

Arthur Willemaers

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Research Interests

- International Economics, Environmental Economics, Industrial Organization, and Applied Econometrics
- Focus: EU ETS, CBAM, carbon leakage, policy design, and strategic investment under cap-and-trade

Education

University of Pau and Pays de l'Adour (UPPA) & HEC Liège, PhD in Economics.

PhD defense expected: **November 2026**.

Thesis: *Challenges, modelling, and economic evaluation of the decarbonisation of the European industrial sector*.

University of Pau and Pays de l'Adour (UPPA), MSc in Europe, International Relations, Environment & Development (*with Honors*).

University of Pau and Pays de l'Adour (UPPA), BSc in Economics & Management (*with High Distinction*).

Additional training: Evening Courses in Linear Algebra, University of Oxford (2024–2025);

Summer School in Economics, Barcelona School of Economics (2024).

Working Papers & In Preparation

Cutting Free Allocation Cuts Emissions: Evidence from Phase IV of the EU ETS

Abstract: Using installation-level data (2015–2023), I construct a time-invariant dose from the 2020–2021 drop in free allocation and estimate a continuous difference-in-differences design. A +10 percentage-point larger loss of free allocation leads to roughly 3.5% lower verified emissions after 2021, with clear post-2021 dose–response patterns and stable pre-trends. Results are robust to alternative time controls, functional forms, an alternative estimator, and macro controls. At the firm level, the emissions response replicates, while standard Orbis accounting outcomes show no detectable short-run effects within the ETS-linked perimeter.

Cap, Compete, Invest: The Strategic Trade-offs of Carbon Market Policies

with Joseph Tharakan & Patrice Cassagnard.

Abstract: In a Cournot framework, we study carbon pricing, free allocation, and the Carbon Border Adjustment Mechanism (CBAM). Carbon pricing has a non-monotonic effect on green investment; free allocation cushions competitiveness losses but may increase global emissions; and CBAM curbs leakage and boosts green investment, at the cost of output and welfare.

Carbon Pricing, Capacity, and Leakage: A Maggi-Type Model of the EU ETS

Abstract: This paper adapts Maggi's capacity–price framework to an EU ETS duopoly where firms choose green investment and emissions-backed capacity. The model endogenizes the mode of competition and compares carbon pricing, free allocation, CBAM, and green subsidies, identifying which instruments are robust or fragile to sectoral flexibility and carbon leakage.

Two Decades of the EU ETS: A Critical Survey of the Literature

Synopsis: A critical synthesis of theoretical and empirical findings on allocation design, leakage, competitiveness, and innovation under the EU ETS, mapping consensus results, open debates, and research frontiers.

Seminars & Conferences

- **Seminars:** HEC Liège (2024, “Cap, Compete, Invest”), University of Pau (2024, “Cap, Compete, Invest”), University of Pau (2025, JMP), HEC Liège (2026, JMP)
- **Conferences:** EAERE (Bergen, 2025, “Cap, Compete, Invest”), AERE (Albuquerque, 2025, “Cap, Compete, Invest”), ETSG (Milan, 2025, “Cap, Compete, Invest”), AFSE (ENS Paris, 2025, “Cap, Compete, Invest”)
- **Discussant:** HYRCE (HEC Liège, 2025), EAERE (Bergen, 2025)

Teaching Experience (selected)

Summary: ~ 400+ hours at undergraduate and graduate levels; lectures and tutorials in French and English.

- **International Macroeconomics** (Lecture, Master's level), UPPA, 31.5 hours
- **Environmental Economics & Policy (ASSET)** (Lecture, Master's level), UPPA, 10 hours
- **Macroeconomics** (Tutorials, Bachelor's level), UPPA, 45 hours
- **Mathematics for Microeconomics** (Tutorials, Bachelor's level), UPPA, 36 hours
- **Entrepreneurship** (Lecture, Bachelor's level), UPPA, 50 hours
- **Entrepreneurship** (Lecture, Bachelor's level), ISTEf (Toulouse), 40 hours
- **International Economics** (Tutorials, Bachelor's level), UPPA, 150 hours
- **Microeconomics** (Tutorials, Bachelor's level), UPPA, 60 hours
- **Student mentoring** (Bachelor's level), UPPA, 15 hours

Teaching Experience (selected)

Summary: ~400+ hours of teaching at Bachelor's and Master's levels; lectures and tutorials delivered in French and English.

- **International Macroeconomics** (Lecture, Master's level), UPPA, **31.5 hours**
- **Environmental Economics & Policy** (Lecture, Master's level), UPPA, **10 hours**
- **Entrepreneurship** (Lecture, Bachelor's level), UPPA, **55 hours**
- **Entrepreneurship** (Lecture, Bachelor's level), ISTEf (Toulouse), **40 hours**
- **Macroeconomics** (Tutorials, Bachelor's level), UPPA, **45 hours**
- **Mathematics for Microeconomics** (Tutorials, Bachelor's level), UPPA, **36 hours**
- **International Economics** (Tutorials, Bachelor's level), UPPA (taught in French and English), **150 hours**
- **Microeconomics** (Tutorials, Bachelor's level), UPPA (taught in French and English), **60 hours**
- **Student mentoring** (Bachelor's level), UPPA, **15 hours**

Academic Service

- Internship supervisor, Master 1 & Bachelor 3 research placements (UPPA, 2026)
- Scientific committee member, HYRCE Conference (2nd edition), HEC Liège (2025–present)
- Scientific committee member, TREE Young Researchers' Conference (2024–2025)
- Member, Graduate School Pedagogical Committee, UPPA (2024–present)
- Member, Graduate School SSH Bureau (PhD admissions), UPPA (2023–present)
- Member, SDG Commission (IPREM/TREE) within the Labos 1point5 sustainability initiative (2023–present)
- PhD student representative, Graduate School Council and UMR TREE Laboratory Council (UPPA, 2022–present)

Other Academic Outputs

- **Master's Thesis:** *Le droit antidumping* (DUMAS, 2022)
- **PhD Poster:** *Le marché carbone* (HAL, 2024)

Outreach & Entrepreneurship

- President & Founder, Lock and Chill — Startup providing automated luggage lockers (since 2025)
- National Student-Entrepreneur Status (SNEE), UPPA (2025)
- Economics outreach workshops, *Semaine de l'Économie*, HEC Liège (2025)
- *My Three Minutes PhD*, regional finalist (UPPA, 2024)
- *Cordée de la Réussite*, UPPA (2025)
- Member, Regional Youth Council, Nouvelle-Aquitaine (since 2024)

Methods & Skills

- **Econometrics:** Panel data, Difference-in-Differences (incl. continuous treatment).
- **Theory:** Oligopoly (Cournot, Bertrand, Maggi), strategic interaction, welfare maximization
- **Software:** Stata, Mathematica, R \LaTeX
- **Languages:** French (native); English (fluent); Spanish (intermediate)

References

- **Joseph Tharakan** — University of Liège j.tharakan@uliege.be
- **Carole Haritchabalet** — University of Pau and Adour Countries carole.haritchabalet@univ-pau.fr
- **Patrice Cassagnard** — University of Pau and Adour Countries patrice.cassagnard@univ-pau.fr
- **Jérôme Schoenmaeckers** — HEC Liège jerome.schoenmaeckers@uliege.be