Diógenes Cruz Figueroa García

Department of Agricultural and Resource Economics, University of California, Davis
One Shields Avenue, Davis, CA 95616
dcruzf@ucdavis.edu · +1 (530) 231-2324 · diogenescruz.com

Education

Ph.D., Agricultural and Resource Economics, UC Davis expected June 2027
Dissertation: *The Environmental Economics of Oil and Gas Wells: Essays on Flaring, Plugging, and Regulatory Design*
Committee: Mark Agerton (chair), Kevin Novan, Bulat Gafarov, Jens Hilscher

M.S., Agricultural and Resource Economics, UC Davis 2022

B.A., Economics, Instituto Tecnológico Autónomo de México (ITAM) 2018
Magna cum laude. Thesis: *An evaluation of the long-term electricity auctions from an auction theory perspective.*

B.A., Law (Licenciado en Derecho), ITAM 2017
Cum laude. Thesis: *The economic and legal relevance of the long-term electricity auctions in the new Mexican power market.*

Fields

Primary Energy and Environmental Economics; Industrial Organization
Secondary Applied Econometrics (structural estimation); Regulatory Economics and Antitrust

Job Market Paper

Cleanup Delay and Second-Best Environmental Policy: Structural Estimates from Texas Oil & Gas Wells
with Mark Agerton (Colorado School of Mines) and Lauren Beatty (Environmental Defense Fund)

- Recovers plugging costs (about $84k per low-producing oil well, $60k per gas well) from Texas Railroad Commission and Enverus data, with a dynamic discrete choice model of production, idling, and plugging that allows for unobserved well types and failures.
- When only idle wells do damage, a fee on idle years is the cheapest instrument; in oil, a two-year idling limit that removes as many idle well-years has 1.29 times the fee's deadweight loss and raises welfare only if an idle well-year does at least $9.2k of damage.

Working Papers

Seller Commitment to Reserve Prices: Revenue Implications for Federal Mineral Auctions
with Mark Agerton (Colorado School of Mines) and Eric Lewis (Brigham Young University)
Revise and resubmit, **The RAND Journal of Economics**. SSRN: abstract_id=5327929.

- Studies the U.S. Bureau of Land Management's oil and gas lease auctions, in which a failed auction was followed by a noncompetitive sale at a price below the reserve. Characterizes the resulting equilibrium (existence, and uniqueness among symmetric monotone strategies) and quantifies how the lack of seller commitment affected sale probabilities, bonus revenue, and royalties.

Work in Progress

Satellite Detection of Flaring and Misreporting by Oil and Gas Operators (working title)
with Mark Agerton (Colorado School of Mines) and Bulat Gafarov (University of California, Davis)

- Combines VIIRS (Suomi NPP) Nightfire detections with operator-reported flaring volumes in a grid-cell panel to recover a measure of misreporting, identify its predictors, and inform risk-based targeting of regulatory audits.

Conference Presentations

2026 Agricultural & Applied Economics Association (AAEA) Annual Meeting.
2025 Southern Economic Association (SEA) Annual Meeting.
2024 University of Oklahoma Conference on Auctions, Firm Behavior, and Policy.

Workshops and Training

2023 Berkeley/Sloan Summer School in Environmental and Energy Economics, University of California, Berkeley.
2023 Graduate Inclusive Education and Mentoring Training (GET), UC Davis ARE DIRECT program.

Research Experience

Graduate Student Researcher, University of California, Davis 2022–2024

- For Mark Agerton (2022–2023): literature review, theoretical model, and likelihood-based estimation for the federal lease auction project; model of non-point-source pollution detection in oil and gas.
- For Richard Sexton (2023–2024): contract-theory model of asymmetric information between ranchers and meat packers to evaluate the USDA Cattle Contracts Library; data collection and descriptive analysis before and after its introduction.

Teaching Experience

Lecturer (instructor of record), Instituto Tecnológico Autónomo de México 2019–2023

Applications of Microeconomics (certificate program). Regulation of natural monopolies (price caps, rate of return, Ramsey pricing), oligopoly and product differentiation, collusion and single-firm conduct, and introductory auction and contract theory.

Instructor, Math Camp for Transfer Students, University of California, Davis Summer 2025

Calculus and optimization for incoming Managerial Economics transfer students.

Teaching Assistant, University of California, Davis 2022–2026

- *ARE 240A, Econometric Methods (Ph.D.)* – Winter 2025, Winter 2026 (B. Gafarov).
- *ARE 146, Economic Regulation* – Winter 2022 (K. Novan); Fall 2022, Spring 2024, Fall 2025 (K. Jessoe).
- *ARE 133, Behavioral Economics* – Spring 2026, Fall 2026 (K. Jessoe).
- *ARE 100A, Intermediate Microeconomics: Perfect Competition* – Spring 2025 (P. Mérel); Summer 2026 (J. Constantine).
- *ARE 100B, Intermediate Microeconomics: Imperfect Competition* – Spring 2022 (R. Goodrich); Summer 2025 (S. Morrison).

Teaching Assistant, Instituto Tecnológico Autónomo de México 2011–2016

- *Intermediate Microeconomics II* (general equilibrium, game theory, oligopoly, public goods) – 2014–2016.
- *Intermediate Microeconomics I* (proof-based consumer and producer theory, duality) – 2012–2014.
- *Introductory Microeconomics* – 2011–2012.

Professional Experience

General Coordinator of Technical Analysis, Federal Economic Competition Commission (COFECE), Mexico City 2019–2021

Advisor to the Commission's Chairwoman. Reviewed draft rulings on mergers, monopolistic practices, and market investigations; drafted opinions on the competitive effects of the 2020–2021 amendments to Mexico's electricity legal framework.

Advisor to Commissioner, Energy Regulatory Commission (CRE), Mexico City 2017–2019

Legal and economic advice on electricity and natural gas regulation; regulated tariffs for gas transportation, distribution, and storage; market power assessment in oil and gas storage.

Consultant, Asesores en Litigios Económicos y Financieros (ALEF), Mexico City 2016–2017

Expert witness studies and industrial organization analysis for antitrust and telecommunications proceedings.

Project Manager, GEA Grupo de Economistas y Asociados, Mexico City 2014–2016

Cost-benefit analysis, regulatory evaluation, and competition assessments; estimation of subnational tax revenue from oil and gas after the 2013 energy reform.

Professional Service and Outreach

Referee Resource and Energy Economics (2026).

2024–2026 Graduate Student Association representative, Department of Agricultural and Resource Economics, UC Davis.

2023–2024 Coordinator, Student Café (ARE DIRECT program), an undergraduate discussion series on everyday economics run with the Managerial Economics Society, UC Davis.

2020 Economics coach, MootComp, an undergraduate antitrust competition for economics and law students in Latin America.

2013–2016 Founding member, SMART México, a student initiative across four Mexico City economics programs that organized seminars with leading economists and the *Desafío del Banquero Central*, a monetary-policy competition that preceded Banco de México's own *Reto BANXICO*.

2013–2014 Student council representative for Economics, ITAM.

Skills

Programming	Julia, R, Python, Stata, MATLAB; LaTeX; Git
Methods	Structural estimation (dynamic discrete choice, structural auctions, maximum likelihood, GMM), spatial and panel econometrics, GIS (QGIS), remote-sensing data
Languages	Spanish (native), English (fluent), German (conversational)

References

Mark Agerton
Assistant Professor
Colorado School of Mines
mark.agerton@mines.edu

Kevin Novan
Associate Professor
UC Davis
knovan@ucdavis.edu

Bulat Gafarov
Associate Professor
UC Davis
bgafarov@ucdavis.edu