I. Research Question

How do body cameras impact officer hit rates for traffic stops? How do impacts vary across races?

Body worn cameras (BWCs) are used across the US to record officer interactions with civilians, but their impact on officer and civilian behavior is not yet well understood. We will investigate the impact of BWC deployment on successful contraband retrieval and the differential impacts by race. We will compare the number of stops, stops resulting in a search, and searches resulting in contraband found before and after BWC implementation. This will show how BWC implementation influenced officers' thresholds to search a suspect and department-level "hit rates[1]." We are all interested in criminal justice reform, so this analysis is an exciting opportunity to meld our personal interest with class learnings. As costly BWC programs expand across the US, it is critical to understand the effectiveness of BWC rollout.

II. Context and Background

Our project is in part inspired by "A large-scale analysis of racial disparities in police stops across the United States," conducted by the Open Policing Project (OPP). In this paper, researchers examined racial disparities in traffic stops before and after dark and used difference-in-differences to analyze the effects of marijuana legalization, both of which provide methodological guidance. We will also explore past research on body cameras' effects (e.g., Ariel et al. (2016); Farrar & Ariel (2013); Lum et al. (2020)).

III. Data

We will use data from the OPP, which has standardized information on police stops by state and department. This data enables us to assess traffic stop "hit rates" in proximate cities. Given that most of the viable data comes from California and North Carolina, we will likely analyze police departments in those states. We will also use survey data from police agencies to determine when agencies implemented BWCs.

IV. Proposed Methodology

We will answer our research question using **difference-in-differences**. We will find proximate counties that had body camera policies (treatment) and did not have body camera policies (control). We will use difference-in-differences to compare treatment-control county pairs in the six months before policy implementation and the six months following[2]. We will then replicate the analysis disaggregating by race. Qualitatively, we expect to produce plots of traffic stops over time for our treatment and control pairings (see Figure 1). We will also produce a table with various model specifications, estimated average treatment effects, and standard errors.

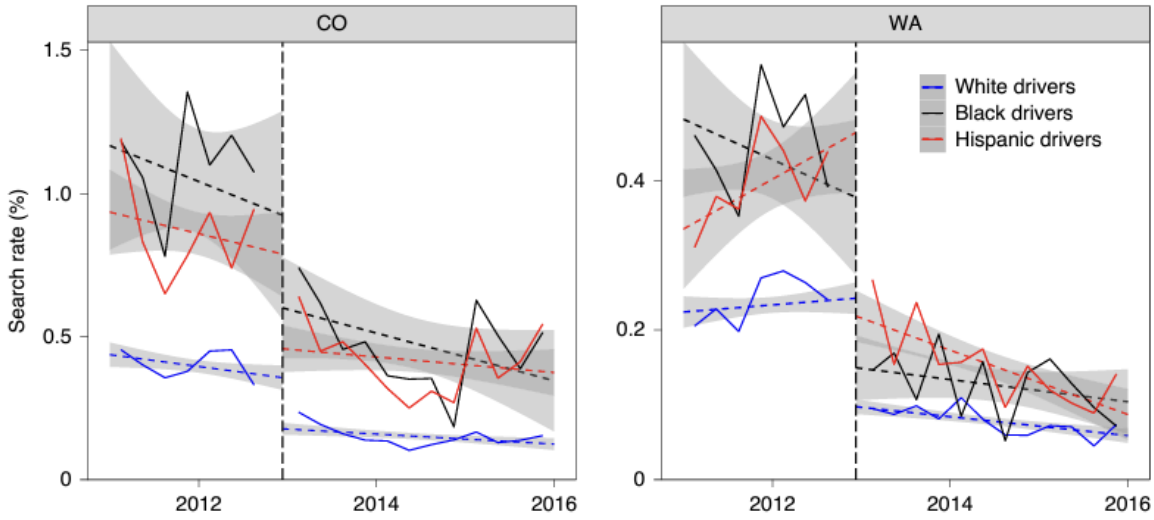
We hope to then replicate some portions of Miller & Chillar by implementing **propensity score matching** with covariates related to sub-county police agency characteristics like size, state, and pretreatment traffic stop trends (2021). This large-scale analysis will incorporate finer-grain agency data. We are hopeful that we will be able to extract specific agency boundaries to locate traffic stops within agencies, but, if not, we will still be able to conduct the county-level analysis described above. Qualitatively, for this analysis, we expect to produce figures showing the covariate imbalance for our matching methods and a table with average treatment effects and standard errors as in our first analysis.

[1] "Hit rates" are the proportion of searches resulting in contraband found

[2] We will also include a 6-month buffer period to account for the gradual rollout of body camera policies

V. Appendix

Figure 1.



VI. Sources

Ariel, Barak & Farrar, Charles & Sutherland, Alex. (2014). The Effect of Police Body-Worn Cameras on Use of Force and Citizens' Complaints Against the Police: A Randomized Controlled Trial. Journal of Experimental Criminology. 10.1007/s10940-014-9236-3.

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Lum, C, Koper, CS, Wilson, DB, et al. Body-worn cameras' effects on police officers and citizen behavior: A systematic review. Campbell Systematic Reviews. 2020; 16:e1112.

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