

# Rafael Becerril Arreola

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## EMPLOYMENT

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### University of South Carolina

Associate Professor (with tenure), Marketing Dept.

Business Partnership Foundation Dean's Fellow

Assistant Professor, Marketing Dept.

### USA

2022 -

2021 -

2013 - 2022

### Lingnan University

Visiting Tutor, English Dept.

Senior Research Assistant, Computing and Decision Sciences Dept.

Research Assistant, Computing and Decision Sciences Dept.

### Hong Kong

2008

2007 - 2008

2006 - 2007

### ARBE Transportation

Systems Analyst (part-time contractor)

### Mexico

2005 - 2006

### AVW-TELAV

Systems Design Specialist, System Design and Integration Dept.

### Canada

2004 - 2005

### Concordia University

Research Associate, Electrical and Computer Engineering Dept.

### Canada

2003 - 2004

### ITESM

Instructor, Division of Engineering

### Mexico

2001

## EDUCATION

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### UCLA (University of California, Los Angeles)

Ph.D. in Management (focus on Quantitative Marketing and Economics)

### USA

2008 - 2013

### University of Toronto

M.A.Sc. in Electrical Engineering (focus on Automatic Control)

### Canada

2001 - 2003

### ITESM (Instituto Tecnológico de Estudios Superiores de Monterrey)

B.Sc. in Electrical and Computer Engineering

### Mexico

1996 - 2000

## EXPERTISE

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**Research.** I study the roles of socioeconomics (e.g., income) and technology (e.g., algorithms) in consumer markets and supply chains. To this end, I develop and apply tools from econometrics, statistics, optimization, computer science, and computer engineering, supported by theories from marketing, operations, economics, and psychology.

**Teaching.** My specialty is business analytics and data science at both undergraduate and graduate levels. I teach the conceptual foundations and the practical application of data analysis tools, through the case method, in-class labs, and consulting assignments. Delivered in face-to-face, distributed, and mixed formats, my courses emphasize critical thinking and highly-structured best practices to tackle the complexity of real-life problems.

**Practice.** Most of my work pertains to pricing, branding, assortment, product line, and delivery decisions in automotive, retailing, e-commerce, and consumer packaged good industries. My consulting experience has so far focused on pricing, product line decisions, and quantifying return on investment.

## ADVANCED RESEARCH IN PROGRESS

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1. Rafael Becerril-Arreola and Randolph E. Bucklin. The Effects of Permanent Income Changes on Marketing Outcomes.
2. Rafael Becerril-Arreola. The Geographic Variation of Algorithmic Prices in Online Grocery Retailing.
3. Yilian Du and Rafael Becerril-Arreola. Product Availability in Online Grocery Retailing: Can Online Retailing Reforest Food Deserts?

## WORKING PAPERS

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1. Rafael Becerril-Arreola, Mark Ferguson, Mingming Leng, and Mahmut Parlar. Disclosing Delivery Performance Information when Consumers are Sensitive to Promised Delivery Time, Delivery-Time Conformance, and Prices. Revise and resubmit. Authors listed in alphabetical order.
2. Rafael Becerril-Arreola and Dominique M. Hanssens. Quantifying and Explaining Product Category Positionality. Revising for submission.
3. Rafael Becerril-Arreola and Juanjuan Zhang. Price as a Signal of Wealth, Revisited. Revising for submission.

## JOURNAL PUBLICATIONS

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1. Rafael Becerril-Arreola, Randolph E. Bucklin, and Raphael Thomadsen. Effects of Income Distribution Changes on Assortment Size in the Mainstream Grocery Channel. **Management Science**, 67(9):5301–5967, 2021. doi:10.1287/mnsc.2020.3785.  
*Featured in phys.org, newswise, Futurity*
2. Rafael Becerril-Arreola and Randolph E. Bucklin. Beverage Bottle Capacity, Packaging Efficiency, and the Potential for Plastic Waste Reduction. **Scientific Reports**, 11(3542), 2021.  
doi:10.1038/s41598-021-82983-x.  
*Featured in New Scientist, ScienMag, Inverse, Florida News Times, Europa Press, EurekAlert!, Azom, Phys.org, The Herald, Ambiente Plástico, Technologie Média, Sina, Zimo Dnevnik, Plastic Food Packaging Waste News, Nature Asia, Science in Poland, Gigazine, Notiamérica, Clarín, Publímetro, Unfoldtimes, Newsbreak, Infobae, La Repubblica, Rakéta, La Stampa, Eco dalle città, Piece Business, Food Processing, etc.*
3. Rafael Becerril-Arreola. Estimating Demand with Substitution and Intraline Price Spillovers. **Manufacturing & Service Operations Management**, 22(3):598–614, 2020.  
doi:10.1287/msom.2018.0765.
4. Yong Tang, Jie Xiong, Rafael Becerril-Arreola, and Lakshmi Iyer. Ethics of Blockchain. **Information Technology & People**, 33(2):602–632, 2020. doi:10.1108/ITP-10-2018-0491.  
*Featured in Cointelegraph Magazine, FutureNews*
5. Chen Zhou, Shrihari Sridhar, Rafael Becerril-Arreola, Tony H. Cui, and Yan Dong. Promotions as Competitive Reactions to Recalls and Their Consequences. **Journal of the Academy of Marketing Science**, 47(4):702–722, 2019. doi:10.1007/s11747-018-0611-8.
6. Rafael Becerril-Arreola, Chen Zhou, Raji Srinivasan, and Daniel Seldin. Service Satisfaction-Market Share Relationships in Partnered Hybrid Offerings. **Journal of Marketing**, 81(5):86–103, 2017.  
doi:10.1509/jm.15.0537.
7. Rafael Becerril-Arreola, Mingming Leng, and Mahmut Parlar. Online Retailers' Promotional Pricing, Free-Shipping Threshold, and Inventory Decisions: A Simulation-Based Analysis. **European Journal of Operational Research**, 230(2):272–283, 2013. Authors listed in alphabetical order.  
doi:10.1016/j.ejor.2013.04.006.
8. Mingming Leng and Rafael Becerril-Arreola. Joint Pricing and Contingent Free-Shipping Decisions in B2C Transactions. **Production and Operations Management**, 19(4):390–405, 2010.  
doi:10.1111/j.1937-5956.2009.01112.x.

9. Rafael Becerril-Arreola, Amir G. Aghdam, and Rashid R. Kohan. Variable Structure Decentralized Control and Estimation for Highway Traffic Systems. *Journal of Dynamic Systems, Measurement, and Control*, 130:041002, 2008. doi:10.1115/1.2907389.
10. Rafael Becerril-Arreola. A Comment of Kim Warren's Paper: Why Has Feedback Systems Thinking Struggled to Influence Strategy and Policy Formulation. *Systems Research and Behavioral Science*, 24(1):115–118, 2007. doi:10.1002/sres.790.
11. Rafael Becerril-Arreola, Amir G. Aghdam, and Valery D. Yurkevich. Decentralised Two-Time-Scale Motions Control Based on Generalised Sampling. *IET Control Theory & Applications*, 1(5):1477–1486, 2007. doi:10.1049/iet-cta:20070020.
12. Rafael Becerril-Arreola and Amir G. Aghdam. Decentralised Nonlinear Control with Disturbance Rejection for On-Ramp Metering in Highways. *IET Control Theory & Applications*, 1(1):253–262, 2007. doi:10.1049/iet-cta:20045192.
13. Amir G. Aghdam, Edward J. Davison, and Rafael Becerril-Arreola. Structural Modification of Systems Using Discretization and Generalized Sampled-Data Hold Functions. *Automatica*, 42(11):1935–1941, 2006. doi:10.1016/j.automatica.2006.06.005.
14. Manfredi Maggiore and Rafael Becerril. Modeling and Control Design for a Magnetic Levitation System. *International Journal of Control*, 77(10):964–977, 2004. doi:10.1080/002071704200024392.
15. Rafael Becerril Arreola. Output Feedback Nonlinear Control for a Linear Motor in Suspension Mode. *Automatica*, 40(12):2153–2160, 2004. doi:10.1016/j.automatica.2004.07.005.

#### PEER REVIEWED CONFERENCE PUBLICATIONS

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1. Rafael Becerril-Arreola. A Method to Assess and Explain Disparate Impact in Online Retailing. In *Proceedings of the ACM Web Conference 2023*, WWW '23, New York, NY, USA, 2023. doi:10.1145/3543507.3583270.
2. Yong Tang, Jie Xiong, Rafael Becerril-Arreola, and Lakshmi Iyer. Blockchain Ethics Research: A Conceptual Model. In *Proceedings of the 2019 ACM Computers and People Research Conference*, Nashville, TN, Jun 2019.
3. Rafael Becerril-Arreola, Amir G. Aghdam, and Edward J. Davison. Minimizing Interaction of Subsystems in Large-Scale Interconnected Systems Using Generalized Sampling. In *Proceedings of the 16th IFAC World Congress*, Prague, Czech Republic, Jul 2005.
4. Rafael Becerril and Amir G. Aghdam. On-Ramp Decentralized Nonlinear Control with Disturbance Rejection. In *Proceedings of the 16th IFAC World Congress*, Prague, Czech Republic, Jul 2005.
5. Rafael Becerril, Amir G. Aghdam, and Valery D. Yurkevich. Decentralized Two-Time-Scale Motions Control Using Generalized Sampled-Data Hold Functions. In *Proceedings of the 2004 American Control Conference*, volume 4, Boston, MA, Jun 2004.
6. Rafael Becerril, Amir G. Aghdam, and Rashid R. Kohan. Decentralized Nonlinear Traffic Control-II: Sliding Mode Observers. In *Proceedings of the 43rd IEEE Conference on Decision and Control*, Nassau, Bahamas, Dec 2004.
7. Rashid R. Kohan, Rafael Becerril, and Amir G. Aghdam. Decentralized Nonlinear Traffic Control-I: Variable Structure Linearizing Control. In *Proceedings of the 43rd IEEE Conference on Decision and Control*, Nassau, Bahamas, Dec 2004.
8. Rafael Becerril-Arreola and Manfredi Maggiore. Nonlinear Stabilization of a 3 Degrees-of-Freedom Magnetic Levitation System. In *Proceedings of the 2003 American Control Conference*, volume 2, Denver, CO, Jun 2003.

## CONFERENCE PRESENTATIONS

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1. The Effects of Permanent Income on Marketing Outcomes. In *Marketing Science Conference*, Chicago, IL, Jun 2022.
2. Exploring Disparate Impact in Online Retailing. In *Marketing Science Conference*, Chicago, IL, Jun 2022.
3. Heterogeneous Veblen Effects: Evidence from the Car Rental Market. In *Marketing Science Conference*, Philadelphia, PA, Jun 2018.
4. What Are the Welfare Effects of Consumer Brand Deletions? In *Marketing Science Conference*, Los Angeles, CA, Jun 2017.
5. Does Income Inequality Matter in Marketing? A Cross - Category, Cross - Market Look at Consumer Product Availability. In *Marketing Science Conference*, Baltimore, MA, Jun 2015.
6. Does Income Inequality Matter in Marketing? A Cross-Category, Cross-Market Look at Consumer Product Availability. In *Theory + Practice in Marketing Conference*, Atlanta, GA, Jun 2015.
7. The Relationships among Income, Preferences, and Consumer Motivation. In *Marketing Science Conference*, Boston, MA, Jun 2012.
8. The Multiple Moderating Effects of Social Comparisons on Consumer Expenditures. In *Marketing Science Conference*, Houston, TX, Jun 2011.
9. Social Comparisons and Consumption. In *Doctoral Symposium in Marketing*, Houston, TX, Apr 2010. University of Houston.

## INVITED PRESENTATIONS

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1. Exploring disparate impact in online retailing algorithms. *University of North Carolina, Charlotte; University of California, Davis*, 2023.
2. Heterogeneous Veblen Effects: Evidence from the Car Rental Market. *Shanghai University of Finance and Economics; ESSEC Business School; University of Connecticut, VOYA Financial Colloquium*, 2018-2023.
3. Competitive Reactions and Spillover Effects of Product Recalls. *University of California, Los Angeles, Marketing Area Research Symposium*, May 2016.
4. Does Income Inequality Matter in Marketing? A Large Scale Analysis of Consumer Product Availability. Columbia, SC, Apr 2016. *Symposium on Research Computing Infrastructure*.
5. The Effects of Economic Inequality on the Demand for Status-Signaling Brands. Job market paper presented at *Boston University, University of Washington Seattle, George Washington University, Tilburg University, VU Amsterdam, University of California Riverside, University of South Carolina*, 2012-2013.

## GRANTS

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<b>Washington Center for Equitable Growth</b>	
Principal Investigator, Academic grant (\$85,000)	2022 - 2025
<b>Hong Kong Research Grants Council</b>	
Co-Investigator, Research grant (HK\$418,07)	2022 - 2024
<b>ACM Special Interest Group on Management Information Systems</b>	
Co-Investigator, Research grant (\$3,000)	2018
<b>University of South Carolina</b>	
Principal Investigator, Office of Research Racial Justice and Equity Research grant (\$15,000)	2022
Principal Investigator, Office of Research ASPIRE-I grant (\$15,000)	2021
Center for Teaching Excellence, online course design grant (\$500)	2020

**University of South Carolina, Darla Moore School of Business**

Professional MBA course redesign grant (\$5,000)	2023
Professional MBA course redesign grant (\$5,000)	2020
Principal Investigator, Moore research grants (\$5,750)	2020
Principal Investigator, Moore research grants (\$5,500)	2019
Principal Investigator, Moore research grant (\$5,000)	2016
Principal Investigator, Moore research grant (\$2,500)	2014
Principal Investigator, Moore research grant (\$3,000)	2013

**STUDENT ADVISING**

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**University of South Carolina, Marketing Department**

PhD Dissertation Committee (co-chair) for Sina Aghaie	2017 - 2019
PhD Comprehensive Exam Committee (member)	2017 -
PhD Qualifying Exam Committee (member)	2014 -

**University of South Carolina, Management Science Department**

PhD Qualifying Exam Committee (member)	2017 - 2018
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**University of South Carolina, Computer Science Department**

Master Thesis Committee (member) for Surya Bhatt	2014 - 2015
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**TEACHING EXPERIENCE**

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**University of South Carolina, Darla Moore School of Business**

Developed and taught:

MKTG722: face-to-face graduate course on Data Science (Python programming, machine learning methods, etc.)	2021 -
MKTG448: online synchronous undergraduate course on Data Science (R programming, machine learning methods, etc.)	2020 -
MKTG717: hybrid distributed and face-to-face MBA course on Marketing Analytics (analytics lifecycle management, fundamentals of analytics methods, biases, etc.)	2014 -
MKTG750: MBA practicums involving consulting projects on Marketing Analytics (price optimization, market structure measurement, etc.)	2013 - 2015
MKTG712: face-to-face MBA course on Marketing Analytics (predictive analytics, marketing experiments, CLV, conjoint analysis, etc.)	2013

Taught:

BADM720: MSBA practicums involving consulting projects on Business Analytics	2023 -
MKTG451: face-to-face undergraduate course on Marketing Analytics (regression diagnostics, forecasting, data mining, optimization, etc.)	2016 - 2019

**ITESM**

Developed and taught undergraduate course on electric circuits	2001
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**SERVICE TO UNIVERSITY AND COMMUNITY**

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**University of South Carolina, Marketing Department**

PhD Program Update Committee (chair)	2023 -
PhD Admission Committee (member)	2019
Center for Marketing Solutions' Advisory Board (member)	2014 - 2016
Faculty Recruiting Committee (member)	2013 - 2015

**University of South Carolina, Darla Moore School of Business**

Faculty Council (elected member)	2021 -
Master of Science in Business Analytics, Program Committee (member)	2020 -

Institutional Nielsen datasets subscription (administrator)	2019 -
Faculty Advisory Committee (member)	2017 - 2020
Analytics Certificate Committee (member)	2014 - 2016
<b>University of South Carolina</b>	
Intellectual Property Committee (member)	2022 -
Office of Research (grant reviewer)	2021 -
Research Computing Advisory Committee (member)	2019 - 2021
University Bookstores' Committee (member)	2015 - 2017
University Bookstores' Committee (co-chair)	2014 - 2015
<b>Dutch Fork High School</b>	
Advanced Placement Research Program (mentor)	2019 - 2020

## SERVICE TO PROFESSION

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### Academic Journals

Ad hoc reviewer for Marketing Science, Journal of Marketing, Journal of Retailing, Manufacturing & Service Operations Management, Production and Operations Management, Information Systems Research, Journal of Business Ethics, Journal of Public Policy & Marketing, Transportation Research Part A: Policy and Practice, European Journal of Operational Research, ACM Computing Surveys

### Academic Conferences

Chair, Track on Algorithmic Fairness, Marketing Science Conference, June 2022

## HONORS AND AWARDS

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### Emerald publishing

Emerald Literati Awards, Outstanding Paper Award 2021

### University of South Carolina

Darla Moore School of Business, Dean's Fellow 2021 -

### ACM (Association for Computing Machinery)

SIGMIS CPR Magid Igbaria Outstanding Conference Paper Award, finalist 2019

### MSI (Marketing Science Institute)

Clayton Dissertation Award, Honorable Mention 2012

### UCLA (University of California, Los Angeles)

American Marketing Association Sheth Doctoral Consortium, Fellow 2011  
 Columbia-Duke-UCLA Workshop on Quantitative Marketing, Fellow 2010  
 Doctoral Symposium in Marketing, University of Houston, Fellow 2010  
 Doctoral Internationalization Consortium in Marketing, UT Austin, Fellow 2009  
 Graduate, Teaching, and Research Fellowships 2008 - 2013  
 Anderson Educational Fellowship 2008 - 2012

### University of Toronto

Graduate, Teaching, and Research Fellowships 2001 - 2003

### ICIA (International Communication Industries Association)

Educational Communications Foundation Scholarship 2001

### ITESM (Instituto Tecnológico de Estudios Superiores de Monterrey)

Excellence Scholarship for Master's program 2001  
 Highest GPA within major's graduating class, graduation honors 2000  
 Undergraduate merit-based scholarship 1996 - 2000

### IHS (Information Handling Services)

1st place in the IHS96 Research Prize 1996