Research Statement

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My research as applied economist seeks to understand the processes at the intersection between current climate policies and potential future adaptation from a market perspective. Through exploring the contexts outlined in the next sections, I aim to contribute to the analysis of public policies and ultimately inform new policy creation that guides firms' and consumers' behaviour towards climate transition. Section 1 outlines my main research agenda, in which I study how polluting firms responded to changes in the EU Emissions Trading Scheme through endogenous plant exit and internal resource reallocation. Section 2 discusses two studies on electricity markets and energy efficiency, utilizing two natural experiments in the fields of demand response and efficient housing in Switzerland. Finally, Section 3 outlines an ongoing project examining the effect of repeated climate extreme events like floodings on firm operational outcomes and relocation choices.

1 Carbon Emissions and Industry Dynamics

Cap-and-trade systems around the world promise to decrease emissions in a cost-efficient way by introducing additional costs for polluting firms and rewarding cleaner companies with the extra revenues of selling their unused carbon permits. Motivated by the upcoming expansion of the EU Emission Trading Scheme (ETS) to new sectors, and contributing to the literature on climate regulation and industry dynamics (e.g. Fowlie et al. (2016)), a key part of my research focuses on understanding two channels through which carbon markets effectively reduce emissions: endogenous plant exit and within-firm reallocation.

In my job market paper, **"Carbon Permits, Plant Emissions and Industry Dynamics: To Cut or to Quit?"**, I mostly focus on the compositional effects of the EU ETS. I study how changes in free permit allocation rules affected plants closure decisions, using French administrative data and the EU Transaction Log database. The research leverages a policy shift in 2013 that differently allocated free permits based on newly-introduced product benchmarks, which tightened allowances for dirtier plants. By relying on a difference-in-differences strategy and a survival analysis, I find that emissions following the new rule fell substantially, but that reductions came not only from abatement at surviving plants: about

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one-third was explained by plant exit, while another 30–40% by within-firm reallocation of emissions to less constrained plants.

Building on this evidence, an additional project isolates the second channel of adaptation: within-firm reallocation of workers and output. Whether firms adapt or not by closing inefficient plants, multi-plant firms still have the opportunity of reacting to tighter climate policies by reallocating labor and production across their plants. By leveraging matched employer–employee administrative data linked to plants in the ETS, I aim to answer the following questions: when a plant is heavily affected by allocation cuts, do firms reallocate workers to cleaner plants? And when plants shut down, are their workers absorbed within the firm or displaced from the industry? The research question connects to recent models of multi-plant adjustment under tighter carbon policies (e.g. Bustamante and Zucchi (2022), Stillger (2025)), and recent evidence on reallocation of resources across entities owned by the same business group (e.g. Cestone et al. (2023), Alder et al. (2025)).

2 Electricity Markets and Energy Efficiency

Industrialized and emerging countries are implementing energy and climate policies to promote the energy transition away from fossil fuels, thus requiring the development of increasingly electrified energy systems in ever-more energy efficient buildings. To address the push for electrification and efficiency in transportation and heating, two of my projects use behavioral economic theory through a randomised-controlled trial approach (RCT).

In terms of electricity tariffs, the project **"The Impact of Monetary Incentives on the Adoption of Direct Load Control Electricity Tariffs by Residential Consumers"**[2] focuses on the company and market level implications of a demand response mechanism introduced in the Swiss Canton of Ticino. This research evaluates the effectiveness of two incentives (i.e. a video intervention and an upfront monetary subsidy) in increasing the adoption of an existing direct load control (DLC) tariff among owners of electric vehicles and heat pumps. By conducting both a stated-choice survey and a revealed-choice RCT, I confirm that both interventions slightly but positively influence acceptance rates, although I observe no substantial impact of the resulting DLC tariff increased adoption on system cost reduction and wholesale prices. In line with the work of Yilmaz et al. (2022) and Hortaçsu et al. (2017), this paper underscores the importance of considering a broader range of barriers to adoption of demand-response tariffs on top of economic incentives, especially when aiming at using these findings to perform market-level predictions.

The project sparked my interest in studying the impact of an information policy designed

[2]Joint work with *Davide Cerruti, Massimo Filippini* and *Jonas Salvelsberg.*

to improve housing efficiency in Ticino. In this second study, I exploit data from past consulting interventions, conducted by energy engineers at a sample of households, to compute the personalized savings that each household would obtain if they performed a certain type of refurbishment — net of regional and national subsidies. Using an RCT approach, I identify whether informing households of monetary personalized estimates of energy savings increases their likelihood of performing multiple refurbishment (e.g. solar panels, heat pumps, insulation), compared to only presenting a ranking of suggested types of refurbishment. In line with past findings on framing theory in behavioral economics (e.g. Boogen et al. (2022), Carroll et al. (2022)), I expect that presenting households with monetary estimates could result in a higher probability of undergoing multiple refurbishments.

3 Extreme Climate Events and Firm Adaptation

With the increasing frequency and magnitude of extreme climate events (ECEs), long-term responses of firms to repeated climate events are still understudied. A core area of my research follows the recent emergence of a field that relates extreme climate-related events (ECEs) to firm location choices and long-term industry dynamics (e.g. Balboni et al. (2023), Jia et al. (2025)). Specifically, do repeated disruptions induce firms to undertake long-term adaptive changes (e.g. geographical relocation, across-plants reallocation) so to mitigate future vulnerability?

My ongoing project, **"Multidimensional Climate Risks, Company Location and Industry Dynamics"**[3], examines how firms adapt to repeated floodings and whether temporary disruptions induce lasting changes in survival, production, and location choices. I exploit a quasi-natural experiment: the December 1999 "Lothar" storm, which caused catastrophic flooding across nearly 70% of French municipalities. The main analysis relies on official disaster declarations and administrative firm-level data to track exposure and firm outcomes. As a robustness check, we "clean" the treatment group of firms located in affected municipalities by validating declared emergencies against river discharge and historical flood data from the Global Flood Awareness System (Grimaldi et al. (2022)). Through a propensity-score–matched staggered difference-in-differences design, preliminary results suggest that flooded firms present output losses of up to 5% even six years after the event, in line with existing literature (e.g. Fatica et al. (2024)). Later, we further investigate whether subsequent floods amplify damages, due to cumulative losses, or attenuate them, through adaptation such as capital investments, internal reallocation, or relocation.

[3]Joint work with *Sébastien Houde*

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