Fernando J. Brito-Gonzalez

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EDUCATION

Ph.D. Food and Resource Economics, University of Florida-Gainesville, FL (expected May 2026)

M.Sc. Agricultural and Resource Economics, University of Maryland-College Park, MD Dec 2020

M.Sc. Applied Economics, University of Chile-Santiago, Chile May 2015

B.Sc. Industrial Engineering, University of Chile-Santiago, Chile May 2015

REFERENCES

Prof. Gulcan Onel (Co-Chair)
Dept. of Food and Resource Economics
University of Florida-Gainesville, FL
gulcan.onel@ufl.edu | (352) 294-7657

Prof. Jared Gars (Co-Chair)
Dept. of Food and Resource Economics
University of Florida-Gainesville, FL
jgars@ufl.edu | (352) 394-7669

Prof. Conner Mullally
Dept. of Food and Resource Economics
University of Florida-Gainesville, FL
connerm@ufl.edu | (352) 294-7680

Senior Economist Sebastian Miller
Fiscal Policy and Sustainable Growth Unit
The World Bank-Washington, D.C.
smiller5@worldbank.org | (202) 820-0886

FIELDS OF INTEREST

Labor Economics (specifically, Labor Productivity, Labor Demand, Wage Level and Structure, and Wage Differentials), Agricultural Economics (Agricultural Techonology and Agricultural Policy), Technological Change

JOB MARKET PAPER

Brito-Gonzalez, F., Onel, G., Gars, J., & Mullaly, C. (2025). Artificial Intelligence (AI) and Agricultural Employment. Submitted to the *American Journal of Agricultural Economics (AJAE)*, September 2025.

Abstract: We measure the causal effect of artificial intelligence (AI) innovation on U.S. agricultural employment. Using 2003–2023 U.S. Patent and Trademark Office records, we construct a measure of agriculture's exposure to AI by classifying AI patents and mapping them to subindustries. Estimates from a shift-share model indicate that AI exposure increases employment in crop production (NAICS 111) by 10.6% and in animal production (NAICS 112) by 6.8%, relative to the mean employment levels in each subsector. Decomposing AI based on its underlying function reveals heterogeneity in employment effects. Execution-oriented AI (hardware and automation) reduces overall agricultural employment (NAICS 11) by 6.9%, while cognition-oriented AI (decision-support) and perception-oriented AI (sensing) increase employment (4.3% and 6%, respectively). Results show that AI does not uniformly displace farm labor; instead, its effects depend on technological complementarities and the reallocation of tasks.

PUBLICATIONS

Published

Sensing, Thinking, Doing: AI's Growing Role on the Farm—and What It Means for Farm Work (2025). *Choices*, 40(3). (with Gulcan Onel, Jared Gars, Conner Mullaly).

Work in Progress

The Role of Agricultural Robotics and the Industry Dependence on the H-2A Temporary Agricultural Work Program (with Gulcan Onel, Jared Gars, Conner Mullaly).

Do Increases in the Minimum Wage Skew Task Demand Toward Automation? Evidence from the H-2A Temporary Agricultural Work Program (with Gulcan Onel, Jared Gars, Conner Mullaly).

Is it time to update the NAWS questionnaire? (with Gulcan Onel).

RESEARCH EXPERIENCE

Dept. of Food and Resource Economics, University of Florida-Gainesville, FL
Graduate Research Assistant with Prof. Gulcan Onel — April 2021–Jul 2025

Southern Cone Office, Inter-American Development Bank-Washington, DC
Research Consultant with Country Economist Sebastian Miller — Jun 2023–Jul 2023

Dept. of Agricultural and Resource Economics, University of Maryland-College Park, MD
Graduate Research Assistant with Prof. Lars Olsen — Jan 2020–May 2020

Southern Cone Office, Inter-American Development Bank-Washington, DC
Research Fellow with Country Economist Sebastian Miller — April 2016–Jul 2018

Rand Corporation-Santa Monica, CA (remote)
Research Assistant with Senior Economists Andres Otero and Italo Lopez — April 2015–May 2016

Research Dept., Inter-American Development Bank-Washington, DC
Research Intern with Senior Economist Eduardo Cavallo — Jan 2014–April 2014

Programa de Economía Ambiental, Unviersity of Chile-Santiago, Chile
Research Intern with Prof. Jacques Clerc — Dec 2011–April 2012

CONFERENCES AND WORKSHOPS

10th Annual Agricultural Policy Outlook	Citra, FL (2025)
International Agricultural Trade Research Consortium	Seville, Spain (2025)
Southern Agricultural Economics Association (SAEA)	Atlanta, GA (2024)
Student Day at Reitz Union	Gainesville, FL (2023)
American Agricultural Economics Association (AAEA)	Anaheim, CA (2022)
Chilean Society of Economics (SECHI)	Talca, Chile (2015)
Graduate Candidates Meeting, Center for Applied Economics	Santiago, Chile (2014)

TEACHING EXPERIENCE

Instructor

Dept. of Food and Resource Economics, University of Florida-Gainesville, FL
- Math Camp (Graduate level) — Aug 2023

Teaching Assistant

Dept. of Agricultural and Resource Economics, University of Maryland-College Park, MD
- Optimization for Agricultural and Resource Economics with Prof. Lars Olsen — Fall 2019
- World Hunger, Population, and Food Supplies with Prof. Kartik Mishra — Spring 2019
- Land Economics with Prof. David Newborn — Fall 2018

Escuela de Gobierno, Universidad Adolfo Ibáñez-Peñalolén, Chile
- Environmental Economics — Fall 2017

Dept. of Industrial Engineering, University of Chile-Santiago, Chile
- Environmental Economics — Spring 2017
- Empirical Methods for Economics and Finance — Spring 2014
- Microeconomics — Spring 2014
- Industrial Organization — Spring 2013
- Environmental Economics — Fall 2012
- Introduction to Economics — Fall 2010

Dept. of Mathematical Engineering, University of Chile-Santiago, Chile
- Linear Algebra — Spring 2012
- Ordinary Differential Equations — Fall 2012
- Multivariate Calculus — Spring 2011
- Multivariate Calculus — Fall 2011

TECHNICAL PROJECTS FOR OUTREACH AND TEACHING

Dept. of Food and Resource Economics, University of Florida-Gainesville, FL — Jun 2025–Jul 2025
I converted an app from R's Shiny library to Python's Dash. This app helps farmers assess their labor needs with a TurboTax-like questionnaire, provides H-2A hiring strategies, retrieves the current date from the USDA's API, and runs Monte Carlo simulations on crop prices and yields while considering various equity and policy scenarios.

Southern Cone Office, Inter-American Development Bank-Washington, DC — Jun 2023–Jul 2023
I developed an interactive online app in Microsoft Visual Basic to inform policymakers and economists about the development trajectories of countries using data from the World Bank, IADB, FAO, and UN.

Dept. of Industrial Engineering, University of Chile-Santiago, Chile — Dec 2017–Mar 2018
I created a mobile app with the Otree library in Python for a Classroom Online Experiment, allowing students to engage in a virtual market for tradable permits in Environmental Economics.

Pedro de Valdivia High School-Las Condes, Chile — Dec 2010–Mar 2011
I developed a desktop application that allows high school directors to input teachers, coursework needs, and teachers' preferences and constraints. It then uses linear programming in ZIMPL to generate feasible solutions for the school's timetable.

PROGRAMMING SKILLS AND LANGUAGES

Statistics and Machine Learning: R, Stata, MATLAB, GAUSS, Python, TensorFlow, Julia.

Visualization and App development: R Shiny, Python Dash, HTML, PHP, CSS, JavaScript, MySQL.

Languages: English (Professional Proficiency), Spanish (Native).

ACADEMIC ACKNOWLEDGMENTS AND AFFILIATIONS

Graduate Assistantship	University of Florida (2021)
Graduate Assistantship	University of Maryland–College Park (2018)
Foreign PhD Full Scholarship	Ministry of Science of Chile (2018)
Research Fellowship	Inter-American Development Bank (2016)
Graduated with a M.S. Applied Economics, *summa cum laude*	University of Chile (2015)
Graduated with a B.S. Industrial Engineering, *cum laude*	University of Chile (2015)
Winter Internship	Inter-American Development Bank (2014)

NON-ACADEMIC ACKNOWLEDGMENTS AND AFFILIATIONS

U.S. Tennis Association, member	Gainesville, FL (2023-2025)
UF Club Tennis, member	University of Florida–Gainesville, FL (2021-2025)
FRE-Graduate Student Organization	University of Florida–Gainesville, FL (2024)
Intramural Tennis, Champion	University of Maryland–College Park, MD (2020)
Intramural Chess, Champion	San Jorge Elementary School–Arica, Chile (1998)