

# Mélanie Gittard

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## Job Market Placement Officer

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## RESEARCH INTERESTS

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

## CURRENT POSITION

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**Post-doctoral researcher**, AgroParisTech and INRAE

*since 2023*

*Affiliated to Paris Saclay Applied Economics (PSAE) and the CLAND Program*

## EDUCATION

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- **Ph.D in Economics**, Paris School of Economics, CIREN 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, CIREN)
  - Jury : Eric Strobl (Univ. of Berne), Christelle Dumas (Univ of Fribourg), Liam Wren-Lewis (PSE, INRAE), Raja Chakir (INRAE,PSAE)
- **Master in Economics**, Paris School of Economics *2017-2018*

*Master in Public Policy and Development*
- **Master in Engineering, specialization in applied mathematics** Mines Nancy *2014-2017*
  - Third year at **Mines ParisTech Major in Geostatistics**
  - Major in **Applied Probabilities**
  - Joint Bachelor degree in Economics with Lorraine University

## JOB MARKET PAPER

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

**Abstract:** Industrial mining can be a boon or a bane for communities living in the vicinity of production sites. We assess the effects of mining-induced pollution on health outcomes in Sub-Saharan Africa using the DHS micro-data from 1986-2018 in 26 countries matched with geocoded data of industrial mining sites. Through a staggered difference-in-difference strategy, we exploit the variation of the opening of a mine and the relative topographic position of surrounding villages, comparing upstream and downstream villages. Being downstream of an open mine increases by 2.18 percentage points the 24-month mortality rate, corresponding to a 25% increase. This effect is mainly driven by the consumption of plain water, corroborating the mechanism of water pollution. The effect on mortality is not driven by a change in women's fertility, nor by a change in the access to piped water or other facilities, nor by in-migration. The effect is concentrated while the mine is active and when international mineral prices are high, is larger in areas with high mining density, and fades out with distance. It is robust to the estimator of de Chaisemartin and d'Haultfoeuille [2020], to a restriction to a balanced sample, to accounting for measurement errors, and to spatial and temporal randomization inference tests.

## WORKING PAPERS

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

**Abstract:** This paper studies the effects of the increase in droughts occurrence on internal migration in Kenya. I build a panel of 2,518 sublocations using three exhaustive censuses in 1989, 1999, and 2009, matched with high-resolution rainfall data (CHIRPS). Using a two-way fixed effect model, I compare the demographic growth of sublocations according to the number of dry-rainy seasons over each decade. An additional drought decreases the demographic growth rate by 1.7 p.p, equivalent to a 1% population loss. The result holds for the [15; 65] years old cohort, which rules out other demographic effects and shows that the result is driven by migration. Migration occurs mainly in rural areas dominated by pastoralist activities. The main contribution is the heterogeneity analysis across gender, age, educational level, and economic activity, which identifies different

forms of migration across livelihoods. It suggests a rural-rural migration of entire households of herders with little heterogeneity, in line with migration being a last resort solution. Agriculture-oriented rural areas are less vulnerable to droughts and display significant heterogeneity. Results show the migration of the most educated individuals in the working age, while non-educated individuals are trapped in affected areas. This paper is in line with rural-rural migration, as results suggest out-migration from rural pastoralist to rural agriculture-oriented areas with humid conditions. The results are robust to using binary treatment, correcting for negative weights, accounting for spurious correlation, and to randomization inference tests.

*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 is only descriptive and can not lead to any causal interpretation. It might suggest that having a long-lasting experience under extreme dry events on cultivated land reduces vulnerability to rainfall variability.

## WORK IN PROGRESS

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- 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)

## PRE-DOCTORAL PUBLICATION

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

## PUBLICATION in other fields

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- [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*

## WORK EXPERIENCE

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- **OECD**, Internship in welfare economics and urban economics 2016-2017  
*Statistical Directorate (STD) & Centre for Entrepreneurship (CFE)*
- **Fondazione Eni Enrico Mattei** 2016  
*Work on climate change, international migration and inequalities with Cristina Cattaneo (CMCC)* Milano

## TEACHING

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- **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

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

## SEMINAR ORGANIZATION

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

## AWARDS

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- 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

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- 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, with *Irène Hu* - **Amount : 2,5k** 2021

## CONFERENCE AND SEMINAR PRESENTATIONS

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**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

## LANGUAGES AND SKILLS

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

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

## REFERENCES

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### Denis Cogneau

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### Eric Strobl

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