

**DAVID ZARRUK VALENCIA**

[www.davidzarruk.com](http://www.davidzarruk.com)  
[davidza@sas.upenn.edu](mailto:davidza@sas.upenn.edu)

**UNIVERSITY OF PENNSYLVANIA**

Placement Director: Iourii Manovskii  
Placement Director: Andrew Postlewaite  
Graduate Student Coordinator: Kelly Quinn

MANOVSKI@ECON.UPENN.EDU 215-898-6880  
APOSTLEW@ECON.UPENN.EDU 215-898-7350  
KQUINN @ECON.UPENN.EDU 215-898-5691

**Office Contact Information**

3718 Locust Walk  
383 McNeil Building  
Philadelphia, PA 19104  
Phone Number: +1 (267) 474-6472

**Home Contact Information**

347 W 123<sup>rd</sup> St.  
Apt 3  
New York, NY 10027  
Phone Number: +1 (267) 474-6472

**Personal Information:**

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

**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)  
University of Pennsylvania  
3718 Locust Walk, 440 McNeil Building  
Philadelphia, PA, 19104  
Phone: +1 (215) 898-1504  
Email: [jesusfv@econ.upenn.edu](mailto:jesusfv@econ.upenn.edu)

Dirk Krueger  
University of Pennsylvania  
3718 Locust Walk, 511 McNeil Building  
Philadelphia, PA, 19104  
Phone: +1 (215) 573-1424  
Email: [dkrueger@econ.upenn.edu](mailto:dkrueger@econ.upenn.edu)

Guillermo Ordóñez  
University of Pennsylvania  
3718 Locust Walk, 428 McNeil Building  
Philadelphia, PA, 19104  
Phone: +1 (215) 898-1875  
Email: [ordonez@econ.upenn.edu](mailto:ordonez@econ.upenn.edu)

### **Research Fields:**

Macroeconomics, Fiscal Policy, Inequality, Computational Macroeconomics

### **Teaching Experience:**

|                    |  |
|--------------------|--|
| Summer, 2015, 2016 | Math Camp for Incoming Ph.D. students, University of Pennsylvania,<br><i>Instructor</i>  |
| Spring, 2015, 2016 | Macroeconomic Theory II for first-year Ph.D., University of Pennsylvania,<br><i>Teaching Assistant</i> for Prof. Harold Cole         |
| Fall, 2015         | Economics 1, University of Pennsylvania,<br><i>Teaching Assistant</i> for Prof. Rebecca Stein  |
| Fall, 2014         | Fiscal and Monetary Policy, University of Pennsylvania,<br><i>Teaching Assistant</i> for Prof. Harold Cole                           |
| Spring 2013        | Introduction to MATLAB, Universidad de los Andes<br><i>Instructor</i>  |
| Fall 2012          | Advanced Macroeconomics, Universidad de los Andes<br><i>Teaching Assistant</i> for Prof. Paula Jaramillo                             |
| Fall 2011          | Advanced Macroeconomics: Long Run, Universidad de los Andes,<br><i>Teaching Assistant</i> 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-Villaverde         |
| 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 |

## **Research Working Papers:**

*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 their solvency, governments have historically implemented two policies: a) offer bailouts to investors (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.

**Languages:** Spanish (native), English (proficient), Portuguese (intermediate), Italian (basic)

**Computational Skills:** C++ (CUDA, OpenMP, MPI), R, Python, Stata, Matlab

## **Software:**

[Rtauchen](#)  
[gmapsdistance](#)

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