

Cesar P. Montalvo Clavijo

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EDUCATION

- May 2020 **Arizona State University - Tempe, AZ**
PhD, Applied Mathematics for Life and Social Sciences
School of Human Evolution and Social Change
Committee Chair: Dr. Carlos Castillo-Chavez
Dissertation title: "The Influence of Class Nonlinear Dynamics and Education on Socio-economic Mobility"
- May 2008 **Iowa State University - Ames, IA**
Master of Science, M.S. - Department of Economics
Agricultural Economics, International Economics
- May 2005 **Universidad San Francisco de Quito - Quito, Ecuador**
Bachelor of Arts, B.A. Magna Cum Laude
Majors: Finance and Economics

SELECTED PROGRAM PARTICIPATION

- Jan-Dec 2019 **Brown University, Providence, RI**
Visiting Research Fellow at Data Science Initiative 2019
- Jun-Jul 2018 **Santa Fe Institute, Santa Fe, NM**
Complex Systems Summer School
Project Title: Spatial Analysis of 2019 Malaria outbreak in Venezuela
- Jun 2011 **Harvard University, Kennedy School Government - Cambridge, MA**
Course: Infrastructure in a Market Economy - Public Private Partnerships
- May 2010 **Universitat Pompeu Fabra - Barcelona, Spain**
Course: Dynamic Panel Data and Micro simulation for Policy Analysis
- Aug-Oct 2006 **Christian Albrechts Universitat - Kiel, Germany**
Summer School program. Focus: Panel Data Analysis, Economic models

HONORS

- Jun 2018 Arizona State University. Graduate Fellowship to participate in the Santa Fe Institute for Complex Systems Summer School. Amount:\$ 4 500.
- 2005 Iowa State University. Scholarship and Teaching Assistantship for
2008 Graduate studies. Department of Economics
- Aug 2006 Christian Albrechts Universitat's Scholarship for participation in the Summer School. Kiel, Germany
- 2003 Manchester College's Academic scholarship for exchange program.
Brethren Colleges Abroad. IN, USA
- 2000 Foundation El Comercio's Full Scholarship to complete undergrad studies
2005 at Universidad San Francisco. Quito, Ecuador.
- 2000 Universidad San Francisco de Quito Chancellor's list of best students
2005
- 1998 AFS's Scholarship to participate in exchange year program
in St. Lucia, West Indies (1998). Valedictorian, High School.

PROFESSIONAL EXPERIENCE

- Jul 2020 present Postdoctoral Research Associate, Social And Decision Analytics
Biocomplexity Institute and Initiative, University of Virginia
 - Developing quantitative methods for analysis of complex systems.
 - Collaborating in publication of scientific results.
 - Participating in applied case studies. Developing interactive dashboards.
- Aug 2017 Research Assistant - PhD Program - Arizona State University
- May 2020 **Levin Mathematical, Computational and Modeling Sciences Center**
 - Conduct research on applied mathematics for life and social sciences.
 - Assist professors with preparation of materials for classes.
 - Conduct computer lab lectures for the Mathematical Theoretical Biology Institute.
- Apr 2012 Coordinator of Presidential Infrastructural and Economic Projects
- Jul 2017 **President's Office - Republic of Ecuador**
 - Monitor infrastructure projects and programs defined by the President.
 - Directly prepare weekly information to the President on the economic situation.
 - Present monthly progress of projects to the cabinet.

- Aug 2009 Director of Research
 Mar 2012 **Ministry of Production, Employment and Competitiveness**
 - Design agenda of research in production and employment.
 - Evaluate the quantitative impact of public policies regarding production.
 - Determine partial equilibrium results of changes in salaries and sales.
- Jan 2011 Instructor of Intermediate Macroeconomics
 Dec 2011 **Departament of Economics - Universidad de las Americas, Ecuador**
 - Development of department courses and curriculum.
 - Teaching of economic courses.
- Sep 2008 Instructor of Rural Development and Agricultural Economics
 May 2009 **Dept of Development Studies - Palacky University, Czech Republic**
 - Prepare theoretical and empirical material for class.
 - Conduct research on the effectiveness of microfinance in agriculture.
 - Supervise research projects of students for publication.
- Sep 2007 Research Assistant
 Jul 2008 **Department of Sociology - Iowa State University**
 - Evaluate social and economic impact of ICE Raids in Marshalltown, Iowa.
 - Conduct interviews of small and medium size businesses.
 - Prepare statistical results and handling balance sheets and data.
- Fall 2006 Course Instructor of Microeconomics and, Money and Banking
 Fall 2007 **Department of Economics, Iowa State University**
 - Conduct the class of economic principles using Microsoft Excel.
 - Preparation and design of course material.
 - Determining tasks and coordinate work with 6 teaching assistants in charge.
- Ago 2005 Assistant in the Department of Risk Analysis
 May 2007 **Bank Pichincha, Quito - Ecuador**
 - Credit evaluation of low cap companies requesting funding.
 - Assisted management with analyzing balance sheets.

ACTIVITIES AND SKILLS

- Computational Software: R, STATA, Mathematica, Matlab, NetLogo, SPSS
- Technical Skills: Computational skills, Mathematical-Economic modeling, Statistical methods, Dynamical Systems.
- Skills in Communication of Science, Political Strategy, Education and Research
- Graduate Teaching Assistant in Mathematical Theoretical Biology Institute (MTBI, REU program).
- Mentoring experience. Project group mentored included 5 undergraduate students, working on projects titled: “ Comparison of screening for methicillin-resistant *Staphylococcus aureus* (MRSA) at hospital admission and discharge" and, “ Evaluating Impact of Job

Training and Housing Assistance Programs on Homelessness Dynamic in Los Angeles, California: A Mathematical Modeling Study".

- Languages: **Spanish:** native fluency. **English:** speaking and writing fluency.
Czech: intermediate level

RELEVANT COURSES

- **Statistics:** Probability, Statistical Theory for Research, Statistical Methods, Computational and statistical methods for mathematical biologists and epidemiologists, Time Series Analysis (ARIMA).
- **Mathematical Modeling:** Modeling Neglected Tropical Diseases, Dynamical Systems, Differential Equations, Applied Calculus, Quantitative Models, Linear Algebra, Multi-variable Calculus, Modeling in Biology and Social Sciences.
- **Economics:** Macroeconomics, Microeconomics, Econometrics, Mathematics for Economists.
- **Finance:** Principles of Finance, Financial Management, Intermediate Finance, International Financial Markets.

PEER PUBLICATIONS AND TECHNICAL REPORTS

Asma Azizi, Cesar Montalvo, Baltazar Espinoza, Yun Kang, Carlos Castillo-Chavez. Epidemics on Networks: Reducing Disease Transmission Using Health Emergency Declarations and Peer Communication. *Infectious Disease Modeling*. Dec 2019.

A.Azizi, J.Carpenter, M.Alharbi, J.Sánchez , V.Jones, C. Montalvo, V. Arunachalam, and A. Mubayi. Evaluating Impact of Job Training and Housing Assistance Programs on Homelessness Dynamic in Los Angeles, California: A Mathematical Modeling Study. Technical report 2019. Submitted.

Sherry Towers, Bechir Amdouni, Richard Cordova, Karen Funderburk, Cesar Montalvo, Mugdha Thakur, Josean Velazquez Molina, Carlos Castillo-Chavez. The Rising Prevalence of Weapons in Unsafe Arming Configurations Discovered in American Airports: the Increasing Practice of Storage and Carry of Firearms with a Round Chambered. 2019. *Journal of Transportation Security*.

Sherry Towers, Sandra Cole, Eboi Iboi, Cesar Montalvo, Maria Navas, Jack Pringle, D Saha, Mugdha Thakur, Jossean Velazquez-Molina, Carlos Castillo-Chavez, D Helitzer, A Murillo, and JC Norcross. How long do people stick to a diet? A digital epidemiological approach to estimating temporal trends in weight loss diet persistence. 2019. Under revision, *Public Health Nutrition*.

Flora, Jan L., Claudia Prado Meza, Hannah Lewis, Cesar Montalvo, and Frank Dunn. Impact of Immigration and Customs Enforcement Raid on Marshalltown, Iowa, in

Martinez, Ruben O. (Ed.). *Latinos in the Midwest*. Michigan State University Press.

Anuj Mubayi, Cesar Montalvo, Baltazar Espinoza, and Carlos Castillo-Chavez. Multiple Transmission Pathways for Water-Borne Diseases in Water Supply-Scarce Communities. Ready for submission. June 2019.

Cole Butler, Jinjin Cheng, Lorena Correa, Maria Preciado-Rivas, Andres Rios-Gutierrez, Cesar Montalvo, Christopher Kribs. Comparison of screening for methicillin-resistant *Staphylococcus aureus* (MRSA) at hospital admission and discharge. Technical report. Nov 2018.

Olivia F. Prosper, Swati DebRoy, Austin Mishoe, Cesar Montalvo, Niyamat Ali Siddiqui, Pradeep Das, Anuj Mubayi. Self-healing and Under reporting of Cases of Visceral Leishmaniasis in Bihar, India: A Mathematical Modeling-based Study. Technical report. Oct 2019

Cesar Montalvo. The Vertical Structure of Banana Market in Ecuador and Reforms for International Trade. *Revista Tecnologica Espol*. Vol. 21. N. 1, Oct 2008.

PRESENTATIONS IN CONFERENCES

- Dic 2018 Unequal waters and turbid outcomes: Income Disparity and Infectious diseases. Canadian Mathematical Society. Vancouver, Canada.
- Oct 2018 Regressive Burden of water related infections on Income Disparity. Biomathematics and Ecology Education and Research. Tempe, AZ.
- Sep 2018 Waterborne diseases and mechanisms of transmission affecting Economics. SIAM Mathematics of Planet Earth. Philadelphia.
- Aug 2018 Understanding emergence of Disease Dynamics. Sri Sathya Sai Institute SSSIHL, Puttaparthi, India.
- Mar 2014 Agricultural Markets and Industrialization in Ecuador.
- Mar 2013 Equinoctial Tech University, Quito.
- Oct 2008 Agriculture in Developing Countries. University Palacky, Olomouc. Czech Republic