Sergio Puerto

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Fields

Primary: Applied Microeconomics
Secondary: Development, Innovation, and Labor

Employment

University of California, Berkeley 2025 – Present
Postdoctoral Scholar

Affiliations

Innovation Lab for Crop Improvement 2019 – 2025
Priority Setting Area

Education

Cornell University 2018 – 2024
PhD in Applied Economics

Universidad de los Andes, Colombia 2008 – 2012
BA in Economics

Work experience

Graduate Research Assistant, Cornell University
Mentor: Miguel I. Gómez 2017 – 2024

Research consultant, Environmental Defense Fund
Oceans Program 2017

Research Assistant, Universidad de los Andes
Mentors: Maria Alejandra Velez and Ximena Rueda 2014 – 2017

Teaching experience

Visiting Lecturer, Cornell University Fall 2024
AEM 2350: Introduction to the Economics of Development

Instructor of Record, Cornell University Spring 2023
ECON 3550: Economics of Developing Countries

Teaching assistant, Cornell University Fall 2022
AEM 4111: Introduction to Econometrics

Journal articles

Trait prioritization in crop breeding programs: a scoping review on tools and methods
with Martina Occelli *et al.*
Nature Plants, 2024

The role of collective action in the cacao sector in enhancing sustainability, market upgrading and agro-biodiversity conservation
with Ximena Rueda and Romaike Middendorp
Environmental Research Letters , 2023

Regrouping to reduce overfishing: Evidence from a Series of Experiments in Mexico
with Andreas Leibbrandt and Maria Alejandra Vélez
Marine Resource Economics, 2021

Testing the Alchian–Allen theorem for three goods using the pseudo-Poisson model
with Dragan Miljkovic, Miguel I. Gómez, and Anupa Sharma
Agricultural Economics, 2019

Leadership, entrepreneurship, and collective action: A case study from the Colombian Pacific Region
with Ivan Lobo and Maria Alejandra Vélez
International Journal of the Commons, 2016

Other publications

How can economic incentives designed for environmental conservation support a transition to sustainable and equitable agriculture?
with Lina Moros, Dayron Monroy and Ximena Rueda
Report: Commission on Sustainable Agriculture Intensification, 2022

U.S. Agricultural Exports to Colombia: Rising Sales in Response to Trade Liberalization and Changing Consumer Trends
with Miguel Gomez, Steven Zahniser and Jie Li
Report: U.S. Department of Agriculture, Economic Research Service, 2021

Blood β-hydroxybutyrate concentrations and early lactation management strategies on pasture-based dairy farms in Colombia
with Francisco Leal-Yepes *et al.*
Preventive Veterinary Medicine, 2020

El rol del Estado en la gobernanza social y ambiental privada
with Maria Alejandra Vélez and Ximena Rueda

Book Chapter in *Gestión del Desarrollo Sostenible*, Edited by Manuel Rodríguez Becerra and Maria Alejandra Vélez, Ediciones Uniandes, 2018

Working papers

Innovation and Technological Mismatch: Experimental Evidence from Improved Seeds *(Job Market Paper)*

Coverage: World Bank - DIME blog / SeedWorld Magazine / New Things Under the Sun / ILCI

Biases in research and development create a mismatch between the attributes of new agricultural technology and the preferences of farmers. In this paper, I estimate the impact of this mismatch on farmers' adoption of new drought-resistant seeds. Using a randomized controlled trial in Costa Rica, I recreated counterfactual scenarios for innovators' seed development decisions by offering some farmers seed matching their preferences and others a seed variety chosen by crop scientists as a blanket recommendation. Results show that mismatch has a significant impact on adoption and productivity, with 41% lower uptake among farmers who were offered the recommended new seed. This gap was larger for farms located farther from the research lab where the new seeds were developed and persisted even in areas with drought exposure. In addition, the new seeds were 31% more productive among farmers who adopted their preferred variety. To explain these findings, I propose a model in which research restrictions limit innovators' ability to account for farmer heterogeneity. Matching new seeds with farmer preferences improves productivity by allowing better adaptation to specific farm-level conditions, which are usually private information unknown to innovators.

Rural household response to labor supply shocks: Evidence from Ethiopia's travel ban on migrant workers

This paper estimates the impact of labor supply shocks on the production decisions of family farms. I exploited changes in immigration policy in Ethiopia that prevented workers from traveling abroad and led to mass waves of returnee migrants. The empirical analysis focuses on two key migration-related channels. During the travel ban, I document a significant increase in family labor availability (endowment effect) and a decline in remittances among households that had previously sent migrants abroad (income effect). Using this policy shift, I find an increase in farm labor demand, but no significant changes in hired labor or farm intensification. Additionally, I find that migrant-sending households experience greater labor rationing compared to nonmigrant-sending counterparts. These results suggest that international migration is a mechanism that enables family farms to adjust to local labor market constraints. Once this mechanism is disrupted, migrant-sending households fail to reallocate inputs to meet excess labor demand.

Measuring the Heterogeneous Effects of Input Subsidies on Household Outcomes: Evidence from Malawi

With Christone Nyondo, Maggie Munthali, Zephania Nyirenda, and Brian Dillon.

Countries across Sub-Saharan Africa spend vast amounts of money on agricultural subsidy programs to increase smallholder farmers' access to inputs. We study the impact of these subsidies on productivity and income; and whether those impacts are different for younger and older farmers. Using a nine-year panel survey for Malawi, for the period 2010 to 2019, we find that despite the steady fall in the share of recipients falls steadily over the study period, this reduction is stronger for the non-youth and coincides with the decrease of government allocations to the program. In addition, we find that access to subsidized inputs increases the relative productivity of the youth by 34%. However, it does not have any significant effect on income regardless of age. The productivity increase in the youth is likely driven by their ability to use inputs more efficiently on their smaller landholdings.

Preventive Technologies: Evidence from a Choice Experiment with Dairy Farmers

With Miguel I. Gómez, Francisco Leal-Yepes, Sabine Mann, and Jessica McArt.

This paper studies how risk preferences influence farm management when farmers have limited control over individual production units. We focus on health-related risks in dairy farming to elicit farmers' risk preferences and their willingness to pay for information, using a novel choice experiment in Colombia. Our findings reveal that cows managed by risk-averse farmers have a lower prevalence of ketosis, a metabolic disorder that reduces productivity. This result is primarily observed in lower-income farms and is consistent with a self-protection strategy, where farmers use preventive technologies to mitigate their risk exposure. We find that farm management practices mediate the relationship between risk aversion and ketosis, particularly those practices that improve cows' health by reducing disease likelihood but also lower revenue. In addition, we observe a positive association between risk aversion and farmers' willingness to pay for information about cows' health status, an experimental measure comparable to investments in diagnostic equipment.

Grants and awards

Feed the Future - ILCI, Research Project Charter Grant ($192,328)	2022
Marine Resource Economics, Outstanding Article Award	2022
NSF, Doctoral Dissertation Improvement Grant in Economics ($32,075)	2021

Presentations

2024: NEUDC 2024 (Northeastern University), Advances in Micro Development Workshop (Barcelona School of Economics), MWIEDC (University of Chicago), PacDev (Stanford University), ILCI Annual Meeting (San Jose, Costa Rica)
2023: AAEA Annual Meeting (Washington, DC)
2022: ILCI Annual Meeting (Dakar, Senegal)

Skills

Programming
Proficient: STATA, R, Latex
Intermediate: Python, Matlab
Beginner: Julia, HTML/CSS

Languages
Spanish (Native), English (fluent)

Service

Referee: Journal of Development Studies, Agricultural Systems, Food Policy.

Mentoring: (i) Reviewer and co-mentor for the STAAARs program at Cornell University; (ii) Capacity building and research mentoring to the Ministry of Agriculture of Costa Rica.