Matteo Burato

m.burato@imperial.ac.uk

Education

The Wharton School January 2024 - December 2024
Visiting Ph.D. at the ESG Initiative, Host: Witold Henisz.

Imperial College London September 2021 - Present
Ph.D. in Strategy and Sustainability, Advisors: Maurizio Zollo, Robert Kosowski (Finance).

September 2020 - June 2021
Master of Research, Final Grade: Distinction.

Bocconi University September 2018 - September 2020
Master of Science in Economics and Social Sciences, Final Grade: 110 cum laude/110.
Thesis title: A model of sustainability initiatives generation and allocation in a profit-maximizing firm environment.
Supervisors: Benoît Decerf, Maurizio Zollo

University of Louvain & University of Namur September 2018 - September 2020
Master of Research in Economics.
As part of a joint degree program between Bocconi University, the Catholic University of Louvain, and the
University of Namur, I spent the second year of my master's in Belgium.

Bocconi University September 2015 - September 2018
Bachelor of Science in Economics and Finance, Final grade: 110/110.
Thesis title: Enquiry into the meaning of the unexplained variability of Style Analysis: a machine learning approach.
Supervisor: Riccardo Zecchina

Victoria University of Wellington July 2017 - November 2017
Enrolled for a semester as part of an exchange program with Bocconi University, GPA: A.

Research Experience

Ph.D. Research at Imperial College London - Imperial Business School September 2020 - present
My research studies the evolution of corporate practices related to the integration of environmental and social impact
in business strategies. The overarching question I tackle is what are the evolutionary antecedents and firm-value
consequences of sustainability strategies. More specifically, I am working on the following dissertation chapters:

1. The development of a formal microfounded model of sustainability behaviour in firms, where sustainability
   behaviour can be recognized as a specific strategic choice compatible with the firm's value maximization and
   survival. The objective is to identify under which contingencies sustainability initiatives are strategically
   paramount.

2. The uncovering of firms' emergent sustainability strategies, described as repeated patterns in sustainability
   behaviour, and the link of their complexity to organizational performances and fitness. I leverage a unique
   dataset of over 900 thousand sustainability initiatives retrieved through NLP methods from 45 thousand
   sustainability reports by roughly 10 thousand companies across 20 years. I adopt a Bayesian framework
   derived from latent variables models for the generation of sustainability initiatives in order to identify the
   organizational and contextual factors that influence the emergence of sustainability strategies.

3. The analysis of the financial impact of sustainability strategies on short-term and long-term shareholder value.
   In particular, I investigate market reactions around the disclosure of sustainability news through event studies.
   I test the consequences on long-term value through portfolio signalling designs.

Research Fellow at the ESG Initiative, The Wharton School January 2024 - present
In January 2024, I visited the Management department at the Wharton School for a year. There, I joined the ESG
Initiative as a research fellow and I am now continuing my affiliation remotely. As part of this collaboration, I am
working on two main streams of research. The first involves gathering novel insights from the connection of new
datasets spanning from news collection, negative externalities, risks, and corporate actions data. In this area, I am
leading a project focusing on estimating latent stakeholder capital accumulation through ESG investments by public
corporations, and the consequent effect on both financial and non-financial performances. The second leverages
cooperative game theory to build a formal model of stakeholder interactions, linking value capture and stakeholder
theories.

Research Affiliate at the Leonardo Centre, Imperial Business School   November 2020 - present

In parallel with my Ph.D. research, I am part of the core team of the Leonardo Centre on Business for Society. My role in the Centre includes participation in the collective effort to develop and implement quantitative methods to collect and analyze sustainability initiatives, classified by behavioural aspects, SDGs, and stakeholders. To this end, we use web crawlers and several machine-learning algorithms, including tokenizers and classifiers. The resulting dataset is actively used in some of my projects. I also contribute to the Centre's field experiment work by providing quantitative insights at the company, sector, and country levels of analysis.

Visiting Researcher at the Leonardo Centre, Imperial Business School   November 2019 - November 2020

As a Master's student, I was involved in the research effort of documenting and explaining the evolution of corporate sustainability behaviour. In this role, I contributed to the quantitative analysis of corporate sustainability efforts and performance, including applications of *ESG* ratings, *GHG* emissions, and accounting data. Using these datasets, I developed my Master's thesis as a pure microeconomic description of firm-level value maximization in a world where sustainability reduces cooperation costs between firms and input providers. I expanded my description in a symmetric duopoly case and characterized the corresponding Nash Equilibria as a function of the "production team's" taste for sustainability.

Visiting Student at ICRIOS - Bocconi University   March 2019 - October 2019

I collaborated with the Centre for Research on Innovation, Organisation and Strategy (ICRIOS) on the Golden Project for Sustainability. My role was to contribute to the development and evaluation of the performance of a machine-learning-based set of algorithms that systematically analyze corporate sustainability reports and extract the initiatives described therein. The resulting dataset and capabilities served as a foundation for my subsequent postgraduate research and work at the Leonardo Centre.

PUBLISHED PAPERS

- **Burato, M.**, Tang, S., Vastola, V. & Cenci, S. (2023). *Organizational System Thinking as a Cognitive Framework to Meet Climate Targets.* Proceedings of the National Academy of Sciences 120, 41 available here

  In this paper, we focus on the identification of system-thinking traits in organizations. In particular, we theorize that an emergent firm-level property, organizational system thinking (OST), is a significant antecedent in the effectiveness of emission reduction practices to fight climate change. We find that the emission pathways of companies that embrace OST are significantly more likely to align with global emission reduction targets.

- Cenci, S., **Burato, M.**, Rei, M., & Zollo, M. (2023). *The alignment of companies' sustainability behavior and emissions with global climate targets.* Nature Communications 14, 7831 available here

  In this paper, we present the results of an extensive machine learning-based analysis of non-financial disclosure data to assess sustainability actions by companies and their effect on climate pathways.

- Cenci, S., **Burato, M.**, Rei, M., & Zollo, M. (2025). *Assessing the effectiveness of interdependent corporate sustainability choices.* npj Clim. Action 4, 25. available here

  In this paper, we adopt an integrated (environmental and financial) fitness landscape perspective to look at corporate sustainability choices. By using machine learning techniques (random forests for landscape estimation and genetic algorithms for problemistic search) we empirically document a strong degree of interrelation between environmental and financial domains, and that strategic behavior in the former has consequences for the latter.

COURSES

Ph.D.-level courses in Louvain

- Advanced Microeconomics I & II
- Advanced Macroeconomics I & II
- Game theory
- Dynamic Programming
- History of Economics
- Public Economics
- Advanced Econometrics

Ph.D.-level courses at Imperial

- Advanced Microeconometrics
- Microeconomics
- Strategic Management
- Optimization
- Organizational Behavior
- Machine Learning for Economics
- Quantitative Methods for Management

SCHOLARSHIPS AND AWARDS

- **President's Scholarship**. My Ph.D. is funded by the President's Scholarship, granted after selection to outstanding students during Mres.

Supervision work

MBA Theses

- Carlos Cadò, at Imperial College London on a thesis regarding superior merger and acquisition performance of firms with high previous ESG performance.

Master's Theses

- Noah Maurer, at Rotterdam School of Management (now PhD student at Imperial College London) on a thesis regarding organizational systems thinking's microfoundation in sustainability consulting companies.
- Edson Charikinya, at USB Stellenbosch on a thesis regarding sustainability activities in the mining sector.

High School Projects

- I collaborated with the Lumiere Foundation (including pro bono work) to help students from disadvantaged backgrounds complete a research project that could spearhead them to higher education.

Languages & Certifications

- Italian: native speaker
- English: fluent (Ielts 7.5, C1, January 2019)
- French: basic (B1 course in UCLouvain, 16/20)
- German: basic (Bocconi University B1 exam 29/30)

Extracurricular Activities

- Attended "Particles Acceleration" internship, at the National Institute of Nuclear Physics (Legnaro Laboratories, June 2014).
- Attended "human rights culture and universal citizenship" groupthink project (3 years, 2012-2014), directed by Maffei's history and philosophy department and paired with a Liberian high school class.