number, over 10 years before 31/12/2010	Number, Total
Papers	14	16	6	36
Papers in journal [ISSN, ANVUR list] ³	6	6	4	16
of which journals “Classe A”⁴	2	2	1	5
Papers in journal [ISSN, no ANVUR list]	1	0	0	1
Papers in volume [ISBN or ISMN]	3	2	1	6
Papers in conference proceedings [ISBN]	3	6	1	10
Papers in conference proceedings [ISSN]	1	2	0	3
Books [ISBN]	1	0	0	1

¹ Indicator *Number of papers* does not include the paper “Estimation from Contaminated Multi-Source Data Based on Latent Class Models” because, even if the journal Statistical Journal of the IAOS has ISSN, it is not listed in “Elenco delle riviste scientifiche dell'Area 13 Valido ai fini del II Quadrimestre ASN 2021-2023 - pubblicato l'11/10/2021” (consulted 20/01/2022):

https://www.anvur.it/wp-content/uploads/2021/10/Elenco-riviste-scient_Area13_IIquad.pdf

² Decreto del Ministro (D.M. 553/2021):

<https://www.mur.gov.it/sites/default/files/2021-02/Decreto%20Direttoriale%20n.553%20del%2026-02-2021.pdf>

³ “Elenco delle riviste scientifiche dell'Area 13 Valido ai fini del II Quadrimestre ASN 2021-2023 - pubblicato l'11/10/2021” (consulted 20/01/2022):

https://www.anvur.it/wp-content/uploads/2021/10/Elenco-riviste-scient_Area13_IIquad.pdf

⁴ “Elenco delle riviste di Classe A per i Settori Concorsuali dell'Area 13 - Valido ai fini del II Quadrimestre ASN 2021-2023 - pubblicato l'11/10/2021” (consulted 20/01/2022):

https://www.anvur.it/wp-content/uploads/2022/01/Elenco-riviste-classeA_Area13_IIquad_format.pdf

Part IX– Selected Publications

P01. Paper in Volume

Agresti A., Tarantola C., Varriale R.

Simple Ways to Interpret Effects in Modeling Binary Data

(to appear) In Kateri M., Moustaki I. (Eds.) *Trends and Challenges in Categorical Data Analysis*, Springer

P02. Paper in Journal

Rocci F., Varriale R., Luzi O.

Total process error: An approach for assessing and monitoring the quality of multisource processes

(to appear), *Journal of Official Statistics*

ISSN: 2001-7367, 0282-423X

(ANVUR list, Classe A, 13/D1 D2 D3 D4 from 01/01/2016)

P03. Paper in Journal

Boeschoten L., Filippini D., Varriale R.

Combining Multiple Imputation and latent Markov modeling to obtain consistent estimates of employment status

2020, *Journal of Survey Statistics and Methodology*. 9 (3), 549–573

<https://academic.oup.com/jssam/advance-article/doi/10.1093/jssam/smz052/5698293>

ISSN: 2325-0984, 2325-0992

(ANVUR list)

P04. Paper in Journal

Guarnera U., Varriale R.

Estimation from Contaminated Multi-Source Data Based on Latent Class Models

2016, *Statistical Journal of the IAOS. Journal of the International Association for Official Statistics*. 32, 537-544

ISSN 1874-7655 (P), ISSN 1875-9254 (E)

P05. Paper in Journal

Di Zio M., Guarnera U., Varriale R.

The estimation of the main variables of the economic account of small and medium enterprises based on administrative sources

2016, *Rivista di Statistica Ufficiale*. 1/2016, 71-81

ISSN: 1972-4829, 1828-1982

(ANVUR list)

P06. Paper in Journal

Dal Bianco C., Paccagnella O., Varriale R.

A multilevel latent class analysis of the purchasing channels among European consumers

2016, *METRON*. 74(3), 293-309

ISSN 0026-1424, 2281-695X

(ANVUR list)

P07. Paper in Journal

Grilli L., Rampichini C., Varriale R.

Statistical modelling of gained university credits to evaluate the role of pre-enrolment assessment tests: an approach based on quantile regression for counts

2016, *Statistical Modelling*. 16, 47-66

ISSN: 1471-082X

(ANVUR list, Classe A, 13/D1 D2 D3)

P08. Paper in Journal

Grilli L., Rampichini C., Varriale R.

Binomial mixture modelling of university credits

2015, *Communications in Statistics - Theory and Methods*. 44(22), 4866-4879

ISSN 1532-415X

(ANVUR list)

P09. Paper in Journal

Grilli L., Varriale R.

Specifying Measurement Error Correlations in Latent Growth Curve Models With Multiple Indicators

2014, *Methodology*. 10(4), 117-125

ISSN 1614-1881

(ANVUR list, Classe A, 13/D1 D2 D3 D4 until 31/12/2017)

P10. Paper in Volume

Bertaccini B., Varriale R.

Robust Random Effects Models: a diagnostic approach based on the Forward Search

2013, In Giusti A., Ritter G., Vichi M. (Eds.) *Classification and Data Mining*, 3-10, series Studies in Classification, Data Analysis, and Knowledge Organization, Springer.

ISSN 1431-8814, ISBN 9783642288937

P11. Paper in Volume

Paccagnella O., Varriale R.

Asset ownership of the elderly across Europe: A multilevel latent class analysis to segment countries and households

2013, In N. Torelli, F.Pesarin, A.Bar-Hen (Eds.) *Advances in Theoretical and Applied Statistics*, 383-393, serie Studies in Theoretical and Applied Statistics, Springer.

ISSN 2194-7767, ISBN: 978-3-642-35587-5, doi: 10.1007/978-3-642-35588-2_35

P12. Paper in Journal

Varriale R., Vermunt J.K.

Multilevel Mixture Factor Models

2012, *Multivariate Behavioral Research*. 47, 247-275

ISSN: 0027-3171

(ANVUR list, Classe A, 13/D1 D2 D3 D4)

Part X – Publications (complete)

Thesis and Project work (TH)

#02 Varriale R.

Modelli Hidden Markov per la stima dello stato occupazionale in Italia
2019, Project work, Università di Roma “La Sapienza”

#01 Varriale R.

Multilevel Mixture Models for the analysis of the University Effectiveness
2008, Tesi di dottorato, Università degli Studi di Firenze

Papers in Journal (PJ)

#18 Rocci F., Varriale R., Luzi O.

Total process error: An approach for assessing and monitoring the quality of multisource processes
(to appear), *Journal of Official Statistics*

ISSN: 2001-7367, 0282-423X

(ANVUR list, Classe A, 13/D1 D2 D3 D4 from 01/01/2016)

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Part XI – Attachments

The attachments to this CV are:

- reference letter: prof. Alan Agresti and prof. Jeroen Vermunt
- attachment C: DICHIARAZIONI SOSTITUTIVE DI CERTIFICAZIONE E DELL'ATTO DI NOTORIETA' AI SENSI DEGLI ARTT. 46 E 47 DEL D.P.R. 28 DICEMBRE 2000, N. 445
- list of "TITOLI E PUBBLICAZIONI PRESENTATE"
- copy of identity card

Signature

