

Sai BRAVO MELGAREJO

Born 06/04/1995
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PROFESSIONAL EXPERIENCE

POSTDOCTORAL RESEARCHER - *ÉCOLE NATIONALE DE L'AVIATION CIVILE* 2021-

- Applied microeconomic analysis (theoretical and empirical) of antitrust, regulatory, strategic, and public policy questions related to the deployment of clean aviation technologies (sustainable aviation fuels, and hydrogen) and multi-modal urban mobility.
- Preparation of scientific articles and technical reports.
- Part of the organization committee of two international conferences (ITEA and SOAR Symposia).

DOCTORAL FELLOW - *MINES PARISTECH* 2018-2021

- Applied microeconomic analysis (theoretical and empirical) of antitrust, regulatory, strategic, and public policy questions related to the deployment of energy transition technologies (sustainable fuels, zero-emission vehicles, storage technologies, and solar panels).
- Preparation of scientific articles and technical reports.
- Part of the scientific committee of the IAEE Paris International Conference.

BUSINESS ANALYST - *THALES* 2018

- Technico-economic analysis of satellite constellations.

RESEARCH ASSISTANT - *INRAE (TOULOUSE SCHOOL OF ECONOMICS)* 2017 – 2018

- Data Collection.

RESEARCH ASSISTANT - *LEREPS* 2017

- Literature Review.
- Development of econometric models using R and Stata.

Education

ITEA ANNUAL SCHOOL ON TRANSPORTATION ECONOMICS 2022

ÉCOLE NATIONALE DE L'AVIATION CIVILE

Ph.D IN ECONOMICS 2018-2021 (3 years)

TREE, UMR 6031, UNIVERSITÉ DE PAU ET PAYS DE L'ADOUR

Dissertation: "The role of hydrogen in the energy transition"

Defense Committee: F. Candau (Examiner-UPPA), A. Creti (Reviewer-Université Paris Dauphine), C. Haritchabalet (Supervisor-UPPA and Toulouse School of Economics), A. Pommeret (Examiner-Université de Savoie Mont Blanc), and T. Vergé (Reviewer - ENSAE Paris CREST).

Funded by the Chair "The Economics of Gas" (Mines ParisTech) directed by F. Lévêque, A. Creti, and O. Massol and sponsored by EDF-Edison, GRTGaz et TOTAL.

MASTER IN ECONOMICS OF MARKETS AND ORGANIZATIONS (with Honors) 2016-2018
TOULOUSE SCHOOL OF ECONOMICS

BACHELOR IN ECONOMICS (with Honors) 2013-2016
TOULOUSE SCHOOL OF ECONOMICS

Teaching Experience

Industrial Organization, Teacher, ENAC, Graduate	Fall 2022, Fall 2023
Market Game, Teacher, ENAC, Graduate	Fall 2022, Fall 2023
Fundamental Economics, Teacher, ENAC, Graduate (MSc. IATOM)	Fall 2021
Applied Microeconomics, TA, UPPA, Undergraduate	Spring 2021
Industrial Organization, TA, UPPA, Undergraduate	Spring 2020
Microeconomics, TA (48h), UPPA, Undergraduate	Fall 2019, Fall 2020
Macroeconomics, TA, Toulouse School of Economics, Undergraduate	Fall 2017

Publications

Adopting and diffusing hydrogen technology in air transport: An evolutionary game theory approach. with S. Chen, E. Malavolti, and R. Mongeau. **Energy Economics**, vol. 125, n. 106864, September 2023.

This paper uses an evolutionary game theory approach to assess the adoption and diffusion of different hydrogen technologies in the air transport system. We complement our theoretical analysis with a simulation using French industry data. Without any government intervention, carbon neutrality at the 2050 Horizon is only feasible with the most disruptive technologies.

Working Papers

Prosumers: Grid vs Small Fuel-Cell. with C. Haritchabalet. **R&R(major)-Energy Economics**

We construct a stylized model of the energy market and use data from France to compare two energy regulations from the perspective of a representative consumer and the Distributed System Operator. Our findings indicate that, under the price-based regulation in France, only a smaller feed-in tariff would provide incentives to invest in decentralized hydrogen-based storage. A quantity-based regulation would be a more cost-effective option to promote.

Certification of low-carbon hydrogen in the transport market with C. Haritchabalet. TREE Working Paper. 2022.

Best Student Paper in Energy Economics, French Association for Energy Economics 2020

A label for green gases could allow retailers to exploit consumers' willingness to pay for environmental quality and ease their diffusion. The cost gap between green gases and their conventional counterparts raises concerns regarding the effectiveness of a label in markets characterized by complex value chains. We build a stylized model of an H2-based road transport market to assess whether the market's organization could be as efficient as a label policy in a setup where consumers

have no direct information about production. With the label, producers prefer to exploit the double marginalization to the detriment of social welfare. The informational problem creates a trade-off between the intensity of competition (driven by perceived qualities) and cost efficiency.

Greening the Public Fleet: Evidence from California's Clean Vehicle Rebate Program

Since 2010, California's Clean Vehicle Rebate Project has offered rebates for zero-emissions vehicles (ZEVs) to private consumers and state agencies. This study examines whether these rebates effectively encourage ZEV purchases by government agencies using a Poisson pseudo-maximum likelihood regression with two-way fixed effects. Surprisingly, more generous rebates are associated with fewer ZEV purchases by government entities. However, agencies in non-disadvantaged communities, that do not receive increased rebates, are more likely to buy ZEVs. This suggests that California is in the early stages of transitioning to a greener public fleet. A new rebate allocation based on agency finances and emissions levels could promote this transition.

Do airlines adopt sustainable aviation fuels under modal competition? with E. Malavolti.

Schiphol, Heathrow, and airports from the Swedavia AB group are considering implementing a system of differentiated airport charges based on environmental performance. However, the use of discriminatory charges is forbidden under Article 15 of the Chicago Convention. Our paper studies the impact of authorizing differentiated charges in the context of intermodal competition. We find that with uniform tariffs, airlines have no incentive to use SAFs. Instead, if a regulator authorizes discriminatory aeronautical charges, airlines may switch to a SAF and kerosene blend.

Work in Progress

The determinants of urban multi-modal demand with I.Hoummirat and I.Laplace

Analysis of integrated assessment models. with A. Gondran, E. Malavolti and A. Ronsan.

Conferences and Seminars

2023 French Association of Environmental and Resource Economists Conference (Montpellier), Annual Conference of the European Association for Research in Industrial Economics (Rome), Mobility Solutions Show (Toulouse), Symposium on Aviation Research (Toulouse), Past and Present of Hydrogen in Air Transportation Seminar (Montpellier), Association for the Development of Research in Economics and Statistics Conference (Paris).

2022 Annual Conference of the European Association for Research in Industrial Economics (Vienna), Air Transport Research Society World Conference (Antwerp), Annual European Association of Environmental and Resource Economists Conference (Rimini), Annual School and Conference of the International Transportation Economics Association (Toulouse), 13th Toulouse Conference on The Economics of Energy and Climate (Toulouse), 38èmes Journées de Microéconomie Appliquée (Rennes).

2021 Annual Conference of the European Association for Research in Industrial Economics (Bergen), International Conference on Mobility Challenges (Paris), 37èmes Journées de Microéconomie Appliquée (Annecy), Association for the Development of Research in Economics and Statistics Conference (Strasbourg), TREE Seminar (Pau).

2020 French Association of Energy Economists Workshop (Paris), CATT Seminar (Pau).

Miscellaneous

Referee for Transportation Research Part A: Policy and Practice	2023
Voluntary Economist - BSI Economics	2018-2022
Board Member and Writer - TSEconomist	2016-2018

Policy Work

Cahier d'acteurs n°36 UMR TREE. (2022). Stratégie française sur l'énergie et le climat. with X. Arnauld-de-Sartre, P. Lacassy, F. Lachet-Touya, J. Le-Cacheux et J. Pélé.

Skills

IT Advanced: R, Stata, Wolfram Mathematica, \LaTeX , Office
 Intermediate: Python, Matlab

Languages Fluent in English, French and Spanish.

References

Carole Haritchabalet
Professor of Economics
University of Pau and Pays de l'Adour and Toulouse School of Economics
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Estelle Malavolti
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