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PhD candidate of Economics at Getulio Vargas Foundation.
Senior Analyst on Sustainable Infrastructure at Climate Policy Initiative.

My work focuses on environmental economics, particularly related to deforestation, agricultural productivity, and infrastructure.

EDUCATION:

FGV EPGE Rio de Janeiro, PhD. candidate Advisor: Francisco Costa	**2018 – present**
FGV EPGE Rio de Janeiro, MSc. Economics	**2016 – 2018**
University of São Paulo, BSc. Economics	**2011 – 2015**

WORKING PAPERS:

"When Clouds Go Dry: the Interplay of Deforestation, Rainfall, and Agriculture in the Amazon"

Deforestation in the Amazon is the result of agricultural land use expansion which intends to maximize profits. Nevertheless, deforestation affects precipitation patterns regulated by the rainforest and thus can negatively impact agriculture. In this paper, I connect a discrete choice model of land use with an empirical climate model of precipitation to measure the externality impact that decentralized decisions of land use have on the production of the agricultural sector. I estimate the model with pixel level data on land use that classifies forest, pasture and a range of different crops. I then discuss policy instruments that can mitigate the externality cost.

"Efficient Forestation in the Brazilian Amazon: Evidence from a Dynamic Model"

with Francisco Costa (FGV) and Marcelo Sant'Anna (FGV).

This paper estimates the Brazilian Amazon's efficient forestation level. We propose a dynamic discrete choice model of land use and estimate it using a remote sensing panel with land use and stock of carbon of 5.7 billion pixels, at 30 meters resolution, between 2008 and 2017. We estimate that a business-as-usual scenario will generate an inefficient loss of 1,075,000 km^2 of forest cover in the long run, an area almost two times the size of France, implying the release of 44 billion tons of CO2. We quantify the potential of carbon and cattle production taxes to mitigate inefficient deforestation. We find that relatively small carbon taxes can mitigate a substantial part of the inefficient forest loss and emissions, while only very large taxes on cattle production would achieve a similar effect.

"Public Attention Reduced Forest Fires in Brazil"

with Francisco Costa (FGV) and Teevrat Garg (UCSD). Submitted.

"Multidimensional Sorting in the Land Market"

with Kátia Nishiyama.

In this paper, we study the sorting of farmers and land in a multidimensional setting. We incorporate a discrete choice model, where heterogeneous farmers choose among different crops, inside a central planner's problem, that allocates farmers to land to maximize aggregate expected production. We derive a sorting expression that can be used to build counterfactual allocations of farmers and discuss when this sorting expression is only necessary or both necessary and sufficient to characterize the optimal matching. To illustrate our theoretical results, we estimate our model using pixel level data from Brazil across 15 years. We show that a relocation of farmers could increase the overall agricultural productivity by as much as 34%.

"The Effect of Roads on Deforestation: a "Market-Access" Approach"

with Juliano Assunção (PUC RIO – CPI) and Arthur Bragança (CPI – PUC RIO).

Improvements in transportation infrastructure are fundamental to promote economic development but might generate negative environmental externalities. We quantify these externalities combining a general equilibrium inter-regional trade model with novel data on the evolution of the transportation network and land use in the Amazon. We find that 1% increase in market access increases the amount of land used for agricultural activities in 0.8-1.0%. Similar results are obtained exploring changes in market access coming from changes in the road network far from each municipality as a source of exogenous variation.

INVITED SEMINARS AND CONFERENCES:

2021: NBER EEE Spring Meeting

2020: RIDGE Forum Environmental Economics, AERE, AEA*

2019: RIDGE Forum Environmental Economics, Low Carbon Markets Workshop

*presented by co-author

ADDITIONAL EXPERIENCE:

Research Assistant at Climate Policy Initiative, Brazil. 2018 – present

I worked with Arthur Bragança and Juliano Assunção on a policy briefing to evaluate the potential deforestation effect of the Ferrogrão railroad: The Environmental Impacts of the Ferrogrão Railroad: an Ex-Ante Evaluation of Deforestation Risks.

Teaching assistant: Econometrics (for Prof. João Issler, graduate and undergraduate courses) and Macroeconomics I and II (for Prof. Rubens Cysne and Prof. Cézar Santos, graduate courses); Game Theory (for Prof. Rafael Santos, professional master's course).

TECHNICAL SKILLS:

Coding: Python (preferred), Google Earth Engine, R, Stata

Language: Portuguese (Native) and English (Fluent)

REFERENCES:

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