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RESEARCH INTERESTS

- **Primary** : Environmental Economics, Development Economics
- **Secondary** : Applied Microeconomics, Health Economics, Migration, Agricultural Economics

CURRENT POSITION

Post-doctoral scholar, Stanford University, Center on Food Security and the Environment 2024
Department of Earth System Science, Doerr School of Sustainability

ACADEMIC APPOINTMENTS

Research Fellow, AgroParisTech - Saclay University and INRAE 2023

EDUCATION

- **Ph.D in Economics**, Paris School of Economics, CIRED and ENPC 2018-2023
 - Title : *Climate change, droughts and water pollution in Sub-Saharan Africa*
 - Advisors : Denis Cogneau (PSE, EHESS, IRD) and Philippe Quirion (CNRS, CIRED)
 - Jury : Eric Strobl (Univ. of Bern), Christelle Dumas (Univ of Fribourg), Liam Wren-Lewis (PSE, INRAE), Raja Chakir (INRAE,PSAE)
- **Master degree in Economics - Public Policy and Development**, Paris School of Economics 2017-2018
- **Master degree in Applied Mathematics, Engineering** , Mines Nancy 2014-2017
 - Third year at **Mines ParisTech Major in Geostatistics**
 - Major in **Applied Probabilities**
 - Reserarch Visiting at the Fondazione Eni Enrico Mattei (with Cristica Cattaneo (CMCC))
 - Joint Bachelor degree in Economics with Lorraine University

REFERENCES

Denis Cogneau

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- [MiningLeaks : Water Pollution and Child Mortality in Africa \(2023\)](#), with Irène Hu (Paris 1, PSE)

Abstract: In the midst of Africa's mining boom, communities downstream from industrial mines face increased exposure to toxic waste. Yet, the effects of induced water pollution on the local population's health have not been quantified at the scale of Africa, due to data limitation and nonrandom exposure. This paper investigates this question using a quasi-experimental design and a novel dataset detailing the location and opening dates of all known industrial mines, obtained through intensive manual data collection. We combine geo-coded information on 2,016 industrial mines with health outcomes from the Demographic Health Survey (DHS) from 1986 to 2018 in 26 African countries. Through a staggered difference-in-difference strategy, we compare villages downstream and upstream of mines before and after opening and find a 25% increase in 24-month mortality rates downstream. The effect is mainly observed among children no longer breastfed, confirming that water pollution drives the results. Our analysis rules out other mechanisms such as fertility changes, access to facilities, in-migration, conflicts and income effects. The impact intensifies during mine operation and high international mineral prices, especially in densely mined regions, and fades out with distance. From a public policy perspective, this paper underscores the significant local costs of mine openings on the environment and the health of the surrounding populations.

WORKING PAPERS

- [Droughts, Migration and Population : Evidence from Kenya \(2023\)](#)

Abstract: Since 2000, Kenya has experienced an increase in the frequency of droughts, significantly affecting agriculture and driving labor force migration. This paper investigates strategic migration patterns among farmers and pastoralists in response to repetitive droughts. I use fine-grained data that enables the capture of short-distance migration and heterogeneity, combining satellite-based data on daily rainfalls (CHIRPS) with exhaustive censuses from 1989, 1999, and 2009. I use a two-way fixed-effect model to exploit the spatial variation in drought frequency across 2,518 sub-locations, comparing their demographic growth according to the number of dry-rainy seasons over each decade. First, I show that increased drought frequency triggers out-migration, as one additional drought decreases demographic growth by 1.7 p.p, equivalent to a 1% population decline. This result is consistent within the [15; 65] age group, excluding other demographic effects and confirming migration as the driving factor. The main contribution of this paper is the identification of different migration strategies across livelihoods. Rural areas dominated by pastoral activities experience significant out-migration, leading to a rural-rural shift from pastoral to agriculture-oriented regions. Herders' migration displays little heterogeneity, suggesting the migration of entire households and consistent with migration as a last resort. Agricultural rural areas are less vulnerable to drought and display significant heterogeneity. The results show the migration of the most educated individuals in the working age, while uneducated individuals are trapped in affected areas. This paper highlights the importance of using detailed data to understand diverse migration strategies, thereby facilitating the implementation of effective policies.

Special Mention at the FAERE 2021 / Best Poster Award ClimRisk2020 (SISC)

- [Impacts of repetitive droughts and the key role of experience : evidence from Nigeria \(2023\)](#)

Abstract: Western African Sahel faced severe droughts in the 1980s, affecting agricultural production and food security. In recent decades, farmers have faced uncertainty in the timing and amount of rainy seasons and are confronted with erratic rainfall with high interannual variations. Can the experience of past dry events reduce the vulnerability of households to short-term rainfall shocks? In this paper, I match three waves of panel household surveys focusing on agriculture in Nigeria (GHS, from 2010-2016) and high temporal resolution precipitation data set from the Climate Hazard Center (CHIRPS). I show evidence of the extreme importance of the long-dry period of the 1980s and identify more recent droughts in 2013/2015, which are in line with a change in the characteristics of the rainfall trends. Through a two-way-fixed effect strategy, I exploit the spatial variation of the exposition to the 2015 drought. First, I look at the short-term effects of being hit by a drought on agricultural production and food security indicators. I show that being hit by a drought decreases yields by 14%, and decreases the food diversity of households by around 1%. Second, I look at the impacts' heterogeneity according to the plot's experience, using the timing of the year of acquisition of the plot. I compare short-term droughts' effects on households that acquired their first plot before the 1980s dry period to those that acquired it after. Results suggest that acquiring the land before 1985 attenuates the harmful effects of a climate shock, as these particular households have only a 3% reduction in their yields due to the 2015 drought. This is especially the case when households were severely hit in the 1980s. This result suggests that having a long-lasting experience under extreme dry events on cultivated land reduces vulnerability to rainfall variability.

WORK IN PROGRESS

- Gender inequalities in climate change adaptation in Western Africa, with Julia Vaillant (World Bank-GIL) and Clara Delavallade (World Bank-GIL)
- Irrigation adoption and efficiency facing droughts: agricultural productivity in South Africa, with Raja Chakir (INRAE,PSAE) and Julien Wolfersberger (AgroParistech, PSAE)
- Locusts: Estimating the Impact of a Plague, with Abel Schumann (OECD) and Cem Ozguzel (OECD)

PUBLICATION *in other fields*

- [Analysis of Psychiatric Disorders by Age Among Children Following a Mass Terrorist Attack in Nice, France, on Bastille Day, 2016](#), with Florence Askenazy, Nicolas Bodeau, Ophélie Nachon, Michèle Battista, Arnaud Fernandez, Morgane Gindt , *JAMA Network Open, Volume Vol 6, No. 2, February 2023*
Other field

PRE-DOCTORAL PUBLICATION

- [Climate Change and Migrations: Remittances as a Buffer?](#), with Olivier Damette, *Mondes en Développement*, n°179, pp.85-102, March 2017

TEACHING

- **ATER Position**, University Paris 1
Undergraduate tutorials in Macroeconomics and Mathematics 2021-2022
- **Teaching Assistant, University Paris 1**
Undergraduate tutorials in Mathematics 2018-2021

REFeree SERVICE

World Development, Environment and Development Economics, Environmental and Resource Economics, AFSE Special Issue

SEMINAR ORGANIZATION

- **Casual Friday Development Seminar**, Paris School of Economics 2019-2022

AWARDS

- Special Mention - Young Economist Best Paper Award
from the French Association of Environmental and Resource Economists FAERE 2021
- Best poster award at the SISC Eighth Annual Conference
from the Italian Society for Climate Sciences 2020

GRANTS

- Ph.D Scholarship - Financed by Ecole des Ponts ParisTech (ENPC) 2018-2023
- Financing Grant from CEPREMAP - **Amount : 5k** 2021
- Winner of the EHESS and RBC Capital Market Fund Grant - theme : water - **Amount : 5k** 2021
- Financing grant from EUR PGSE - **Amount : 2,5k** 2021

CONFERENCE AND SEMINAR PRESENTATIONS

2023: LSE Environment week, EAERE - 28th Annual Conference of the European Association of Environmental and Resource Economists, EEA-ENSEM - European Economic Association, FAERE - 10th Annual Conference of the French Association of Environmental Economists, ICDE - International Conference in Development Economics, AFSE - The 71th Congress of the French Economic Association, Workshop Resources, conflict, and the environment - ETH Zurich

2022: EAERE - 27th Annual Conference of the European Association of Environmental and Resource Economists, EEA-ENSEM - European Economic Association, FAERE - 9th Annual Conference of the French Association of Environmental Economists, 15th Migration and Development Conference - NOVAFRICA, JMA - 38th days of applied micro-economics, CSAE - Conference Economic Development in Africa, JDD - Journées Doctorales de Développement, CFDS - Casual Friday Development Seminar of PSE, PSAE - External Seminar

2021: EAERE - 26th Annual Conference of the European Association of Environmental and Resource Economists, EEA-ENSEM - European Economic Association, FAERE - 8th Annual Conference of the French Association of Environmental Economists, AFSE - The 69th Congress of the French Economic Association, NCDE - 19th Nordic Conference in Development Economics, ICDE - International Conference in Development Economics, JMA - 37th days of applied micro-economics, CSAE - Conference Economic Development in Africa, CFDS - Casual Friday Development Seminar of PSE, Internal seminar of Economic History PSE

2020: ClimRisk2020 - SISC Eighth Annual Conference (Italian Society of Climate Sciences), CIRED-PhD Student seminar (online/Paris), CFDS - Casual Friday Development Seminar of PSE

POLICY EXPERIENCE

- **World Bank**, Consultant (STC) at the Africa Gender Innovation Lab (AFEGI -GIL) 2024
Meta-analysis on gender inequalities facing climate change in western Africa
- **OECD**, Internship at the Statistical Directorate (STD) & Centre for Entrepreneurship (CFE) 2016-2017
Statistical analyses to quantify the impact of amenities on well-being in Paris, using scraped Google Maps data.

LANGUAGES AND SKILLS

Languages: French (native), English (fluent), Spanish (intermediate), German (beginner)

Software: R, Python, STATA, SAS, AMPL, MATLAB, LaTeX, Office