europass Curriculum vitae

PERSONAL INFORMATION

Andrea Vaiano

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Nationality Italian

EDUCATION AND TRAINING

2024– **PhD in School of Statistical Sciences (40th cycle)**

Sapienza University, Rome, Italy

2022–2024 **MSc in Statistical Methods and Application - Data Analyst**

Sapienza University, Rome, Italy

Double degree programme

110/110 with honours

– Bayesian modelling
– Sample surveys

2019–2022 **BSc in Statistics, Economics and Society**

Sapienza University, Rome, Italy

Student Honors Programme

110/110 with honours

– Probability and statistics
– High dimensional statistics

INTERNATIONAL EXPERIENCE

2023 – 2024 **M2 Mathématiques, Apprentissage, Sciences et Humanités (MASH)**

Université Paris Dauphine - PSL, Paris, France

Double degree programme

– Applied Bayesian Statistics
– Computational Methods and MCMC

2021 **BSc Population and Geography**

University of Southampton, Southampton, United Kingdom

Erasmus+ semester mobility

– Applied Population Research Methods
– Development Economics

2018 **AFS Summer Intensive Course Japanese Language Programme**

International Communication Nagoya, Nagoya, Japan

Summer exchange programme

ACADEMIC ACTIVITY

2024 **Workshop VAW 2024 Violence against women: misreported information and other challenges in modelling social data**

I contributed to the organization of the Intermediate PRIN2022 meeting held in Sapienza University of Rome on 13th September 2024.

2022 – 2024

Academic Tutoring

Tutoring activities for the courses of Economic Statistics, including lectures and exercise classes with a focus on R programming, conducted under the supervision of Prof. Maria Grazia Pittau and Prof. Roberto Zelli.

RESEARCH EXPERIENCE

2023 – 2024

Research internship (Campus Bio-Medico University of Rome)

Reference data analyst for medical research in the orthopaedics lab supervised by Prof. Umile Giuseppe Longo, contributing to the statistical analysis for evaluating postoperative patient well-being. The assessment of surgery recovery was based on survey data, prompting the use of non-parametric methods for estimation and hypothesis testing.

ACADEMIC PROJECTS

2024

Assessing the European “convergence machine": The empirics of regional economic growth

MSc Thesis (Sapienza Univeristy)

Internal cohesion of EU regions has been a central target of the development policies implemented by the Community. We employ finite Gaussian mixture models to explore the evolution of income distribution across forty years. The main goal is to assess changes of shape in the distribution and provide a dynamic classification of regions into sub-populations with discernible socioeconomic and geographical characteristics. We conclude that a process of catching up has been in place, manifested by the disappearance of a consistently poor group of regions and the consequent enlargement of the middle income group. To further investigate mobility of units across components, we propose a Latent Markov Model (LMM) approach to formally model transition in our panel data.

2024

Exploring the Sino-Tibetan Family of languages through ContacTrees: a Novel Methodological Approach

Double degree research project (Université Paris Dauphine)

The aim of this work was to infer the phylogenetic tree for the family of Sino-Tibetan languages under the newly devised Bayesian model “contacTrees". The analysis enabled to present a new maximum credibility tree for the Sino-Tibetan family, supporting the unprecedented scenario of a Kiranti out-group. Additionally, the tree resulted to be younger than the reference predecessor. The analysis managed to propose new results and evaluate strengths and weaknesses of this new phylogenetic model. The project relied on the BEAST software implementation, uncovering a coding error in the program that resulted in incomplete outputs and leading to the release of a package update.

2023

Superstar Paycheck: Stick to Sports

Bayesian modelling (Sapienza Univeristy)

Project work employing a Bayesian learning engine to compare earnings across elite sportspeople. Data were obtained from publicly available sources and were autonomously pre-processed and analysed, exploring patterns and trends. A Bayesian hierarchical normal model was then implemented to describe earnings of athletes in different sports, each representing a sub-population. MCMC simulation allowed to perform diagnostics and posterior analysis of the model parameters, both global and group-specific. Showing posterior predictive intervals, the shrinkage effect and the role of sample size were explained to illustrate the concept of partial pooling in multilevel models. The project has been carried out using R and its add-on JAGS.

2022

La lenta marcia della convergenza al benessere: un'analisi statistica delle nuove traiettorie di sviluppo umano

BSc Thesis (Sapienza Univeristy)

The thesis featured a theoretical examination of the Human Development Index (HDI), motivated by the belief that well-being is much more than economic growth alone. The development trajectories of different clusters of countries where appraised and compared across four decades, with respect to the three dimensions (life expectancy, per capita income, years of schooling). The composite index was then used as a response variable to assess the neoclassical hypothesis of convergence, implying faster growth for developing countries. The empirical evaluation of the regression model provided mixed results, showing positive trends of convergence, but with very moderate speed. We conclude that an overall process of development has been in place, justified by the global improvement in all aspects and the observed modest convergence.

2021

Women empowerment and technology: a case study for rural Uttar Pradesh using the 2015-2016 NFHS for India

Applied Population Research Methods (University of Southampton)

Project work on the role of technology on women empowerment in the rural state of Uttar Pradesh (India), using survey data. The aim of the study was to explore possible relationships between empowerment (measured by attitude towards wife beating and participation in household decision making), ownership of assets and the use of technological devices. Chi-square tests were employed to explore association between the variables related to the different dimensions of interest. The empirical work was also supported by a qualitative analysis in the form of a semi-structured interview with members from the local community. The results of this quali-quantitative study were presented in a comprehensive written report comprising. The project has been carried out using SPSS.

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	Cambridge Advanced English (CAE)				
French	A2	B1	A2	A2	A2
Spanish	B1	B1	B2	B2	B1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Soft skills

- Teamwork: I have worked in various types of teams from research teams to sports competition organisations. For 2 years I was involved in the Rome tennis masters Tournament Direction team.
- Intercultural skills: I am experienced at cooperating and communicating in international contexts thanks to multiple experiences abroad.

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Independent user	Independent user	Proficient user

Digital competences - Self-assessment grid

Programming skills

- Proficient in R
- Basics of Python

Software skills
- SPSS
- BEAST
- SAS
- LaTeX

PUBLICATIONS

[1] Umile Giuseppe Longo, Rocco Papalia, Alessandro Mazzola, Stefano Campi, Sergio De Salvatore, Vincenzo Candela, **Andrea Vaiano**, Ilaria Piergentili, and Vincenzo Denaro. "Bilateral simultaneous hip and knee replacement: an epidemiological nationwide study from 2001 to 2016". In: *BMC surgery* 24.1 (2024), p. 172.

[2] Umile Giuseppe Longo, **Andrea Vaiano**, and al. "Revision Outcomes After Arthroscopic Surgery for Massive Rotator Cuff Tears Show No Significant Differences Among Repair Techniques". In: *KSSTA* (2024). Submitted for review.