

# TATIANA ZÁRATE-BARRERA

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UNIVERSITY OF BRITISH COLUMBIA

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## EDUCATION

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UNIVERSITY OF BRITISH COLUMBIA	Vancouver, Canada
— Ph.D. Candidate at the LFS Food and Resource Economics Group	2023 ( <i>expected</i> )
Committee: <a href="#">SIWAN ANDERSON</a> (CO-CHAIR), <a href="#">CAROL MCAUSLAND</a> (CO-CHAIR), <a href="#">FREDERIK NOACK</a> , <a href="#">THORSTEN ROGALL</a>	
UNIVERSIDAD DE LOS ANDES	Bogotá, Colombia
— M.A in Economics	2013
— B.A in Economics	2011
— B.Sc in Industrial Engineering	2014

## RESEARCH AND TEACHING INTERESTS

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Environmental Economics, Development Economics, and Public Policy

## PROFESSIONAL EXPERIENCE

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UNIVERSITY OF BRITISH COLUMBIA	
— Graduate Research and Teaching Assistant	2017 – 2022
THE INTER-AMERICAN DEVELOPMENT BANK	
— Consultant at the Education Division and the Caribbean Country Department	2016 – 2017
THE WORLD BANK	
— Consultant at the Development Impact Evaluation Unit (DIME)	2015 – 2016
FEDESARROLLO	
— Research Assistant	2013 – 2015
UNIVERSIDAD DE LOS ANDES   CEDE	
— Research Assistant	2011 – 2013
MINISTRY OF FINANCE AND PUBLIC CREDIT, REPUBLIC OF COLOMBIA	
— Intern at the General Directorate of Public Credit and National Treasury	2010

## WORKING PAPERS

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— “[Too Polluted to Sin? Dirty Skies, Crime, and Adaptation Responses in Mexico City](#)”  
(Job Market Paper)

This paper estimates the non-linear effects of air pollution on criminal activity in a developing country setting, and provides empirical evidence on the potential behavioral responses mediating this relationship. To do so, I combine daily administrative data on crime, air pollution, and sentiment polarity from millions of social media posts in Mexico City between January 2017 and March 2020. The identification strategy relies on highly dimensional fixed-effect models, non-parametric estimations of dose-response functions, and an instrumental variable approach that employs wind speed and wind direction as instruments for air pollution. My results suggest a causal and inverted U-shape relationship between air pollution and crime. Therefore, there is an inflection point after which marginal increases in air pollution negatively affect criminal activity. Exploring the mechanisms behind this relationship, I found that air pollution has the power to shape people’s emotional states and mobility patterns. These results provide important insights for developing countries where pollution is dangerously high, and crime is still one of the most pressing issues. More specifically, it suggests that, under certain circumstances, environmental regulation tailored to reduce air pollution must consider the presence of behavioral responses and these non-linear interactions with criminal activity in their design.

—“Yes They Can: Empowering Women”  
(with Thorsten Rogall)

We study how giving women political and domestic responsibility can lead to persistent female empowerment and overall welfare improvements. Using Rwandan post-genocide data, we exploit local variation in gender imbalances that caused a power vacuum that women filled as household heads and local politicians. In office, they provide more public goods. Overall, in female-led villages, women are healthier, better educated, wealthier, less likely to accept and experience domestic violence, and enjoy more sexual and financial autonomy. Importantly, younger women are carrying these changes, and gender norms changed. In villages where men stayed in power, we find negative or no effects.

## PUBLICATIONS

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—“Valuing Blue Carbon: Carbon Sequestration Benefits Provided by the Marine Protected Areas in Colombia”  
(with Jorge H. Maldonado), May 2015, *PLoS ONE*, 10(5)

Marine protected areas are aimed to protect and conserve key ecosystems for the provision of a number of ecosystem services that are the basis for numerous economic activities. Among the several services that these areas provide, the capacity of sequestering (capturing and storing) organic carbon is a regulating service, provided mainly by mangroves and seagrasses, that gains importance as alternatives for mitigating global warming become a priority in the international agenda. The objective of this study is to value the services associated with the capture and storage of oceanic carbon, known as Blue Carbon, provided by a new network of marine protected areas in Colombia. We approach the monetary value associated to these services through the simulation of a hypothetical market for oceanic carbon. To do that, we construct a benefit function that considers the capacity of mangroves and seagrasses for capturing and storing blue carbon, and simulate scenarios for the variation of key variables such as the market carbon price, the discount rate, the natural rate of loss of the ecosystems, and the expectations about the post-Kyoto negotiations. The results indicate that the expected benefits associated with carbon capture and storage provided by these ecosystems are substantial but highly dependent on the expectations in terms of the negotiations surrounding the extension of the Kyoto Protocol and the dynamics of the carbon credit's demand and supply. We also find that the natural loss rate of these ecosystems does not seem to have a significant effect on the annual value of the benefits. This approach constitutes one of the first attempts to value blue carbon as one of the services provided by conservation.

## WORK IN PROGRESS

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—“The Effects of Lead Pollution on Educational Outcomes: Evidence from Mexico”  
(with Bianca Cecato & Erin Litzow)

Exposure to lead pollution, even in minimal quantities, has serious health consequences, especially for children. While lead exposure remains high in low- and middle-income countries (LMICs), most lead-related research has been undertaken in high-income countries like the United States (U.S.). In this study, we estimate the impact of increased lead pollution levels on education outcomes in Mexico. To do this, we use administrative data and exploit a policy change that led to increased lead emissions from used lead acid battery (ULAB) recycling in Mexico. We use a difference-in-difference identification strategy to compare students who attended schools near ULAB facilities with those far away before and after the 2009 policy change. Preliminary results show that the effect is negative and stronger than those identified in rich countries, given the relatively lax environmental regulation and enforcement in Mexico and the weaker social programs, which have been shown to mitigate the effects of lead exposure in other settings. The results of this study shed light on the costs of lead pollution in lower-resource settings, where adaption options are limited, and public services that could offset the costs may not be available.

—“The Unintended Consequences of Illicit Crops on Rural Women”

Cultivating coca has become the main livelihood for rural families in many regions of Colombia. It has, however, transformed women's roles within their communities. Female farmers today act as equal partners in the cultivation process, including planting, harvesting, and transferring seeds and inputs for coca production. This paper aims to bring evidence of the effects of coca cultivation on females' social leadership and time usage within the household in Colombia. The empirical strategy exploits anti-drug policies' temporal and spatial distribution and coca cultivation coverage levels before the eradication policies to test whether coca crops influence men's and women's outcomes differently. Since coca crops' location is not random, this paper uses the exogenous change in the international price of cocaine and a coca suitability index to identify the causal effect of coca cultivation on the outcomes of interest.

## FELLOWSHIPS AND AWARDS

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UNIVERSITY OF BRITISH COLUMBIA	Vancouver, Canada
– International Tuition Award	2017-2022
– President's Academic Excellence Initiative Award	2020-2022
– Lasserre-Renzetti Prize for Best Student Paper & Presentation at CREEA	2021
– Faculty of Land and Food Systems Graduate Award	2020-2021
– George Weston Ltd. Doctoral Fellowship	2019-2020
– Anthony Dalton Scott Fellowship in Economics	2017

- LATIN AMERICAN AND CARIBBEAN ENVIRONMENTAL ECONOMICS PROGRAM Turrialba, Costa Rica  
 – Scholarship for the VII Environmental and Resource Economics Training Course 2012  
 – Scholarship for the VI Environmental and Resource Economics Training Course 2013
- UNIVERSIDAD DE LOS ANDES Bogotá, Colombia  
 – Scholarship for Masters in Economics 2011 – 2013  
 – Scholarship for Undergraduates (Beca ‘Quiero Estudiar’) 2007 – 2013

## CONFERENCES AND WORKSHOPS

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- Western Economic Association International | AERE Sessions, Portland, USA June-2022  
 – AERE Summer Conference, Miami, USA June-2022  
 – CREEA 31st Annual Conference, Virtual Conference October-2021  
 – 5th World Congress of Environmental and Resource Economists, Istanbul, Turkey July-2014  
 – XV National Seminary of Marine Sciences (Senalmar), Cartagena, Colombia September-2014

## TEACHING EXPERIENCE

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- UNIVERSITY OF BRITISH COLUMBIA Vancouver, Canada  
 — Syllabus design of two graduate courses, *Graduate Level* 2022  
 — TA Economics of Poverty, *Graduate Level* 2022  
 — TA Economics for Public Policy, *Graduate Level* 2018, 2019, 2021  
 — TA Economics of Food Consumption, *Undergraduate Level* 2020, 2021  
 — TA The Economics of International Trade and the Environment, *Undergraduate Level* 2020, 2021  
 — TA Land and Resource Economics, *Undergraduate Level* 2020  
 — Syllabus design of a graduate course, *Graduate Level* 2019  
 — TA Economics of Global Resource Use and Conservation, *Undergraduate Level* 2019  
 — TA Topics in Food and Resource Economics, *Graduate Level* 2019  
 — TA Wealth and Poverty of Nations, *Undergraduate Level* 2018
- UNIVERSIDAD DE LOS ANDES Bogotá, Colombia  
 — TA Intermediate Microeconomics, *Undergraduate Level* 2013  
 — TA Macroeconomics and Markets, *Graduate Level* 2011, 2013  
 — TA Finance, *Undergraduate Level* 2011, 2012

## SKILLS

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- QUANTITATIVE AND PROGRAMMING Stata, R, Python  
 GEOGRAPHIC INFORMATION SYSTEMS ArcGIS, QGIS, R  
 LANGUAGES Spanish (native), English (fluent)

## REFERENCES

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PROFESSOR SIWAN ANDERSON  
 Vancouver School of Economics  
 University of British Columbia  
 6000 Iona Drive, Vancouver, BC V6T 1L4  
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 LFS Food & Resource Economics  
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