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MATTHEW A. TARDUNO

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Doctoral Studies

University of California, Berkeley
PhD, Agricultural and Resource Economics, Expected completion May 2022
Graduate Student Researcher, the Energy Institute at Haas

FIELDS: Environmental Economics, Public Economics

Professor James Sallee
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Prior Education

Williams College	B.A. Mathematics, Economics	2016

Teaching

MBA Microeconomics	Haas School of Business (James Sallee)	2021
Intermediate Microeconomics	Dept. of Agricultural & Resource Economics (Calanit Kamala)	2018

Grants, Fellowships, and Awards

2021 Research Fellow, *Law, Economics, and Politics Center at UC Berkeley*.
2020 Research Fellow, *Law, Economics, and Politics Center at UC Berkeley*.
Berkeley XLab Research Grant, Sacheti Family Fellowship.

Research Papers

"For Whom the Bridge Tolls: Congestion, Air Pollution, and Second-Best Road Pricing"
JOB MARKET PAPER [Email for Copy]

Cities are increasingly adopting road pricing policies to address the congestion and air pollution externalities associated with urban driving. A first-best road pricing scheme would charge road users for all trips according to the social damages associated with each trip. In practice, road pricing most often takes the form of *cordon zones* — regions in the center of a city where road users are charged for entry. Real-world road pricing schemes therefore deviate from the first-best policy along two important dimensions: First, feasible cordon systems cannot account for all of the heterogeneity in trip-level externalities. Second, cordon zones leave nearby roads unpriced, allowing for externality leakage. As a result, it is generally unclear how to optimally set cordon prices. In this paper, I adapt models from public finance to demonstrate how to optimally set cordon prices in the face of these policy imperfections. Calculating optimal prices requires (i) information about the heterogeneity in marginal trip-level externalities, (ii) the relationship between these externalities and individual price-responsiveness, and (iii) the elasticity of substitution between priced and unpriced trips. I then use detailed microdata from bridge tolls in the San Francisco Bay Area to back out each of these parameters. Armed with this model of urban driving demand, I calculate optimal prices for planned cordon zones in three cities — San Francisco, Los Angeles, and New York. In each city, I find that leakage drives optimal peak-hour prices ($2-7) well below average social damages ($4-12). Optimal cordon policies are relatively ineffective at internalizing congestion and pollution externalities: In these three cities, second-best cordon prices recover 15 to 40% of the welfare gains that would be achieved under an (infeasible) Pigouvian policy. To conclude, I discuss the prospects for improving the performance of congestion pricing through expanding spatial coverage or allowing for granular time-of-day prices.

Tarduno, Matthew. **"The congestion costs of Uber and Lyft"** *The Journal of Urban Economics*, 2021, 122, 103318. [Publication][Ungated]

Abstract: I study the impact of transportation network companies (TNC) on traffic delays using a natural experiment created by the abrupt departure of Uber and Lyft from Austin, TX. Applying difference in differences and regression discontinuity specifications to high-frequency traffic data, I estimate that Uber and Lyft together decreased daytime traffic speeds in Austin by roughly 2.3%. Using Austin-specific measures of the value of travel time, I translate these slowdowns to estimates of citywide congestion costs that range from $33 to $52 million dollars annually. Back of the envelope calculations imply that these costs are similar in magnitude to the consumer surplus provided by TNCs in Austin. Together these results suggest that while TNCs may impose modest travel time externalities, restricting or taxing TNC activity is unlikely to generate large net welfare gains through reduced congestion.

Research in Progress

"What drives support for inefficient environmental policies? Evidence from a Nevada ballot initiative"
Working paper, *Berkeley Law, Economics, and Politics Center.* [Working Paper]

I use an information provision experiment conducted around a vote on Nevada's renewable portfolio standard (RPS) to study voter preferences for externality-correcting policies. I leverage exogenous variation in respondent beliefs induced by the experiment to model policy support as a function of voter perceptions of policy attributes (cost, effectiveness, and regressivity). I find that voting behavior is relatively unresponsive to perceived cost and perceived regressivity, but relatively responsive to perceived policy effectiveness. Using this model, I decompose differences in support for a performance-based policy (Nevada's RPS) and a hypothetical price-based policy (a carbon tax). Oaxaca-Blinder decompositions imply that differences in perceptions of policy attributes explain just 23% of the gap in support between RPS policies and carbon taxes, suggesting a significant role for "tax aversion." To the extent that misperceptions of policy attributes do explain differences in support for these two policies, the explained gap results from overly optimistic beliefs about RPS attributes. To conclude, I predict voting behavior several under counterfactual scenarios. I find that in this setting, targeting revenue toward "swing" voters is unlikely to significantly improve support for carbon taxes. Instead, the results of this experiment highlight the importance of communicating to voters the efficacy of price-based policies.

"Understanding the role of information in the willingness to pay for clean air" with Reed Walker

Prior Employment	**Stanford University**	Research Assistant to Marcella Alsan	2016-2017

Talks UC Berkeley Environment and Resource Economics Seminar (2020, 2021); NC State Camp Resources (2021); UC Berkeley Law, Economics and Politics Center (2021); Giannini Agricultural and Resource Economics Student Conference (2019).

Activities	*Giannini Agricultural and Resource Economics Student Conference* (Organizer)	2020
	Berkeley ARE Diversity, Equity, and Inclusion Committee (Pedagogy Subcomittee Member)	2020-2021