

José-Luis Cruz

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Current Position

Federal Reserve Bank of New York

2024-

Research Economist

Climate Risk Studies, Department of the Research and Statistics Group

33 Liberty Street, New York, NY 10045

Previous Position

University of California at Berkeley

2022-2023

S.V. Ciriacy-Wantrup Postdoctoral Fellow

Department of Agricultural and Resource Economics

Education

Princeton University

2016-2022

Ph.D. Candidate in Economics

Essays on the Spatial Economic Consequences of Global Warming

Princeton University

2016-2018

M.A. in Economics

Instituto Tecnológico Autónomo de México (ITAM)

2015-2016

M.A. in Economic Theory

Instituto Tecnológico Autónomo de México (ITAM)

2009-2014

B.A. in Economics, highest honors

References

Esteban Rossi-Hansberg
Department of Economics
University of Chicago
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(650) 714-2093

Ezra Oberfield
Department of Economics
Princeton University
edo@princeton.edu
(609) 258-3846

Stephen Redding
Department of Economics
Princeton University
reddings@princeton.edu
(609) 258-4016

Fields

Primary Spatial Economics, Environmental Economics
Secondary International Trade, Macroeconomics

Publications

The Economic Geography of Global Warming (with Esteban Rossi-Hansberg)

Forthcoming at *The Review of Economic Studies*

Global warming is a worldwide and protracted phenomenon with heterogeneous local economic effects. In order to evaluate the aggregate and local economic consequences of higher temperatures, we propose a dynamic economic assessment model of the world economy with high spatial resolution. Our model features a number of mechanisms through which individuals can adapt to global warming, including costly trade and migration, and local technological innovations and natality rates. We quantify the model at a $1^\circ \times 1^\circ$ resolution and estimate damage functions that determine the impact of temperature changes on a region's fundamental productivity and amenities depending on local temperatures. Our baseline results show welfare losses from global warming as large as 20% in parts of Africa and Latin America but also high heterogeneity across locations, with northern regions in Siberia, Canada, and Alaska experiencing gains. We find that global warming will increase spatial inequality, since estimated welfare losses across locations are negatively correlated with current real income and welfare. There is large uncertainty about average welfare effects, but much less uncertainty about the spatial distribution of losses. Our quantification points to migration and, to a lesser extent, innovation as important adaptation mechanisms. We use the model to assess the impact of carbon taxes, abatement technologies, and clean energy subsidies. Carbon taxes delay consumption of fossil fuels and help *flatten the temperature curve* but are much more effective when an abatement technology is forthcoming.

Working Papers

Global Warming and Labor Market Reallocation

Global warming is a phenomenon expected to have heterogeneous effects across geographic locations and economic sectors. To assess its welfare consequences and the reallocation of workers across different markets, I develop a dynamic economic model with the patterns of structural transformation and spatially distinct labor markets facing varying exposure to warming damages on productivity. I incorporate trade of goods and migration across regions and industries, to account for the ability of agents to adapt to this phenomenon, and non-homothetic preferences, to reproduce the reallocation of economic activity when income grows. To measure mobility frictions, I collect data from censuses and population surveys, and employ methodologies from the demographic literature to provide novel estimates of worldwide bilateral migration flows. To identify the non-linear effects of temperature on productivity, I exploit weather fluctuations in a long panel and find that agricultural productivity in the hottest countries declines by 6% when temperature rises 1°C . The model, quantified for 6 sectors and 287 countries and subnational units, suggests that workers in agriculture face welfare losses three times larger than the average worker and that employment in this sector increases. Although hot regions might reduce the production of agricultural goods and import them from less affected locations, sectoral specialization is mainly driven by the shift in consumption expenditure towards the subsistence goods, as warming reduces global income.

Local Carbon Policy (with Esteban Rossi-Hansberg)

NBER Working Paper No. 30027

We study local carbon policy to address the consequences of climate change. Standard analysis suggests that the social cost of carbon determines optimal carbon policy. We start by using the spatial integrated assessment model in Cruz and Rossi-Hansberg (2021) to measure the local social monetary cost of CO_2 emissions: the Local Social Cost of Carbon (LSCC). Although the largest welfare costs from global warming are concentrated in the warmest parts of the developing world, adjusting for the local marginal utility of income implies that the LSCC peaks in warm and high-income regions like the southern parts of the U.S. and Europe, as well as Australia. We then proceed to study the effect of the actual carbon

reduction pledges in the Paris Agreement and the progress they can make in implementing the expressed goal of keeping global temperature increases below 2°C. We find that although the distribution of pledges is roughly in line with the LSCC, their magnitude is largely insufficient to achieve its goals. The required carbon taxes necessary to keep temperatures below 2°C over the current century are an order of magnitude higher and involve large implicit inter-temporal transfers. Increasing the elasticity of substitution across energy sources is important to reduce the carbon taxes necessary to achieve warming goals.

Work in Progress

Spatial Green Technical Change (with Klaus Desmet and Esteban Rossi-Hansberg)
 The Spatial Impact of Cyclones
 CO₂ Emissions by Mode of Transportation

Other Writings

Assessing the Aggregate and Spatial Economic Impact of Global Warming, *voxEU* 2021
 Adaptation and the Unequal Losses from Climate Change, *Becker Friedman Institute Insights* 2021

Research Experience

Research Assistant, Prof. Esteban Rossi-Hansberg 2020
 Research Assistant, Prof. Ezra Oberfield 2018-2019
 Research Assistant, Prof. Arlene Wong 2018-2019
 Research Assistant, Prof. Richard Rogerson 2017

Teaching Experience

Teaching Assistant, ECO 311: Macroeconomics: A Mathematical Approach, Princeton University 2019-2021
 Teaching Assistant, WWS 538: Urban Economics, Princeton University 2020
 Teaching Assistant, ECO 301: Macroeconomics, Princeton University 2020
 Teaching Assistant, ECO 353: International Monetary Economics, Princeton University 2018, 2022
 Lecturer, ECO 12201: Theory and Policy in Monetary Economics, ITAM 2017

Refereeing

American Economic Journal: Economic Policy, American Economic Review, American Economic Review: Insights, Econometrica, International Economic Review, Journal of the Association of Environmental and Resource Economists, Journal of Development Economics, Journal of Economic Theory, Journal of Environmental Economics and Management, Journal of Political Economy, Journal of Political Economy: Macroeconomics, Journal of Public Economics, Quarterly Journal of Economics, World Bank Economic Review

Awards and Fellowships

Graduate Student Teaching Prize 2022
 International Economics Section Summer Fellowship, Princeton University 2019-2021
 Princeton Energy and Climate Scholars, Princeton University 2020-2021
 International Economics Section Annual Fellowship, Princeton University 2020

Alliance Graduate Summer School Scholarship, Columbia University	2019
Avinash Dixit Prize, Princeton University <i>Outstanding Academic Achievement in International Economics</i>	2019
Honorary Mention in the 2015 Citi-Banamex Economics Contest	2016
Second Place in the XXVII National Tlacaélel Contest of Economic Consulting	2016
Honorary Mention in the XXI exITAM Economics Department Research Contest	2016

Conferences

Cornell University, University of California Berkeley, Federal Reserve Bank of St. Louis, Development Bank of Latin America, Columbia University*	2023
University of California Berkeley - Haas School of Business, Federal Reserve Bank of New York, University of Toronto, University of Rochester, El Colegio de México, Southern Methodist University, University of Utah, Federal Reserve Board, Centre de Recerca en Economia Internacional (CREi), Federal Reserve Bank of Dallas, Hong Kong Polytechnic University, Pennsylvania State University (New Faces in International Economics Conference), Columbia University - Federal Reserve Bank of New York, South East Asian Central Banks (SEACEN), Instituto Tecnológico Autónomo de México (ITAM), University of California Berkeley, University of California Environmental Economics Seminar Cornell University	2022
North American Meeting of the Urban Economics Association, Instituto Tecnológico Autónomo de México (ITAM), Instituto del Fondo Nacional de la Vivienda para los Trabajadores (Infonavit)	2021
Columbia University	2019
* <i>scheduled</i>	

Previous Work Experience

Central Bank of Mexico Payment Systems Analyst: Policy design of ATM pricing system and e-commerce market conditions	2014-2016
Evercore Partners Mexico Public Finance Analyst: Financial diagnostic, debt restructure and fiscal policies for subnational governments	2013-2014

Additional Information

Citizenship	Mexican
Sex	Male
Date of Birth	August 31, 1991

Last Updated: January 8, 2024