

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, Agricultural Economics, Technological Change

JOB MARKET PAPER

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

Abstract: We quantify how artificial intelligence (AI) innovations affect 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 subsectors through Cooperative Patent Classification (CPC) and North American Industry Classification System (NAICS) concordances. A shift–share design with an instrumental variable approach interacts national AI innovation trends with county-level lagged employment shares. Estimates indicate that AI exposure raises employment in crop production (NAICS 111) by 10.6% and in animal production (NAICS 112) by 6.8%, relative to 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). These domain-specific patterns are consistent across crop and animal subsectors, with stronger employment effects in crop agriculture (–12.8% for execution-, 9.1% for cognition-, and 10% for perception-oriented AI) than in animal agriculture (–4.5% for execution-, and 7.8% for perception-oriented AI, respectively). Results show that AI does not uniformly displace farm labor; instead, its effects depend on technological complementarities and task reallocation. By uncovering domain-specific dynamics, this study demonstrates how targeted AI innovations can augment agricultural employment, informing policies that support skill upgrading and diffusion of complementary technologies.

RESEARCH AND WORK IN PROGRESS

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).

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? Presented at the AAEA Annual Meeting (2022) (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, University 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 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 with Prof. Sebastian Miller Fall 2017

Dept. of Industrial Engineering, University of Chile-Santiago, Chile
Environmental Economics with Prof. Sebastian Miller Spring 2017
Empirical Methods for Economics and Finance with Prof. Patricio Valenzuela Spring 2014
Microeconomics with Prof. Alvaro Brunel Spring 2014
Industrial Organization with Prof. Ronald Fischer Spring 2013
Environmental Economics with Prof. Jacques Clerc Fall 2012

School of Engineering, University of Chile-Santiago, Chile
Linear Algebra with Prof. Pablo Dartnell Spring 2012
Ordinary Differential Equations with Prof. Axel Osses Fall 2012
Multivariate calculus with Prof. Jose Aliste Spring 2011
Multivariate calculus with Prof. Michal Kowalczyk Fall 2011
Introduction to Economics with Prof. Santiago Truffa Fall 2010

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

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, <i>summa cum laude</i>	University of Chile (2015)
Graduated with a B.S. Industrial Engineering, <i>cum laude</i>	University of Chile (2015)
Winter Internship	Inter-American Development Bank (2014)

OTHER ACKNOWLEDGMENTS

Best Student Organization, Runner-up	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)