# Kevin Sterling

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Department of Economics
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**DOCTORAL STUDIES**

University of Miami (UM)
PhD Candidate in Economics

**FIELDS**

Primary: Environmental Macroeconomics
Secondary: Econometrics and Machine Learning

**PRIOR EDUCATION**

University of Vermont (UVM) — 2011 - 2015
Economics and Political Science, *Cum Laude*

**PROFESSIONAL EXPERIENCE**

**Research Assistant, Prof. Stefania Albanesi** — 2025–Present
Built and managed an AWS cloud server to process and analyze a large panel consumer credit dataset (14.5 billion values)

**Research Assistant, Prof. David L. Kelly** — 2024 - Present
Flood Modeling and Property Values in Miami-Dade County

**Applied Mathematics Research Program, REU, FIU** — 2022
Mentors: Prof. Svetlana Roudenko and Stephen Tennenbaum

**Data Analyst and Research Assistant, Grove Releaf, FIU** — 2020-2021
PI: Prof. Chris Baraloto

**Economist, Tepino Branding, Miami, FL** — 2018-2020

**Senior Journalist, The Vermont Cynic** — 2011-2015

**PRESENTATIONS**

Southern Economics Association, Grad Student Sessions, Tampa, FL — 2025

Economics Department, Brown Bag Seminar, UM — 2025

Applied Mathematics Research Program for Undergraduates, Florida International University — 2023

ASPiRE, Mathematics Research Conference, Florida Gulf Coast University — 2023

REU Applied Mathematics Symposium, Florida International University — 2022

Racism and the Struggle for Racial Justice at UVM and in Vermont, Panel Speaker, Burlington, VT — 2015

Power Shift: Building a New Economy, Moderator, Landmark College, Putney, VT — 2015

**SUMMER SCHOOLS**

Center for Monetary and Financial Studies (CEMFI), Madrid, Spain "Difference-in-Differences with Panel Data" w/ Prof. Jeffrey Wooldridge — 2025

**AWARDS & SCHOLARSHIPS**

Roger Summers Award; Phi Beta Kappa; Pi Sigma Alpha — 2015

Dept. Honors (Political Science); Kidder Merit Scholarship ($40k); Gilman Scholar ($5k) — 2012–2014

Outstanding First-Year Academic Achievement — 2012

**PROGRAMMING**

Python, R, Matlab, Stata

## In Submission

1. *The Economic Animal: Economics for a Finite Earth*. Book manuscript under submission.

2. "On High-Quality Development and Two-Tier Stochastic Frontier," with Christopher F. Parmeter and Alecos Papadopoulos, 2025, *Energy Economics*.

## Works in Progress

1. **The Social Cost of Waste: Modeling Environmental Externalities through Cohort-Dynamics**
   Abstract: This paper introduces a cohort-based model that tracks the mass of pollutants—such as plastics—through distinct size thresholds, from macro to micro, each with different impacts, marginal damage function, and clean up cost function. Smaller size thresholds are often more damaging and more difficult to clean up, favoring early cleanup. Yet, if the decay rate is sufficiently high, discounting makes avoiding small size damages less important. The framework is generalizable to a wide range of materials and pollutants, including solid waste and atmospheric gases. An application comparing plastic and paper bags demonstrates the model's usefulness for cost-benefit analysis: despite low upfront energy impacts, the long-run costs of plastic bags—driven by persistent microplastic pollution—can outweigh those of paper, even under modest assumptions. This approach offers a scalable tool for policy evaluation, regulatory design, and interdisciplinary collaboration on pollution mitigation. It is especially useful for policymakers in cities and countries considering how to price plastic waste—many of whom have implemented taxes or bans without a rigorous cost-benefit framework.

2. **Credit Scores as a Financial Accelerator: Evidence Over the Business Cycle**
   Abstract: This paper investigates how credit scores operate as a financial accelerator, amplifying macroeconomic fluctuations over the business cycle. Using a nationally representative panel of one million U.S. consumers from Experian (2004–2018), I show that credit scores reward consumers for engaging in riskier financial behavior—such as taking on multiple mortgages—which stimulates consumption and growth during stable periods. However, in the face of economic shocks, defaults trigger sharp declines in credit scores, which in turn create a persistent drag on recovery by tightening credit access, particularly for subprime and previously defaulted borrowers. Importantly, I find that it is not only defaults, but also score deterioration itself, that constrains borrowing. A 5% decline in credit score leads to rising credit balances among high-tier borrowers, but stagnant or declining access for lower-tier consumers—even absent negative credit events. These asymmetric lender responses suggest that credit scores, while designed to assess risk, also propagate and magnify macroeconomic shocks. The findings call for a reconsideration of how creditworthiness is measured throughout the business cycle.

3. **Prices vs. Quantities in an Inflationary Economy** *(with David L. Kelly)*
   Abstract: We assess the relative merits of tax (e.g. a carbon tax) versus quantity (e.g. a cap-and-trade system) based environmental regulation in a New Keynesian economy with uncertain inflation. The optimal tax must be set in nominal terms and therefore the real tax rate fluctuates, causing marginal damages to equal the marginal cost of reducing emissions only in expectation. The welfare loss is proportional to the level of uncertainty in the inflation rate. In contrast, in a cap-and-trade system the price fluctuates in a securities market and so inflation causes the nominal price of permits to adjust, keeping the real price of permits constant. Therefore, inflation causes no welfare loss in a cap-and-trade system. We calculate the relative advantage of the cap-and-trade system over a hypothetical tax system for the case of California and Europe Emissions Trading System.