

## Education

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### PhD in Economics

*Università Politecnica delle Marche*

Department of Economics and Social Sciences

Research thesis: *Agricultural Productivity in Space*

Keywords: TFP, benchmarking, index numbers, minimum-spanning-tree, space-time panel data models, TFP diffusion

Supervisor: Roberto Esposti

Nov 2013 - Mar 2017

*Ancona, Italy*

### Master in Economics, 110/110 summa cum laude

*Università Politecnica delle Marche*

Research thesis: *Econometric modelling of oil prices*

Keywords: unit root testing, state-space modelling, kalman filtering, time-series forecasting

Supervisor: Riccardo Lucchetti

○ One-year exchange program at Charles University in Prague, Czech Republic

Oct 2008 - Jul 2011

*Ancona, Italy*

### Bachelor in Economics

*Università Politecnica delle Marche*

Thesis: *The fourth generation of the Cohesion Policy: framework and forecast*

Supervisor: Alessandro Sterlacchini

Oct 2004 - Nov 2008

*Ancona, Italy*

## Professional Experience

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### Independent contractor

*JRC Seville - Economics of Agriculture Unit*

Contributing to the *study on the distribution of biorefineries in the EU*. The contribution regards the completion of an existing database on European biorefineries. This project is the result of winning a bid in a public tender.

Feb 2018 - present

*Ancona, Italy*

### Research Fellow

*Università Politecnica delle Marche - Department of Economics and Social Sciences*

Contributing to the Work Package 4 of the interdepartmental, EU-funded research project entitled *BRIDGE: Building Resilience to flood Impact Deriving from Global warming in Europe*. The WP 4 aims at estimating the medium-term socio-economic impacts of Climate Change using Multi-Regional Input-Output models at NUTS3 level.

Jul 2017 - present

*Ancona, Italy*

### Economist/Programmer

*Università Politecnica delle Marche - Department of Construction, Civil Engineering and Architecture*

Created a software for implementing automated and user-friendly Stochastic Cost-Benefit Analyses using R and its package *shiny*. The tool generates estimates of the the monetary costs (LCC) and environmental impacts (LCA) of energy-saving investment projects over long time horizons and can be used to evaluate alternative investment options under uncertainty:

- estimated relationships between key macroeconomic variables and generated long-term predictions under different scenario assumptions;
- coded the set of functions to implement the stochastic cost-benefit calculation procedure;
- coded alternative procedures for identifying the major drivers of the environmental and the economic performances;
- designed and coded the Graphical User Interface of the software.

Feb 2017 - present

*Ancona, Italy*

### Data Analysts/Consultant

*t33 Srl*

Gathered and analyzed information on ex-ante assessments regarding the implementation of Financial Instruments of the European Cohesion Policy, programming period 2014-2020.

Sep 2017 - Dec 2017

*Ancona, Italy*

**Economist/Programmer/GIS Specialist****Feb 2016 - May 2017***Associazione Alessandro Bartola**Ancona, Italy*

Mapped and analyzed EU Common Agricultural Policy expenditure data in Italy over the period 2008-2016. The analyses can be used to understand how the complex regulation of the CAP translates onto the territory and to gain insights on the impact of the policy:

- managed dataset of EU payments to all Italian CAP beneficiaries in the period 2008-2016;
- generated summary statistics and maps for the description of the space-time distribution of funds;
- generated statistical models to explain unit area payments using characteristics of beneficiaries and other variables.

**Data Scientist****Apr 2015 - Feb 2016***CI-Agriculture**Jakarta, Indonesia*

Developed methodologies in precision agriculture. Those methodologies represent the foundations of the start-up CI-Agriculture whose aim is to increase productivity and income for small-holder farmers in Lampung, Indonesia:

- generated sampling designs for monitoring soil and weather, and for testing agricultural practices;
- used remotely sensed data for the geostatistical mapping of environmental variables;
- designed input optimization models for increasing hybrid maize yield;
- ranked small-holder farmers based on their productive performance.

**Data Analyst/Consultant****Nov 2014 - Mar 2015***t33 Srl**Ancona, Italy*

Contributed to the ex-post evaluation of the Financial Engineering Instruments implemented by the European Commission under its Cohesion Policy during the programming period 2007-2013:

- replicated tables and statistics provided in EU official reports;
- generated summary statistics for benchmarking the policy implementation performance;
- developed an econometric model for explaining the implementation performance.

**Mathematics Teaching Assistant****Sep 2014 - Jan 2015***Università Politecnica delle Marche**Ancona, Italy*

Assisted undergraduates preparing the "General Mathematics" exam: single-/multi-variable calculus, basic linear algebra.

**Blue Book Stagiaire****Mar 2013 - Jul 2013***European Commission**Brussels, Belgium*

Economist at the Biotechnologies unit of DG Research and Innovation:

- developed a database to monitor the current situation and the development of the European Bioeconomy;
- carried out the geographical mapping and analysis of the European network of biotechnology clusters, and provided recommendations for the development of the Bio-based industry;
- coordinated and contributed to the report: "Bio-based industries, towards a public-private partnership under Horizon 2020?";
- generated a report on the economics of Green Public Procurement for the BIO2013 conference in Chicago.

**Technical Analyst/R&D Advisor****Mar 2012 - Feb 2013***PT Mediatrac Sistem Komunikasi**Jakarta, Indonesia*

Contributed to the development of a predictive analytics department for business intelligence. Provided a set of return-on-investment indicators useful to justify alternative communication investments strategies:

- quantified the effectiveness of marketing channels for six leading cigarettes brands through econometric modeling and provided recommendations to optimize budget allocation;
- identified sources of customer churn for a pay-tv and scored Indonesian provinces based on the churn risk of their population using big data and machine-learning algorithms;
- clustered districts of Jakarta based on geo-demographics of their inhabitants for a telecom company;
- profiled potential customers based on their on-line conversations using Brand Association mapping;
- autonomously managed projects and personally presented results;
- led a team of two people;
- conducted internal training on econometric theory, data-mining and software for data analysis;
- promoted full-time employee after 6-month internship.

**Istituto Italiano di Cultura****Jan 2013 - Feb 2013***Teacher of Italian language**Jakarta, Indonesia*

Conducted the 4-hour Saturday morning class of Italian language for foreigners, level A1 - A2.

## Trainee

UBI Banca

Sep 2011 – Jan 2012

Hong Kong SAR, China

Assistant manager at the representative offices of the Italian bank in Asia-Pacific:

- delivered daily reports on macroeconomic and financial developments in Asia-Pacific region;
- conducted market researches for Italian companies;
- assisted Italian entrepreneurs in business relations in Asia.

## Publications

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Baldoni E., Coderoni S. and Esposti R. (forthcoming). **Immigrant workforce in Italian agriculture: a farm-level analysis**, *Bio-based and Applied Economics*, Firenze University Press.

Baldoni E. and Esposti R. (2018). **Agricultural Productivity in Space. An econometric assessment on Italian farm-level data**, *Working Papers 428*, Università Politecnica delle Marche, Department of Economics and Social Sciences.

Baldoni, E. (2017). **multilaterals: Transitive Index Numbers for Cross-Sections and Panel Data**. R package version 1.0.

Baldoni, E. (2017). **Agricultural Productivity in Space** (Doctoral dissertation). IRIS Università Politecnica delle Marche, <http://hdl.handle.net/11566/245559>.

Baldoni E., Coderoni S. and Esposti R. (2017). **The productivity and environment nexus with farm-level data. The Case of Carbon Footprint in Lombardy FADN farms**, *Bio-based and Applied Economics*, Vol. 6, No 2, p.119-137, Firenze University Press.

Sotte F. and Baldoni E. (2016). **La spesa PAC in Italia (2008-2014)** (English: The CAP expenditure in Italy (2008-2014)), *Agriregionieuropa*, anno 12 n. 47, Dic 2016.

Baldoni E., Coderoni S. and Esposti R. (2016). **Tra produttività e sostenibilità ambientale. L'impronta carbonica nel campione Rica lombardo** (English: The productivity and environment nexus through farm-level data. The Case of Carbon Footprint applied to Lombardy FADN farms), *Agriregionieuropa*, anno 12 n. 46, Set 2016.

EU Commission (2013). **Bio-based industries, towards a public-private partnership under Horizon 2020?**, Report on the European Commission's public on-line consultation, *Publications Office of the European Union*.

## Workshops and Conferences

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**XV EAAE Congress Towards Sustainable Agri-Food Systems: Balancing Between Markets and Society, 28th August - 1st September 2017, Parma, Italy**: presented the contribution *The Productivity-Environment nexus at the Farm Level. The Case of Carbon Footprint of Lombardy FADN Farms* written by Edoardo Baldoni, Silvia Coderoni and Roberto Esposti.

**6th AIEAA conference Economics and Politics of Migration: Implications for Agriculture and Food, 15-16 June 2017, Piacenza, Italy**: presented the contribution *Immigrant workforce in Italian Agriculture: a farm-level analysis* written by Edoardo Baldoni, Silvia Coderoni and Roberto Esposti.

**1st meeting of the OECD network on agricultural Total Factor Productivity and the Environment, 23-24 May 2017, Paris, France**: presented the contribution *Estimates of Aggregate Agricultural TFP in Italy 2008-2014*. The contribution is part of my phd research entitled *Agricultural Productivity in Space*.

**XXXVII annual scientific AISRE conference, 20-22 September 2016, Ancona, Italy**: presented the contribution *The productivity and environment nexus through farm-level data. The case of carbon footprint applied to Lombardy FADN farms* written by Edoardo Baldoni, Silvia Coderoni and Roberto Esposti.

**5th AIEAA conference The changing role of regulation in the bio-based economy, 16-17 June 2016, Piacenza, Italy**: participated with the contribution entitled *Carbon-adjusted agricultural productivity measures. An application to micro data* written by Edoardo Baldoni, Silvia Coderoni and Roberto Esposti.

**Measuring Environmentally Adjusted Agricultural Total Factor Productivity (EATFP) and its determinants, OECD Expert Workshop, 14-15 December 2015, Paris, France:** participated with the contribution *Environmentally-adjusted total factor productivity: the case of carbon footprint - An application to Italian FADN farms* written by Edoardo Baldoni, Silvia Coderoni and Roberto Esposti.

## Software Development

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**R package *multilaterals*:** The package contains functions to compute transitive (and non-transitive) index numbers for cross-sections and panel data. It implements the EKS and minimum spanning tree methods. Traditional fixed-based and chained indexes, with their factor shares and growth rates, can also be derived using the Paasche, Laspeyres, Fisher and Tornqvist formulas. Author: *Baldoni E. (2017)*.

**Ribuild LCC/LCA:** This is a shiny app designed to carry out stochastic (and deterministic) Life Cycle Assessments and Life Cycle Costing of Energy Efficiency projects in buildings. LCAs encompass the whole life cycle of projects from the production of materials to the recycling of insulation systems. New insulation systems can be simulated from the available materials within the app. LCC takes into account all fixed and variable costs and it is based on the stochastic present value. A specific macro-econometric module is designed for the LCC and included in the app to generate predictions of interest rates, inflation rates and growth in prices under different economic scenario assumptions. New case studies for both the LCC and LCA can be generated from scratch using the GUI. In addition, the app accommodates for the use of external, user-defined input data either in deterministic or stochastic nature. Authors: *Baldoni E., D'Orazio M., Di Giuseppe E., Iannaccone M. (2017)*.

## Training

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**Big Data Engineering course:** 4-month course on fundamentals of Big Data, Data Warehousing, File System e DBMS, Big Data Analytics, Big Data Security and Privacy, Social Network Analysis and related tools (Qlik Sense, Tableau, Microsoft Power BI, MongoDB, Splunk and IBM Watson). Organized by Università Politecnica delle Marche (May 2018 - Oct 2018).

**Input-Output Analysis for Environmental and Resource Economics:** Summer school on the use of input-output and their extensions to account for the environment. Organized by University of Urbino (Sep 2017 - Urbino).

**Hands-on Global Soil Information Facilities Spring School:** Certificate of successful completion of the course on geostatistical applications for soil mapping in R and GIS organized by ISRIC - World Soil Information (May 2017 - Wageningen, Netherlands).

**CAP Pro certification:** Certificate of successful completion of the advanced course on the Common Agricultural Policy organized by Group de Bruges (Dec 2016 - Jan 2017).

**ERSA Summer School 2016:** Summer school on theories and applications of spatial analysis in Economics and in Social Sciences (Jul 2016 - Milano).

**BigDat 2016:** Winter school on algorithms, approaches, technologies and case studies on large, unstructured, complex datasets. Hosted by Deusto University (February 2016 - Bilbao, Spain).

**School on Data Analysis and Programming with R:** Training school on visualization, parallel programming and data cleansing with R hosted by Free University of Bolzano (November 2015 - Bolzano, Italy).

**Biplots, Big Data, and Beyond:** Training school on biplots, correspondence analysis and R programming hosted by GESIS (March 2015 - Köln, Germany).

**Machine Learning and Visualization:** Training school on visualizations and algorithms for medium- and large-sized datasets in R and SPSS hosted by GESIS (March 2015 - Köln, Germany).

**Nonlinear Dynamics: Mathematical and Computational Approaches:** On-line open course offered by the Santa Fe Institute (Dec 2014).

**Introduction to Survey Design:** summer-school in survey methodology hosted by GESIS (Aug 2014 - Köln, Germany).

**Geostat 2014:** summer-school in geo-statistics, visualizations and R programming (Jun 2014 - Bergen, Norway).

**Introduction to Dynamical Systems and Chaos:** 8 weeks on-line open course on dynamical systems and chaos with assignments and final tests offered by Santa Fe Institute (Mar 2014).

**The EU in the new complex geography of economic systems:** training-school on complex networks and partial differential equations organized by COST, Action IS1104 (Feb 2014 - Madrid, Spain).

**Introduction to Complexity:** 14 weeks on-line open course on complexity theory with assignments and final tests offered by Santa Fe Institute (Dec 2013).

**Public speaking and debating:** 3-month trainings on *Storytelling* and logical argument with final debating competition (Oct 2012 - Jakarta, Indonesia).

**Problem solving and business presentations:** seminars on business consulting by BCG manager: business problem definition, hypotheses testing and results presentation (Sep 2012 - Jakarta, Indonesia).

**Advanced Business English:** 1.5-month summer-school of advanced business English at University of the West of Scotland (Aug 2008 - Paisley, Scotland).

## Languages

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**Italian:** native

**German:** A2/B1

**English:** C2

**Mandarin:** A1

## Computer skills

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**OS:** Windows; basics of Linux.

**Languages:** advanced R, Python, and basics of SQL; intermediate LaTeX.

**Software:** advanced Microsoft Excel, PowerPoint, R, Gretl, Google Earth and QGIS; good knowledge of linear programming in R and GAMS; basics of SPSS, MATLAB, STATA, JMulti, Maxima.

## Interests

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**Debating:** promoted and coordinated the debating sub-committee for stagiaires at the European institutions; won the "MSK-Isopost debate competition".

**Water polo:** played for around 17 years in Italy and abroad. Trained with teams from Brussels, Jakarta, Hong Kong, and Prague during my stays abroad.

**Camping:** passion for traveling and for nature.