

# Ken Q. Bao

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Personal Website  
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## Education

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<b>University of California - Santa Barbara</b> <i>PhD, Economics</i>	September 2017 – June 2023 <i>Santa Barbara, California</i>
<b>University of Missouri - Saint Louis</b> <i>MA, Economics</i>	August 2014 – May 2017 <i>Saint Louis, Missouri</i>
<b>University of Missouri - Saint Louis</b> <i>BA, Business Administration - Finance</i>	August 2012 – May 2014 <i>Saint Louis, Missouri</i>

## Job Market Paper

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### *Command-Control versus Market Incentive Policies for Non-point Source Pollution*

This paper aims to compare the cost-effectiveness between command-control and market instruments in addressing non-point source pollution. By definition, non-point source pollution (NPSP) is extremely difficult to observe individual level discharge and thus, very hard to implement market incentive policies. Few observational studies examine the cost effectiveness of NPSP policies because it is difficult to study how individual polluters respond to pecuniary incentives to abate. I exploit a policy setting where agricultural runoff is in fact, a point source pollution but is regulated as if it were NPSP which allows the study of abatement behavior in what is typically a NPSP setting. I study a program called the Florida Everglades Forever Act intended to reduce phosphorus runoffs from entering the sensitive Everglades ecosystem. The program consists of both a command-control component as well as a market incentive component which I am able to disentangle using a new dataset I developed on annual farm level discharge and subsidies for pollution reduction. The dataset allows the use of the two-step Arellano-Bond estimator to estimate a marginal abatement cost (MAC) curve for the average farm. Using the estimated MAC curve, I simulate the costs under the market mechanism and compare that with both data-estimated and engineer-estimated costs under command-control. I find that to achieve the same benchmark pollution outcome, the market mechanism would reduce compliance cost by 20%.

## Research Experience

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<b>Graduate Research Assistant</b> <i>Center for Transportation Studies at University of Missouri - Saint Louis</i> <ul style="list-style-type: none"><li>• Conducted cost-benefit analyses on various transportation policy proposals</li><li>• Conducted literature reviews</li><li>• Gathered and cleaned datasets for analyses</li><li>• Aided in writing papers for publication</li></ul>	May 2015 – May 2017 <i>Saint Louis, Missouri</i>
<b>Graduate Research Assistant</b> <i>University of California - Santa Barbara</i> <ul style="list-style-type: none"><li>• Conduct literature review on endogenous technological change</li><li>• Helped develop model to analyze impact of backstop technologies on conservation goals</li></ul>	June 2019 - September 2019 <i>Santa Barbara, California</i>

## Teaching Experience

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### Teaching Assistant

September 2017 – Present

*University of California - Santa Barbara*

*Santa Barbara, California*

- Principles of Microeconomics, UCSB ECON 1 (4 quarters)
- Intermediate of Macroeconomics, UCSB ECON 101 (2 quarters)
- Intermediate Microeconomics I, UCSB ECON 10A (1 quarter)
- Intermediate Microeconomics II, UCSB ECON 10A (5 quarter)
- Intro to Econometrics, UCSB ECON 140A (1 quarter)
- Statistics for Economics, UCSB PSTAT 109 (2 quarters)
- Corporate Financial Management, UCSB ECON 134A (6 quarters)

### Teaching Associate

April 2019 – Fall 2020

*University of California - Santa Barbara*

*Santa Barbara, California*

- Corporate Financial Management, UCSB ECON 134A (2 quarters)
- Designed/conducted course lectures
- Wrote exams
- Mentored students

## Peer Reviewed Publications

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Jill M. Bernard Bracy, Ken Q. Bao, and Ray A. Mundy. "Highway infrastructure and safety implications of AV technology in the motor carrier industry". In: *Research in Transportation Economics* 77 (2019), p. 100758

## Working Papers

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K. Bao – "Command-Control versus Market Incentive Policies for Non-point Source Pollution".

K. Bao – "Non-point Source Pollution and Ambient Taxes: Free Riding Incentives and Sequential Play".

C. Costello & K. Bao – "Cost Effectiveness of Coupling Payments for Ecosystem Services with Risk-based Compensation Payments".

## Research Presentations

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R. Mundy, K. Bao, & A. Woods – "Cost Effectiveness Analysis: Substituting Ground Transportation for Subsidized Essential Air Services", *Transportation Research Board 96th Annual Meeting*. January 2017.

K. Bao - "Command-Control versus Market Incentive Policies for Non-point Source Pollution", *2022 Association for Public Policy Analysis and Management*. November 2022.

## Awards, Honors & Scholarships

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### Outstanding Undergraduate TA Award, 2021

*University of California - Santa Barbara*

2021

### Mortimer Andron Fellowship

*University of California - Santa Barbara*

2017 - 2019

### Outstanding Student Award

*U.S. Department of Transportation*

2017

### Elizabeth M. Clayton Scholarship

*University of Missouri - Saint Louis*

2016

### *Specialized Skills*

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**Programming Languages:** Python (intermediate), R (proficient), STATA (intermediate), Julia (beginner)

**Software:** Excel (proficient)

### *Personal*

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**Citizenship:** United States

**Home town:** Saint Louis, Missouri