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Personal Information

Date of birth: November 8, 1987
Citizenship: Colombia, El Salvador
Visa: F1

Undergraduate Studies

B.S. Mathematics, Universidad de los Andes, 2013
B.S. Economics, Universidad de los Andes, *Cum Laude*, 2011

Masters Level Work

M.S. Economics, Universidad de los Andes, 2013

Graduate Studies

University of Pennsylvania, 2013 to present
Thesis Title: "Wall Street or Main Street: Who to Bail Out?"
Expected Completion Date: May 2018

Thesis Committee and References:

Jesús Fernández-Villaverde (Advisor)
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Research Fields

Macroeconomics, Fiscal Policy, Inequality, Computational Macroeconomics

Teaching Experience

Summer 2015, 2016   Math Camp for Incoming Ph.D. students, University of Pennsylvania,
Instructor

Spring 2015, 2016   Macroeconomic Theory II for first-year Ph.D., University of Pennsylvania,
Teaching Assistant for Prof. Harold Cole

Fall, 2015   Economics 1, University of Pennsylvania,
Teaching Assistant for Prof. Rebecca Stein

Fall, 2014   Fiscal and Monetary Policy, University of Pennsylvania,
Teaching Assistant for Prof. Harold Cole

Spring 2013   Introduction to MATLAB, Universidad de los Andes
Instructor

Fall 2012   Advanced Macroeconomics, Universidad de los Andes
Teaching Assistant for Prof. Paula Jaramillo

Fall 2011   Advanced Macroeconomics: Long Run, Universidad de los Andes,
Teaching Assistant for Profs. Marcela Eslava and Daniel Mejía

Research Experience and Other Employment

Summer, 2017   Federal Reserve Bank of San Francisco, Dissertation Intern

2016-2017   University of Pennsylvania, Research Assistant for Prof. Jesús Fernández-Villaverd

Summer, 2015   University of Pennsylvania, Research Assistant for Profs. Ufuk Akcigit and Jeremy Greenwood

2011-2013   Universidad de los Andes, Research Assistant for Prof. Ana María Ibáñez

Professional Activities

Presentations: Latin American and Caribbean Economic Association (LACEA) Meetings, 2016
Referee: International Economic Review

Honors, Scholarships, and Fellowships

2017   Dissertation Fellow, Federal Reserve Bank of San Francisco
2017-2018   Dissertation Completion Fellowship, University of Pennsylvania
2016   Judith Rodin Fellowship, University of Pennsylvania
2014   Best Econometrics Preliminary Examination, University of Pennsylvania

<u>Research Working Papers</u>

Wall Street or Main Street: Who to Bail Out? 2017.
[Job Market Paper]

Housing crises are characterized by an increase in foreclosure rates that generates losses to mortgage investors. To preserve the solvency of these investors, governments have historically implemented two policies: a) offer them bailouts (Wall Street), and b) offer subsidies to mortgage refinancing of households to prevent additional foreclosures (Main Street). This paper studies the welfare maximizing bailout-subsidy policy for the case of the Great Recession, shaped by two frictions: a dead-weight loss of 20% on the house value that occurs during the foreclosure process, and an information friction on individual house prices that leads households to engage in strategic default to qualify for the subsidy program. I quantitatively assess the welfare maximizing policy in a heterogeneous agents' economy and find that a subsidy-only policy would have generated welfare gains of up to 0.4%, measured as consumption equivalent variation, as compared to the baseline calibration that matches TARP and HAMP programs. In contrast, a bailout-only policy would have generated a welfare loss of 0.8%.

A Practical Guide to Parallel Computing in Macroeconomics, 2017.
With Jesús Fernández-Villaverde

Parallel computing opens the door to solving and estimating richer models in Economics. From dynamic optimization problems with high dimensionality to structural estimation with complex data, readily-available and economical parallel computing allows researchers to tackle problems in Economics that were beyond the realm of possibility just a decade ago. This paper describes the basics of parallel computing for economists, reviews widely-used implementation routines in Julia, Python, R, Matlab, C++ (OpenMP and MPI) and CUDA and compares performance gains using as a test bed a standard life-cycle problem such as those used in macro, labor, and other fields.

The Effects of Student Loans on the Provision and Demand for Higher Education, 2016
With Rodrigo Azuero

This paper characterizes the general equilibrium outcomes of the tertiary education market in a context where borrowing constraints bind, there is a two-tier college system operating under monopolistic competition in which colleges differ by quality offered and returns to education depend on school quality. The paper shows that a widening of the gap in quality supplied by tertiary education institutions can be a by-product of subsidized student loan policies and illustrates the main results through a numerical exercise applied to the case of Colombia, which underwent a rapid expansion in the supply of subsidized student loans during the past decade.

<u>Languages:</u> Spanish (native), English (proficient), Portuguese (intermediate), Italian (basic)

<u>Computational Skills:</u> C++ (CUDA, OpenMP, MPI), R, Python, Stata, Matlab

<u>Software</u>

Rtauchen	R package to discretize an AR(1) process following Tauchen (1986)
gmapsdistance	R package to compute distance matrices and travel times using the Google Maps API