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# JOSÉ BAYOÁN SANTIAGO CALDERÓN

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## Education

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| 2018  | PhD Economics (expected) | Claremont Graduate University |
| 2015  | MA Economics             | Claremont Graduate University |
| 2014  | BA Economics             | Southwestern University       |
| Minors: Mathematics, Political Science, French, and Chinese             |                          |                               |
| Study Abroad: Shanghai, China (Fall 2012) & Paris, France (Spring 2013) |                          |                               |

## Experience

Developer/Maintainer at JuliaEconometrics (2017 – Present)

JuliaEconometrics is an organization that aims to publish a suite of packages for the Julia language for comprehensive econometrics work. It builds on the JuliaData (DataFrames.jl) and JuliaStats (StatsBase.jl and StatsModels.jl) ecosystem which allows a familiar yet powerful interface. It is expected to be published for the Julia 1.0 release. Some of the functionalities I implemented include the generalized within transformation (multi-way fixed effects) using the method of alternating projections, random effects Swamy-Arora harmonic mean variant, two-stages least squares (2SLS) for instrumental variables, selected generalized method of moments (GMM) models, and multi-way cluster robust variance covariance estimators (accounting for singletons). The packages will be released under the MIT license with full documentation and continuous integration for ensuring reliability of the results using the software.

Consulting Data Scientist at Res-Intel (2016 – 2017)

Res-Intel provides business intelligence for smart utilities. It offers a platform for utilities (energy and water) to optimize the use of their data. Some of the applications include actionable insight for utility demand side management (DSM) programs and targeted marketing for services or interventions (e.g., energy saving incentives). In my tenure at Res-Intel, I implemented the benchmark algorithms used to process the validated raw single-family residential (SFR) utility account data (grid, on-site photo-voltaic, gas, and water). The algorithm provides a Home Intensity Score (HIS) akin to the Energy Star Portfolio Manager methodology as well as a breakthrough of the usage, predicted usage, energy use intensity (EUI), and weather normalized values. Used R for the implementation.

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Research Assistant at the Center for Neuroeconomics Studies (2014 – 2016)

The Center for Neuroeconomics Studies (CNS) develops neuroscience technologies to understand how people make decisions. As part of my tenure at the CNS, I performed various roles such as: recruiting participants, conducting design-stage research, piloting laboratory experiments, running experiments, and cleaning and analyzing data. The laboratory experiments included administering drugs, collecting blood samples, eye-tracking, electroencephalogram (EEG), electrocardiogram (ECG), and standard experimental laboratory studies.

## Working Papers

### Cluster Robust Models

Empirical work commonly deals with heterogeneous in treatment populations of interest. Current approaches to overcome issues that arise in these cases include weightings and cluster robust variance covariance estimators. However, the current solutions often offer sub-optimal performance or practitioners misuse these. This study proposes an alternative solution which exploits the assumptions made by current solutions through a different approach. In addition, it develops tools for supplementing diagnostics, intermediate estimates, and robustness checks that can be used to improve model selection.

### Recommender Systems and Learning in Competitive Markets

What is the effect of recommender systems on individual learning and the emergent effects of such processes on population dynamics? Some of the aspects explored include heterogeneous agents, behavioral biases, and reputation concerns. Predictions are explored and nuanced based on agent-based modeling simulations and Bayesian statistical methods.

## Skills

Programming Languages: R, Python, Julia, Matlab, Stata, NetLogo, ArcGIS Pro

Areas of Expertise: Econometrics, Machine Learning, Natural Language Processing (NLP), Geographic Information Systems (GIS)

Natural Languages: Spanish (Native), English (Fluent), French (Independent Speaker), Chinese (Intermediate)

## Membership of Scholastic Societies

American Economics Association (AEA)

Omicron Delta Epsilon (The International Honor Society for Economics)

Pi Sigma Alpha (The National Political Science Society)

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## Scholarly Work

### Talks

- Calderón, J.B. 2015. “Effect of Race in Police-Civilian Interactions: Evidence from the Stop-and-Frisk Policy”  
Presented at the AEA Summer Mentoring Pipeline Conference  
Albuquerque, NM, July 25
- Calderón, J.B. 2014. “From Scientific Understanding to Effective Policy: Fruits and Vegetables Consumption on Cancer Incidence”  
Presented at 8th Annual Undergraduate Research Conference at the Federal Reserve Bank of Dallas.  
Dallas, TX, March 28

### Posters

- Plachkinova, Miloslava and José B. Calderón. 2016. “Adopting Healthcare Information Technology in Puerto Rico”  
Presented at the 22nd AMCIS.  
San Diego, CA, August 11-13
- Calderón, J.B., Yeshanew Belayneh, José Ruiz, and Julieth Sáenz. 2014. “A Child’s Well-Being: Food Insecurity and Antenatal Care (Nepal)”  
Presented at the AEA Summer Mentoring Pipeline Conference  
Albuquerque, NM, July 26

## Teaching

### Graduate

|      |   |   |
|------|---|---|
|      | Teaching Assistant                              |   |
| 2016 | Advanced Research Methods<br>AEA Summer Program | Michigan University<br>East Lansing, MI |

### Undergraduate

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|      | Teaching Assistant  |   |
| 2015 | Principles of Microeconomics<br>Center for Talented Youth | Johns Hopkins University<br>Baltimore, MD |

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## K-12

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|-------------|---|----------------------------------|
| 2013 – 2014 | Instructor<br>Chinese I<br>Carver Elementary  | Georgetown ISD<br>Georgetown, TX |
| 2011 – 2012 | Instructor<br>Spanish I<br>Jarrell Elementary | Jarrell ISD<br>Jarrell, TX       |

## Certificates

Statistics with R, a 5-course specialization by Duke University on Coursera. Specialization Certificate earned on March 19, 2017.

Machine Learning, a 4-course specialization by University of Washington on Coursera. Specialization Certificate earned on February 1, 2017.

Fundamentals of Computing, a 7-course specialization by Rice University on Coursera. Specialization Certificate earned on June 3, 2016.

Data Science, a 9-course specialization by Johns Hopkins University on Coursera. Specialization Certificate earned on September 1, 2015.

## References

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