Ken Bao

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Education

Ph.D. Candidate, Economics, 2023
- University of California – Santa Barbara

MA, Economics, May 2017
- University of Missouri – St. Louis

BS, Business Administration – Finance, May 2014
- University of Missouri – St. Louis
- Minor, Economics

Awards and Grants

- Outstanding Undergraduate TA Award, 2021
- Mortimer Andron Fellowship, UCSB
- 2017 Outstanding Student Award issued by U.S. D.O.T.
- Elizabeth M. Clayton Scholarship, 2016
- Iowa State UTC Grant Scholar, 2016

Fields of Specialization

Environmental and natural resource economics with a special emphasis on collective management problems such as non-point source pollution issues.

Job Market Paper

"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. Non-point source pollution (NPSP) is notoriously difficult to regulate as it is extremely difficult to observe and estimate individual level discharge. There is a dearth of observational studies on the cost effectiveness of NPSP policies because the answer requires the study of 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. In this context, command-control comes in the form of mandatory best management practices (BMPs) which are a set of verifiable pollution reducing projects/procedures that do not offer firms flexibility in abatement choices. Market incentives can offer a much higher degree of flexibility and thus lower compliance costs and in this context, they come in the form of ambient mechanisms (AMMs). AMMs impose uniform tax (or subsidy)

to all firms based on aggregate emissions and such approaches are theoretically appealing but have rarely been applied in practice and thus relatively little is known about them. I study a program called the Florida Everglades Forever Act intended to reduce phosphorus runoffs from entering the sensitive Everglades. The program consists of both a command-control component as well as a market incentive component. I develop a new dataset with farm level discharge and subsidies for pollution reduction to estimate a marginal abatement cost (MAC) curve for the average farm. Using the estimated MAC curve, I simulate the costs under AMM and compare that with both data-estimated and engineer-estimated costs under BMPs. I find that to achieve the same benchmark pollution outcome, AMM could be about 1/4 the cost under BMPs.

Teaching Experience

Teaching Assistant for:

- Principles of Microeconomics, UCSB ECON 1 (2 quarters)
- Intermediate Macroeconomics, UCSB ECON 101 (1 quarter)
- Intermediate Microeconomics I, UCSB ECON 10A (1 quarter)
- Intermediate Microeconomics II, UCSB ECON 100B (5 quarters)
- Introduction to Econometrics, UCSB ECON 140A (1 quarter)
- Statistics for Economics, UCSB PSTAT 109 (1 quarter)
- Corporate Financial Management, UCSB ECON 134A (6 quarters)

Teaching Associate for:

- Corporate Financial Management, UCSB ECON 134A (2 quarters)

Peer Reviewed Publications

(With J. Bracey and R. Mundy) "Highway infrastructure and safety implications of AV technology in the motor carrier industry." *Research in Transportation Economics* 77 (2019): 100758.

Other Papers and Presentations

Rooting Out Violence: One Analysis at a Time, 2014, Presented at the Missouri Valley Economic Association.

(With Dr. Mundy, Abby Wood), Cost Effectiveness Analysis: Substituting Ground Transportation for Subsidized Essential Air Services, December 2015, Institute for Transportation – Iowa State University.

Working Papers

“Non-point Source Pollution and Ambient Taxes: Free Riding Incentives and Sequential Play”

“Cost Effectiveness of Coupling Payments for Ecosystem Services with Risk-based Compensation Payments”

Personal:

US Citizen originally from Saint Louis, MO.

References:

Christopher Costello
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Olivier Deschenes
olivier@econ.ucsb.edu

Antony Millner
millner@ucsb.edu