David **Leather**

Financial Economist

1 University Drive · Orange, CA 92866

(+1) 508-648-6628 | david.a.leather@gmail.com | www.daveleather.com | dleather | davleather

Accomplished Economist with expertise in empirical analysis, time series modeling, and advanced quantitative methods, seeking to apply rigorous statistical approaches to complex pricing and forecasting challenges. Leveraging a strong foundation in causal inference, econometrics, and machine learning, I bring experience designing and implementing large-scale data experiments. My background in analyzing complex market dynamics and developing novel empirical methodologies positions me to deliver actionable insights in dynamic marketplace environments. Focused on applying statistical techniques to understand real-world pricing challenges and support evidence-based decision-making.

Skills

Programming Languages	Python, R, Julia, MATLAB, STATA, STAN
Data Analysis & Visualization	NumPy, Pandas, Polars, data.table, Matplotlib, ggplot2
Machine Learning & Statistical Analysis	Scikit-learn, TensorFlow, Keras, Bayesian Methods, Time Series Analysis
Econometrics & Financial Modeling	Stochastic Processes, Asset Pricing Models, Numerical Optimization, Regime-switching Models Simulation-based Inference, Monte Carlo, MCMC
Databases & Data Handling	SQL, WRDS, NYC Public Data, FRED
Software & Tools	Git, VS Code, Unix, LaTeX, Jupyter Notebooks, Excel
Languages	English (Fluent), Spanish (Novice)

Experience

Chapman University · Argyros College of Business and Economics
Orange, CA, USA

Assistant Professor of Real Estate and Finance — *August 2020 - Present*

- Conducted research on real estate market dynamics, including pricing, risk management, and the impact of monetary policy on commercial real estate values; housing affordability; the link between zoning uncertainty and the real option value to redevelop; and the effect of height limitations on construction costs.
- Designed and implemented a large-scale Monte Carlo deep learning pricing experiment on a high-performance computing cluster, employing a deep neural network to estimate a likelihood surface in the absence of a closed-form solution. This experiment navigated a 55-dimensional parameter space, simulating over 1.5 million targets. TensorFlow was utilized for estimation, while optimized Julia code was employed for rapid simulations.
- Developed a novel, easy-to-implement empirical methodology to understand the impact of real estate height limitations on the increased marginal cost of development above these limits. This approach not only offers an estimate of the additional square footage that could be constructed if height restrictions were relaxed but also may be useful in characterizing geographic areas with relatively high excess demand.
- Constructed a comprehensive panel dataset covering the entirety of New York City real estate, featuring over 48 million quarterly property observations and 118 variables, aggregated from five distinct data sources. This dataset meticulously tracks a wide array of information including property characteristics, redevelopments, transactions, zoning changes, zoning change application progress, as well as economic, demographic, and public transit access data. It has been instrumental in supporting multiple academic research projects.
- Presented research at prestigious institutions such as the Massachusetts Institute for Technology, the University of California Los Angeles, the University of California Irvine, and the Federal Reserve Board of Governors.
- Teaching graduate and undergraduate courses in Real Estate Economics and Macroeconomics.

University of North Carolina at Chapel Hill · Kenan-Flagler Business School
Chapel Hill, NC, USA

Research Affiliate — *August 2020 - Present*

Federal Reserve Board of Governors - Research & Statistics Division
Washington, DC, USA

Dissertation Fellow — *Summer 2019*

- Analyzed the effect of changing monetary policy regimes on the real estate market, focusing on asset valuation and capitalization rates.
- Applied stochastic modeling and time series analysis to forecast market trends and assess risk factors in commercial real estate investments.
- Presented research findings to senior economists, contributing to discussions on policy implications for financial stability and market regulation.

New York University - Center for Urban Science + Progress
New York, NY, USA

Visiting Researcher — *Summer 2018*

- Led a project to construct a comprehensive dataset tracking zoning designations and property values in New York City, analyzing the impact of zoning changes on real estate development and prices.
- Employed machine learning techniques to predict real estate market trends, focusing on urban development and land use policies.

Education

University of North Carolina at Chapel Hill — *Chapel Hill, NC, USA*

Ph.D. in Economics · Concentration: Macroeconomics and Finance — *July 2014 - May 2020*

- Focused on advanced econometric methods, monetary policy, and its impact on commercial real estate prices.

University of North Carolina at Chapel Hill — *Chapel Hill, NC, USA*

M.S. in Economics — *July 2014 - May 2018*

- Specialized in quantitative analysis, focusing on stochastic processes and their applications in economics.

University of Massachusetts at Amherst — *Amherst, MA, USA*

B.B.A. in Finance · Minor Concentrations: Economics and Philosophy — *September 2009 - December 2012*

Publications

Bunching in Real-estate Markets: Regulated Building Heights in New York City

With Jan Breuckner and Miguel Zerecero · Journal of Urban Economics

- Developed an innovative methodology that uses the empirical distribution of buildings heights to estimate the additional cost per sq. ft. of exceeding the regulated building heights in New York City, as well as quantifies the *missing floor space* caused by the regulation.

Working Papers

What's The Use? Land Use Uncertainty, Real Estate Prices, and the Redevelopment Option

Solo-authored

- Employs a two-stage hedonic estimation procedure to analyze the option value of redevelopment in New York City, contributing to the understanding of land use restrictions and real estate pricing dynamics.

Student Housing and the Cost of Higher Education

With Jack Liebersohn

- Conducted a comprehensive analysis of the determinants behind rising rents in purpose-built student housing, juxtaposing them against broader market trends and their implications for affordability among college students.

Is America's Housing Affordability Problem a Housing Problem?

With Andra Ghent

- Investigates the affordability of housing across US cities, using discrete housing expenditure share cutoffs and the distribution of rents, highlighting the challenges for single-parent families and single-person households.

Works in Progress

Macro Fundamentals and Commercial Real Estate Price Dynamics

With Jacob Sagi

- Investigated the intricate relationship between macroeconomic fundamentals and commercial real estate prices, employing advanced econometric models to dissect the influences of changing monetary policy regimes on capitalization rates.

Conference and Seminar Presentations

- **2024** · University of California - San Diego West Coast Spatial Workshop
- **2023** · American Economic Association - American Social Sciences Association Conference, University of California Irvine Department of Economics - Urban Economics Seminar Series, American Real Estate and Urban Economics International Conference Cambridge, University of California - Irvine Miniconference on Urban and Public Economics, University of North Carolina at Chapel Hill - Commercial Real Estate Data Alliance Conference
- **2022** · American Real Estate and Urban Economics Association - American Social Science Conference, Freddie Mac, American Real Estate and Urban Economics Association International Conference Tokyo
- **2021** · Western Economic Association International Annual Meeting, American Real Estate and Urban Economics Association - American Social Sciences Association Conference
- **2020** · Columbia University Housing-Urban-Labor-Macro Conference
- **2019** · Ohio State University Ph.D. Conference on Real Estate and Housing, Real Estate Research Institute Conference, Federal Reserve Board of Governors, MIT (Re)Development Option Value in Real Estate Conference, UCLA /Federal Reserve - San Francisco /Federal Reserve Board of Governors Conference on Housing, Financial Markets, and Monetary Policy, Federal Reserve Board of Governors