

# Damien MAYAUX

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I am looking for a post-doctoral contract from September 2024 to August 2025, in order to apply for assistant professor positions on the French market in 2025.

## RESEARCH

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**Topics :** behavioural economics, industrial organization, food policy

My research interests lie at the intersection of empirical industrial organization and behavioural economics, with a specific focus on innovative policies regulating retail point of sales and applications to food consumption. I also explore experimental approaches to analyze choice architectures, high-dimensional models of preferences based on machine learning and decision-theoretical models of attention in discrete choice settings.

Thesis “**Digital tools for food choices: information and regulation**“ under the supervision of Fabrice Etilé, to be defended in November 2024.

Thesis chapters :

**Promoting Green Consumption in Retail Markets : Behavioural Interventions Under Strategic Pricing** [single authored] Presented at REECAP 2023, FAERE 2023, EEA 2023, AFSE 2023, JMA 2022

Behavioural interventions such as nudges or awareness campaigns are increasingly used to promote sustainable choices in retail contexts. They usually drive consumers’ attention to environmental qualities in order to raise their willingness to pay. I show, using a structural model of supply and demand, that this approach might be ineffective in supporting sustainable consumption when firms set their prices strategically. Interventions making consumers more sensitive to prices perform better because they exert a downward pressure on prices. My empirical analysis relies on consumer panel data and focuses on organic egg purchases in French retailers. I also show theoretically that my findings generalize to a wide class of intervention design problems and derive some sufficient statistics for the price variation. Overall, this work shows that the design and evaluation of pro-environmental behavioural interventions should pay more attention to how they shape attitudes towards prices.

### **Regulating Visual Marketing Cues**

[single authored, poster and extended abstract available upon request]

Webpages are full of marketing cues, these salient visual elements that steer consumers toward specific choices. The literature has written extensively about steering algorithms, but remarkably little about the cues themselves. In this paper, I show that we can often improve consumer welfare by regulating what cues look like, even when steering algorithm and consumer preferences are unknown. The reason is that some visuals are intrinsically safer than others: they are not blindly followed, hence help when attributed to the preferred choices but do not harm otherwise. In a lab experiment, I compare consumer performance in a choice task, varying the cue and the algorithm. I find that brown circles are safer than green circles and explain this using a model of rational attention. I also illustrate how the cue shapes

supply-side incentives regarding the algorithm. Finally, I discuss how to use this approach in practice to regulate online choice environments.

### **Utility and Contrast in Evidence Accumulation Models**

[single authored, extended abstract available upon request]

Common evidence accumulation models, such as the Decision Diffusion Model or the Linear Ballistic Accumulator, are known to fit equally well the joint distributions of choice and response times (C&RT) observed experimentally. Economists use these models to better measure preferences over alternatives when decision-makers make mistakes. However, common models disagree on the effect of increasing the stimulus associated to one alternative, a proxy for its utility. In this paper, I clarify theoretically the differences between evidence accumulation models regarding the measure of alternative-specific utility. First, I show formally that these models disagree on the contrast between alternatives - the extent to which increasing the utility of one affects negatively the processing of others. Second, I relate this notion of contrast with a wide range of concepts and phenomena identified in the literature in economics and psychology. Third, since the level of contrast in a particular setting is an empirical question, I provide a tractable framework to address it. Overall, this paper contributes to bridging the gap between the concepts of mathematical psychology and their use in empirical economic research.

#### Other working papers

### **Quelles transitions professionnelles les demandeurs d'emploi effectuent-ils après une formation ?**

[coauthors Thomas Zuber, Yagan Hazard and Kevin Michael Frick] Presented at EPP 2023

### **Age-Specific Income Inequality and Happiness over the Life Cycle**

[coauthors Claudia Senik and Hippolyte d'Albis]

## **EDUCATION**

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### **Paris School of Economics**

*PhD Candidate in Economics, under the supervision of Fabrice Etilé*

*MSc in Economics*

**Paris, France**

September 2021 – Today

September 2019 – August 2021

### **Ecole Normale Supérieure Paris-Saclay**

*MSc in Mathematics*

*BSc in Mathematics and Computer Science*

**Cachan, France**

Obtained in 2019

Obtained in 2016

- Ranked 3rd at the “agrégation” in Mathematics, a competitive national exam for teacher recruitment

### **RWTH Aachen**

*Erasmus semester in the MSc of Computer Science -*

**Aachen, Germany**

September 2017 - February 2018

## **TEACHING EXPERIENCE**

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### **ENSAI**

*Manage group projects in economics, 1<sup>st</sup> year of Engineering School (5 groups)*

**Rennes, France**

January – Mars 2024

### **Université Paris 1**

**Paris, France**

*Teaching assistant for Jean-Marc Bonnisseau, 3<sup>rd</sup> year of BSc in Applied Maths (2x72 hours) 2021-2023*

- Optimization class, using topology, calculus, linear and bilinear algebra notions

**Lycée Raspail**

*Oral examiner in Mathematics for Franck Nguyen Van Sang, PTSI (2h a week)*

**Paris, France**

2019-2021

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**WORK EXPERIENCE**

**J-PAL Europe**

*Research assistant for Luc Behaghel and Marc Gurgand*

**Paris, France**  
October 2020 - February 2021

- Design an algorithm matching job vacancies to unemployed workers for a field experiment
- Natural language processing applied to job vacancies and skills description tables

**Paris School of Economics**

*Research assistant for Claudia Senik and Hippolyte d'Albis*

**Paris, France**  
January 2020 - November 2021

- Develop a ShinyApp to automate data visualization and regression model testing from survey data
- Construct a within-age-group measure of income inequality and relate it to subjective well-being

**Analysis Group**

*Junior consultant in a consulting firm specialized in competition litigations*

**Paris, France**  
June - August 2020

- Analyze internal sales and email data, develop ShinyApps for visualization
- Review the literature in competition law and economics on platform competition

**Inspection Générale des Affaires sociales**

*Intern, Antoine Magnier / Frédéric Remy's mission on the legal protection of adults*

**Paris, France**  
March - July 2018

- Interview stakeholders, analyze financial management data, design acceptable evaluation methods

**Institut Mathématique de Bordeaux**

*Research intern in Mathematics under the supervision of Rémi Boutonnet*

**Bordeaux, France**  
Avril – Juillet 2017

- Compare recent proofs of Gromov's theorem in geometric group theory

**University of Birmingham**

*Research intern in Computer Science under the supervision of Martin Escardo*

**Birmingham, United Kingdom**  
June – August 2016

- Adapt synthetic topology results from intuitionistic set theory to type theory

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**COMPUTER SKILLS**

Frequent use of **R, Python, HTML**

Past experience in **VBA, C/C++, Bash** scripting, **SLURM, OCaml**, assembly **x86**,

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**LANGUAGES**

**French** – native speaker

**English** - fluent

**German** – intermediate (B2 online-Spracheinstüfungstest, February 2023)

**Chinese** – beginner