Supplementary Materials: A randomized control trial evaluating the effects of police body-worn cameras

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Contents

In this document, we expand on the discussion in the main body of the paper, providing a more detailed description of the methodology and outcomes of interest. We also apply the analyses detailed in our pre-analysis plan to the endline data, and present the full set of results here. The tables below each analyze a discrete set of outcomes. For each set of outcomes, we present both the "raw" differences-in-means (DIM) and the covariate-adjusted (OLS) treatment effect estimates. We indicated in our pre-analysis plan that we would report these exact analyses with data from all districts at the conclusion of the trial. Finally, this section concludes with supplementary analyses conducted to inform the interpretation of our main results. We also append our preanalysis plan to this document for completeness.

A Methodology

Three key considerations informed the design and implementation of the BWC RCT in Washington, DC: legislative obligations, the logistics of BWC deployment, and scientific requirements of a rigorous study. First, a legislative mandate to equip all officers with BWCs by the end of 2016 meant that the RCT would have to end no later than mid-December 2016, leaving a two-week window to deploy remaining cameras. The logistics of BWC deployment, characterized by a rolling camera shipment schedule and a district-by-district installation schedule, also influenced our timeline and measurement strategy for the study, as we recognized that deployment would be staggered across the police districts.

Finally, to determine the appropriate design of the study (e.g., level of randomization, length of study period), we conducted a pilot study in two of the seven MPD police districts. In June 2015, eligible officers in these two districts were randomly assigned to receive a BWC or not: 325 officers were outfitted with BWCs, while 180 were not given cameras (the "control" group). This pilot allowed the team to collect sufficient preliminary data to inform the design of the full-scale evaluation (e.g., conduct statistical power calculations to determine the minimum detectable effect for various study designs). Drawing on this information, and operating in accordance with the legislative and logistic requirements noted above, we determined that, at a minimum, a six-month-long study with individual-level randomization within each district would be sufficiently powered to detect the effect (if it exists) of body-worn cameras on key outcomes of interest.

Officers were assigned cameras using a block randomized assignment procedure. Block random assignment uses pre-treatment information to group officers into blocks, and then to randomly assign a fixed number of cameras to officers in each block. We had two levels of blocking, "major" and "minor."

The major blocks are the seven districts, and three special units (NSID, SOD, and School Security Division [SSD]).[1] Except in the blocks involved in the pilot (5D and 7D), we created "minor" blocks based on background characteristics of the officers. We grouped officers into matched pairs so that within each pair, officers were maximally similar to each other according to these characteristics. This pairing was conducted using the BlockTools package for R. We then assigned a camera to one officer within each pair at random. Within 5D and 7D, we used complete random assignment, i.e., a fixed number of officers in each district were randomly assigned to receive cameras.

In the first Narcotics and Special Investigations Division (NSID) subgroup of officers to be randomly assigned BWCs, we were requested to assign cameras to more than 50% of the officers. We first made matched trios, then randomly assigned some trios to get two cameras and others to get one camera, then within trios, assigned the allotment of cameras at random.

In all major blocks, the probability of assignment to a camera is *constant across officers*. This probability is, however, *different across major blocks*. When the probabilities of assignment differ by district/unit, naive estimation strategies will be biased. Our analysis employs inverse probability weights (IPW) to account for this bias.[2]

Table A.1 shows the number of units assigned to Control and Treatment in each block, as well as the

[1] Officers assigned to the station in district 1D (1D-station) were assigned separately from other officers in 1D. Random assignment of BWCs to NSID were completed in two separate rounds. This makes a total of 12 major blocks in our randomization strategy.

[2] Gerber, Alan S. and Donald P. Green. (2012). *Field Experiments: Design, Analysis, and Interpretation.* New York, NY: W.W. Norton & Company, Chapter 3.

probability of assignment and the precise covariates used to create the minor blocks. These covariates are slightly different in each block due to data constraints as well as numerical difficulties encountered in the blocking algorithm due to very small variation for some covariates.

Table A.1: Summary of Random Assignment Results

District/Unit	Control	BWC	Probability of Assignment	Covariates Used in Minor Blocking
1D	142	142	0.5	PSA, gender, use of force, race, length of service
1D Station	7	7	0.5	PSA, gender, use of force, length of service
2D	137	137	0.5	PSA, gender, use of force, race, length of service
3D	137	137	0.5	PSA, gender, use of force, race, length of service
4D	141	141	0.5	PSA, gender, use of force, race, length of service
5D	79	166	0.68	N/A
6D	153	152	0.5	PSA, gender, use of force, race, length of service
7D	99	159	0.62	N/A
NSIDa	12	19	0.61	Gender, use of force, race
NSIDb	36	36	0.5	Gender, use of force, race
SOD	48	49	0.5	Gender, use of force, race
School Security	44	44	0.5	Gender, use of force, race

Tables A.2 and A.3 provide descriptive statistics on the pre-treatment covariate balance across treatment and control groups.

Table A.2: Pre-Treatment Covariate Distribution: Race and Sex

	Control Group %	Treatment Group %
American Indian/Alaskan Native	0.0	0.2
Asian/Pacific Islander	3.4	3.2
Black/African American	51.3	54.4
Hispanic	9.3	7.7
Unknown Race	0.8	1.3
White/Caucasian	35.3	33.3
Female	17.4	17.9
Male	82.6	82.1

Table A.3: Pre-Treatment Covariate Distribution: Average Length of Service at MPD (in years)

	Control Group	Treatment Group
Mean Length of Service	13.3	12.9
Median Length of Service	12.0	12.0

To implement the randomized assignment to treatment and control groups, the research team pulled full rosters for each district and specialized unit and applied the eligibility criteria to generate rosters of study-eligible MPD members by district and special unit.[3]

[3]Per legislative mandate, all MPD officers were required to wear BWCs by the end of 2016, with the implementation of

The research team then conducted block randomization to assign all MPD members on these rosters to either treatment or control conditions. Randomized assignments for all districts and units were transferred to MPD and BWCs deployed following the schedule below:

Table A.4: District and Date of First BWC Deployment in District/Unit

5D	June 28, 2015
7D	June 28, 2015
NSID	February 11, 2016
3D	March 15, 2016
1D	March 22, 2016
6D	April 19, 2016
4D	May 3, 2016
2D	May 17, 2016
SOD	July 22, 2016
School Security	September 14, 2016

Specifically, treatment entails assignment of an eligible participant to wear and use a BWC in accordance with MPD policy. MPD General Order SPT-302.13 specifies that "[m]embers, including primary, secondary, and assisting members, shall start their BWC recordings as soon as a call is initiated via radio or communication from OUC [Office of Unified Communications] on their mobile data computer (MDC), or at the beginning of any self-initiated police action." The general order enumerates the range of events for which officers were required to activate their BWCs; this list is included in Appendix F.

Some officers who are assigned cameras might not have installed or used them, and some officers who are not assigned cameras might have nevertheless obtained them. Our intervention therefore encountered two-sided noncompliance.[4] We conduct all of our analyses according to the original random assignment in order to preserve symmetry. Our experiment recovers estimates of the effect of being *assigned* to a BWC on a variety of outcomes (the so-called intention-to-treat effect, or ITT).

A.1 Alternate Measurement Strategy

In addition to the primary specification described in the main text, we use all available data for all districts to calculate the yearly rate per 1000 officers for each of the measured outcomes. This alternative measurement strategy has the advantage of using all available data, but may lead to somewhat distorted inferences. For example, the average treatment effect estimates obtained using the alternative measurement strategy will include outcome data for 5D and 7D that is much further removed from the initial deployment of cameras than for the other districts due to the staggered deployment process.

The coefficient plots for each of the outcomes using this alternate measurement strategy are provided in Section 4. Regardless of which measurement strategy we apply, our findings remain the same: we are unable to detect any statistically significant effects of BWCs on the measured outcomes.

this deployment to be conducted by MPD. In this setting, participation in the study was mandatory for all officers deemed to be eligible based on the criteria outlined in the main text.

[4]See Gerber and Green, Chapter 6.

A.2 Detailed Description of Outcome Measures

We assessed the effect of BWCs on the following four families of outcome measures: police use of force; citizen complaints; policing activity; and judicial outcomes. The specific measures associated with each family and their respective definitions are detailed below.

A.2.1 Use of Force Outcome Measures

One of the primary anticipated effects of BWCs is that they will deter police use of force. MPD requires its members to submit reports documenting all uses of force, as defined in General Order RAR-901.07.[5] We use this data, captured in MPD's Personnel Performance Management System (PPMS), to assess the effect of BWCs on police use of force in DC, and measure the following outcomes:

Use of force incidents. Per MPD policy, a use of force incident is a self-reported use of force.[6] In addition to comparing all uses of force across the control and treatment groups, we also differentiate between serious uses of force and other uses of force, as defined by MPD policy.[7] We look at these two measures separately as our data captures self-reported incidents. Under this logic, we might expect a decline in reports of serious uses of force due to the presence of the BWCs, but a possible in increase in reports of other uses of force, if officers are more diligent in reporting lower-level uses of force in light of the camera's documentation of the interaction.

Use of force (serious). This includes:

- Firearm discharges
- Officer-involved shootings
- Use of force resulting in a broken bone or an injury requiring hospitalization
- Use of ASP (baton)
- All head strikes with an impact weapon
- Use of force resulting in loss of consciousness
- Use of force creating a substantial risk of death, serious disfigurement, disability or impairment of the functioning of any body part or organ MPD canine bites
- Use of force involving the use of neck restraints or techniques intended to restrict a subject's ability to breathe
- Other use of force resulting in death

Use of force(other). This includes all uses of force not categorized as a serious use of force.

[5] See Metropolitan Police Department. General Order - Use of Force. GO-RAR-901.07. Accessed October 6, 2016. <https://go.mpdconline.com/GO/GO_901_07.pdf>, p. 4 and p. 14 for instances in which MPD members are required to report use of force.

[6] See Metropolitan Police Department. General Order - Use of Force. GO-RAR-901.07. Accessed October 6, 2016. <https://go.mpdconline.com/GO/GO_901_07.pdf>, p. 9.

[7] In GO-RAR-901.07, see p. 3, item 9 for definition of serious uses of force, and p. 4, item 12 for general use of force definition.

Race of Subject of Force. We also examined use of force incidents by the race of the subject of the force, again looking at both "uses of force (serious)" and "uses of force (other)." The District of Columbia has a population of approximately 680,000, distributed as follows: 44.1% White; 48.3% Black; 10.6% Hispanic or Latino; 4.2% Asian; 2.7% multiracial; less than 1% each American Indian or Native Hawaiian or other Pacific Islander.[8] Based on this demographic distribution, we examined use of force across the following race categories: White, Black/African American, Hispanic, and Other/Unknown.

A.2.2 Civilian Complaints Outcome Measures

BWCs are believed to have a broad "civilizing effect," encouraging officers to be professional and courteous and civilians to be respectful and compliant. This effect can be measured in terms of civilian complaints, which in DC are reported to and investigated by both MPD and by the Office of Police Complaints (OPC), an independent civilian agency.[9] Complaints were documented in the PPMS system and linked to the individual officers against whom the complaint was filed. We used this data to assess the effects of BWCs on civilian complaints, to be measured as follows:

Civilian Complaints. The complaints outcome measure will aggregate complaints from both MPD and OPC sources and compare the rate of civilian complaints for officers with BWCs vs. those without BWCs. We also disaggregate complaints according to whether they were sustained or not by the investigating body:

Complaint Sustained. A complaint is sustained when the allegation is deemed to be "supported by sufficient evidence to determine that the incident occurred, and the actions of the member were improper."[10]

Complaint Not Sustained. Complaints that are not sustained have a disposition other than "sustained" (e.g., insufficient facts, exonerated, unfounded, or pending).

Insufficient Facts. Complaints with a disposition of "Insufficient Facts" were evaluated separately. This measure speaks to the question of whether the addition of BWC footage as a source of evidence produces any effect on the number of cases deemed to be inconclusive (for those complaints involving officers assigned to wear BWCs).

[8] United States Census Bureau. "Quick Facts - District of Columbia." July 1, 2015 estimates. Accessed 6 Sept 2016. Available <https://www.census.gov/quickfacts/table/PST045215/11,00>.

[9] During the study period, the Neighborhood Engagement Achieves Results (NEAR) Act, went into effect, changing the process for reporting complaints. Beginning in June 30, 2016, all complaints against MPD members were filed directly with OPC, with notification to MPD.

[10] See Metropolitan Police Department. General Order - Processing Citizen Complaints. GO-PER-120.25. Accessed July 19, 2016. <https://go.mpdconline.com/GO/GO-PER-120.25.pdf>, p. 9 for definitions of complaint dispositions.

A.2.3 Policing Activity Outcome Measures

We examined the effect of BWCs on a variety of different policing activity measures, including traffic tickets and warnings issued, reports taken from particular types of calls for service, arrests on specific charges, and injuries sustained by officers. We use these measures to evaluate the effects of BWCs on officer discretion and activity, as well as on civilian behavior. For example, do the cameras have any impact on the number of traffic tickets or arrests officers make? Do officers assigned to wear BWCs experience fewer injuries due to assaults by civilians?

Traffic Tickets and Warnings issued. The tickets and warnings included in this data were issued in personal, face-to-face interactions between MPD officers and members of the public (e.g., no parking tickets or red-light camera tickets are included).

Discretionary Arrests. Per our interviews with MPD officials, officers exercise greater discretion to make arrests on charges in the following subset of offense categories:

- Disorderly Conduct
- Simple Assault
- Traffic Violations

We compared the control and treatment groups on the number of arrests officers in each group made on charges in these categories as a measure of the BWCs' effects on officer discretion.

Domestic Violence vs. Family Disturbance Report Taken Calls for Service. Officers responding to intra-family disputes have the discretion to code those calls explicitly as domestic violence events or note them as a "family disturbance." Given the greater workload associated with domestic violence events, we examined all calls for service coded as domestic violence incidents (e.g., event description is noted as "domestic violence"; "domestic violence incident"; or "domestic violence assault) as well as those coded as "family disturbance" events as an additional measure of the cameras' effects on officer discretion.

Domestic Violence Arrests. The District of Columbia has a mandatory arrest policy for domestic violence incidents. We examined these arrests as another measure of the cameras' effects on officer discretion.[11]

Assault on a Police Officer (APO) arrests. APO arrests include both misdemeanors and felonies, and we looked at each separately in our analysis. They are defined in accordance with DC Criminal Code (§22-405), "Whoever without justifiable and excusable cause, assaults, resists, opposes, impedes, intimidates, or interferes with a law enforcement officer on account of, or while that law enforcement officer is engaged in the performance of his or her official duties shall be guilty of a misdemeanor..." In addition to the above definition, an APO is a felony when this assault "causes significant bodily

[11] See DC Code §16-031. "Arrests." Available `https://beta.code.dccouncil.us/dc/council/code/sections/16-1031.html` Accessed 27 Oct 2016.

injury to the law enforcement officer, or [the individual] commits a violent act that creates a grave risk of causing significant bodily injury to the officer." MPD records all arrests in a database dedicated to this purpose, and codes APOs (misdemeanors and felonies) explicitly.

Officer injuries. In addition to examining APOs as a gauge of the effect (if any) of body cameras on civilian behavior, we also examined officer injuries sustained from interactions with civilians using data obtained from the MPD clinic.

A.2.4 Judicial Outcome Measures (for MPD arrest charges only)

This set of outcomes begins to explore the evidentiary value of BWCs to criminal justice proceedings, to be measured as follows:

Prosecutions. Once MPD charges an individual with a crime and makes an arrest, the US Attorney's Office (USAO) or Office of the Attorney General (OAG) must decide whether or not to prosecute the charge based on the evidence available and the means by which that evidence was obtained, among other factors. We examine what happens to those specific charges on which MPD made arrests.[12]

We divided prosecutions into four categories, each of which serves as a separate dependent variable.

- **Trial and found guilty.** The disposition was Guilty-Court Trial or Guilty-Jury Trial.
- **Trial and found not guilty.** The disposition was Not Guilty-Acquittal, Not Guilty-Jury Trial, Not Guilty-Court Trial, or Not Guilty-By Reason of Insanity.
- **Plea.** The disposition was Dismissed-Nolle-Diversion, Dismissed-Nolle-Prosequi, Guilty-904 Guilty Plea, Dismissed-Plea Agreement, Guilty-Plea Judgment Guilty.
- **Dismissed without plea.** The disposition wa Dismissed-DWP, Dismissed-No Probable Cause, Dismissed, Dismissed-Prosecution Abated.

Court Appearances. Court appearances are the number of times an officer appears in court, drawn from the MPD time, attendance, and court information database.

Hours in Court. This is an alternative measure of the amount of time officers spend in court.

[12]Due to current data limitations, we are unable to analyze the full universe of charges prosecuted by USAO and OAG at this time, and so our analysis of the effect of BWCs on judicial outcomes is limited to the subset of charges brought by MPD. For example, if MPD makes an arrest on a felony, and USAO or OAG changes those felony charges to a misdemeanor charge, adds another charge Y, this event is reflected in our data as Felony X not prosecuted; neither the misdemeanor charge nor the additional charge Y that are prosecuted by OAG are not captured in the data. As this limitation applies to both control and treatment groups, we can still conduct a preliminary analysis on the evidentiary value of BWCs, but make note that the data do not encompass all charges on which individuals are prosecuted in the District of Columbia.

A.3 Manipulation Check

Finally, as a measure of compliance with MPD BWC policy and treatment assignment, we measure the **number of videos uploaded** to the video databases as well as the **average length of the videos in minutes.**

B A Novel Approach to Program Evaluation

One unusual aspect of this RCT concerns the relationship between the research team and the studied population. While program evaluation by outside researchers is hardly rare for government entities, working with a team of scientists *based within government* to conduct such work marks a new approach, one that places an emphasis on integrating rigorous scientific practices directly into governance and policy-making. The development and publication of the pre-analysis plan by a government entity, paired with an extended period of stakeholder engagement conducted prior to analysis of the data, is, to our knowledge, unprecedented.

B.1 Stakeholder Engagement

MPD and The Lab @ DC conducted numerous briefings regarding the BWC program and study design, including multiple conference presentations to police and research audiences, as well as engagement sessions with various stakeholders throughout the District. Importantly, all of these presentations were conducted *before* any researchers saw or analyzed the data; neither the research team nor the audiences to whom we were presenting knew what the findings were at the time these sessions were conducted. At each presentation, MPD provided an overview of the BWC program and policy, and The Lab @ DC discussed the details of the study design, concluding with a Q&A session allowing for open dialogue and the collection of feedback from participants. The full list of presentations is provided below.

B.1.1 Conference Presentations (All in Washington, DC unless otherwise noted)

Date	Engagement Event
October 2016	International Association of Chiefs of Police Annual Meeting (San Diego, CA)
November 2016	Association of Public Policy Analysis and Management Fall Research Conference
January 30, 2017	Experiments in the Public Interest
April 19, 2017	City and County Performance Summit

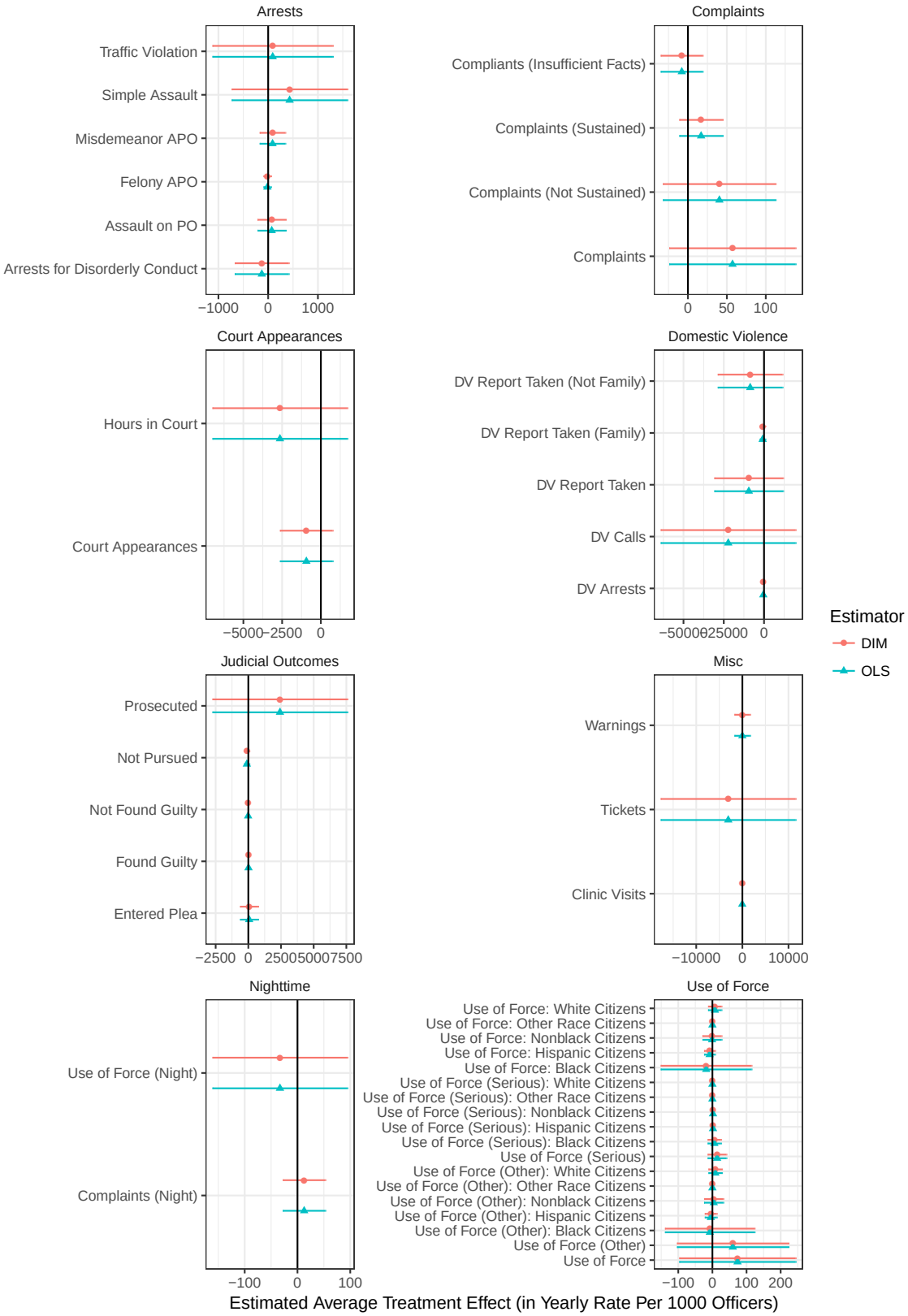
B.1.2 Stakeholder Briefings (All in Washington, DC)

Date	Engagement Event
March 10, 2017	Stakeholder Engagement Briefing (with DC Government partners and advocacy groups)
March 16, 2017	Law Enforcement Executive Task Force
March 16, 2017	MPD Civilian Engagement Session
April 12, 2017	MPD Youth Advisory Council (DC high school students)
April 12, 2017	Public Defenders Service Engagement Session
April 20, 2017	Military Chiefs of Police (Arlington, VA)
April 25, 2017	University of the District of Columbia (students from all universities in DC invited)
May 18, 2017	Leadership Conference Law Enforcement Working Group
May 25, 2017	Leadership Conference Civil Rights Roundtable
June 1, 2017	MPD Sworn Members, Video briefing distributed

C Full Results

In addition to the main findings presented in the article, we conducted all of the analyses described in the pre-analysis plan, and present those results here.

Figure C.1: Coefficient plots of all measured outcomes. Each of the panels below plots our estimates of the effect of body-worn cameras on the various outcomes measured. We display estimates with 95% confidence intervals from both the difference-in-means and OLS estimators. As the plots indicate, we find no discernible effect of BWCs on any of the measured outcomes.



The tables below correspond to the plots shown in Figure C.1, providing both the difference-in-means and OLS estimates for each outcome measured.

Table C.5: Effects of BWCs on Use of Force Outcomes

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	73.6	13.8	59.8
	(87.0)	(14.1)	(83.4)
Constant (Control)	807.2	36.2	771.0
	(59.2)	(9.0)	(57.5)
N	1,922	1,922	1,922
R^2	0.000	0.001	0.000

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$

Outcomes are yearly event rates per 1000 officers.

Robust standard errors are in parentheses.

Table C.6: Effects of BWCs on Use of Force Outcomes

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	132.6	17.6	106.7
	(83.6)	(14.0)	(79.7)
use_of_force_1000_rate_pre	0.2***		
	(0.1)		
use_of_force_serious_1000_rate_pre		0.05	
		(0.04)	
use_of_force_less_serious_1000_rate_pre			0.2***
			(0.1)
gender_nonaMale	311.6***	29.1**	293.2***
	(95.4)	(13.5)	(91.5)
race_3_nonaRace: Other	12.3	−12.8	23.0
	(99.9)	(16.7)	(96.8)
race_3_nonaWhite	170.4	20.9	160.6
	(110.5)	(18.4)	(104.9)
length_of_service_nona	−52.7***	−2.3***	−50.9***
	(5.0)	(0.8)	(4.9)
Constant	940.3	30.1	921.5
	(121.8)	(16.0)	(117.2)
N	1,922	1,922	1,922
R^2	0.1	0.01	0.1

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.7: Effects of BWCs on Use of Force Outcomes (Night)

	Use of Force (Night)	Complaints (Night)
	(1)	(2)
Officer Assigned BWC	−33.2	12.6
	(65.2)	(20.6)
Constant (Control)	475.2	87.0
	(47.0)	(13.6)
N	1,922	1,922
R^2	0.000	0.000

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.8: Effects of BWCs on Use of Force Outcomes (Night)

	Use of Force (Night)	Complaints (Night)
	(1)	(2)
Officer Assigned BWC	2.3	15.7
	(63.2)	(20.5)
use_of_force_night_1000_rate_pre	0.2***	
	(0.1)	
all_complaints_night_1000_rate_pre		−0.004
		(0.02)
gender_nonaMale	152.3**	26.8
	(69.0)	(25.3)
race_3_nonaRace: Other	106.3	54.7*
	(79.0)	(28.1)
race_3_nonaWhite	68.8	29.8
	(79.4)	(26.1)
length_of_service_nona	−33.0***	−5.2***
	(3.9)	(1.2)
Constant	594.1	102.2
	(98.4)	(29.9)
N	1,922	1,922
R^2	0.1	0.02

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.9: Effects of BWCs on Use of Force Outcomes (Black Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−18.2	5.8	−7.5
	(67.9)	(10.0)	(67.0)
Constant (Control)	530.9	21.3	515.5
	(46.6)	(6.9)	(45.9)
N	1,922	1,922	1,922
R^2	0.000	0.000	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.10: Effects of BWCs on Use of Force Outcomes (Black Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−2.0	7.1	11.3
	(66.6)	(10.1)	(65.7)
use_of_force_black_1000_rate_pre	0.1**		
	(0.1)		
use_of_force_serious_black_1000_rate_pre		−0.02***	
		(0.004)	
use_of_force_less_serious_black_1000_rate_pre			0.2***
			(0.1)
gender_nonaMale	205.5**	11.5	189.7**
	(81.1)	(10.7)	(79.6)
race_3_nonaRace: Other	−74.5	3.5	−87.1
	(76.0)	(11.3)	(75.7)
race_3_nonaWhite	116.2	30.2**	92.4
	(90.5)	(13.1)	(88.6)
length_of_service_nona	−32.8***	−0.9**	−32.1***
	(3.9)	(0.4)	(3.9)
Constant	676.1	12.1	654.9
	(94.8)	(11.8)	(95.9)
N	1,922	1,922	1,922
R^2	0.1	0.01	0.1

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.11: Effects of BWCs on Use of Force Outcomes (Nonblack Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−1.0	1.8	3.9
	(14.4)	(1.8)	(14.4)
Constant (Control)	45.8	−0.0	45.8
	(9.8)	(0.0)	(9.8)
N	1,922	1,922	1,922
R^2	0.000	0.001	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.12: Effects of BWCs on Use of Force Outcomes (Nonblack Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	2.3	1.7	7.4
	(14.5)	(1.7)	(14.5)
use_of_force_nonblack_1000_rate_pre	0.1		
	(0.1)		
use_of_force_serious_nonblack_1000_rate_pre		−0.000	
		(0.000)	
use_of_force_less_serious_nonblack_1000_rate_pre			0.1*
			(0.05)
gender_nonaMale	13.0	1.9	9.6
	(15.2)	(1.9)	(15.4)
race_3_nonaRace: Other	49.1**	−2.7	48.6**
	(21.8)	(2.7)	(20.9)
race_3_nonaWhite	22.1	−2.8	30.9*
	(17.1)	(2.8)	(17.1)
length_of_service_nona	−2.3**	−0.1	−2.3**
	(0.9)	(0.1)	(0.9)
Constant	37.8	1.6	38.1
	(15.3)	(1.6)	(16.2)
N	1,922	1,922	1,922
R^2	0.02	0.002	0.02

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.13: Effects of BWCs on Use of Force Outcomes (White Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	7.2	0.0	8.5
	(10.1)	(0.0)	(10.2)
Constant (Control)	21.5	0.0	21.5
	(6.2)	(0.0)	(6.2)
N	1,922	1,922	1,922
R^2	0.000		0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.14: Effects of BWCs on Use of Force Outcomes (White Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	8.4	0.0	9.7
	(10.2)	(0.0)	(10.3)
use_of_force_white_1000_rate_pre	0.02		
	(0.04)		
use_of_force_serious_white_1000_rate_pre			
use_of_force_less_serious_white_1000_rate_pre			0.02
			(0.04)
gender_nonaMale	3.2	0.0	−1.0
	(12.9)	(0.0)	(13.5)
race_3_nonaRace: Other	23.7*	0.0	22.6*
	(13.5)	(0.0)	(13.5)
race_3_nonaWhite	12.9	0.0	11.5
	(12.7)	(0.0)	(12.8)
length_of_service_nona	−1.4**	0.0	−1.5**
	(0.6)	(0.0)	(0.6)
Constant	24.8	0.0	30.1
	(10.8)	(0.0)	(12.0)
N	1,922	1,922	1,922
R^2	0.01		0.01

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.15: Effects of BWCs on Use of Force Outcomes (Hispanic Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−8.2	1.8	−4.6
	(8.3)	(1.8)	(9.0)
Constant (Control)	22.5	−0.0	22.5
	(6.5)	(0.0)	(6.5)
N	1,922	1,922	1,922
R^2	0.001	0.001	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.16: Effects of BWCs on Use of Force Outcomes (Hispanic Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−7.1	1.7	−3.3
	(8.2)	(1.7)	(9.1)
use_of_force_hispanic_1000_rate_pre	0.03		
	(0.03)		
use_of_force_serious_hispanic_1000_rate_pre		−0.000	
		(0.000)	
use_of_force_less_serious_hispanic_1000_rate_pre			0.02
			(0.03)
gender_nonaMale	9.9	1.9	11.0
	(7.9)	(1.9)	(8.0)
race_3_nonaRace: Other	19.1	−2.7	21.1*
	(12.8)	(2.7)	(12.4)
race_3_nonaWhite	10.1	−2.8	20.7*
	(10.0)	(2.8)	(11.3)
length_of_service_nona	−0.7	−0.1	−0.8
	(0.6)	(0.1)	(0.6)
Constant	13.8	1.6	9.7
	(10.5)	(1.6)	(10.6)
N	1,922	1,922	1,922
R^2	0.01	0.002	0.01

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.17: Effects of BWCs on Use of Force Outcomes (Other Race Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−0.0	0.0	−0.0
	(2.5)	(0.0)	(2.5)
Constant (Control)	1.8	0.0	1.8
	(1.8)	(0.0)	(1.8)
N	1,922	1,922	1,922
R^2	0.0		0.0

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.18: Effects of BWCs on Use of Force Outcomes (Other Race Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	0.05	0.0	0.05
	(2.5)	(0.0)	(2.5)
use_of_force_other_1000_rate_pre	−0.001		
	(0.001)		
use_of_force_serious_other_1000_rate_pre			
use_of_force_less_serious_other_1000_rate_pre			−0.001
			(0.001)
gender_nonaMale	1.2	0.0	1.2
	(0.9)	(0.0)	(0.9)
race_3_nonaRace: Other	6.6	0.0	6.6
	(4.7)	(0.0)	(4.7)
race_3_nonaWhite	−1.1	0.0	−1.1
	(0.8)	(0.0)	(0.8)
length_of_service_nona	−0.2	0.0	−0.2
	(0.1)	(0.0)	(0.1)
Constant	1.7	0.0	1.7
	(1.9)	(0.0)	(1.9)
N	1,922	1,922	1,922
R^2	0.004		0.004

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.19: Effects of BWCs on Complaints

	Complaints	Complaints (Sustained)	Complaints (Not Sustained)	Compliants (Insufficient Facts)
	(1)	(2)	(3)	(4)
Officer Assigned BWC	57.3	16.9	40.4	−7.9
	(41.4)	(14.2)	(37.0)	(13.8)
Constant (Control)	280.1	38.7	241.4	47.8
	(29.6)	(10.3)	(26.1)	(10.8)
N	1,922	1,922	1,922	1,922
R^2	0.001	0.001	0.001	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.20: Effects of BWCs on Complaints

	Complaints	Complaints (Sustained)	Complaints (Not Sustained)	Compliants (Insufficient Facts)
	(1)	(2)	(3)	(4)
Officer Assigned BWC	60.3	16.5	43.4	−8.5
	(40.9)	(14.2)	(36.5)	(13.6)
all_complaints_1000_rate_pre	0.04*			
	(0.02)			
all_complaints_sustained_1000_rate_pre		0.01		
		(0.02)		
all_complaints_not_sustained_1000_rate_pre			0.03	
			(0.02)	
all_complaints_insufficient_facts_1000_rate_pre				−0.003
				(0.02)
gender_nonaMale	53.0	−3.4	57.8	12.0
	(57.4)	(25.1)	(49.4)	(18.7)
race_3_nonaRace: Other	−13.9	26.0	−39.1	3.2
	(53.3)	(21.4)	(46.3)	(18.3)
race_3_nonaWhite	−3.4	−20.6	18.0	−11.5
	(54.1)	(16.1)	(48.6)	(17.1)
length_of_service_nona	−5.0**	−1.2	−3.8*	0.7
	(2.4)	(0.9)	(2.1)	(0.8)
Constant	280.4	55.1	228.7	32.3
	(66.1)	(34.3)	(54.3)	(21.4)
N	1,922	1,922	1,922	1,922
R^2	0.01	0.01	0.005	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.21: Effects of BWCs on Assaults on Police Officers

	Assault on PO	Felony APO	Misdemeanor APO
	(1)	(2)	(3)
Officer Assigned BWC	71.6	−16.6	88.3
	(145.7)	(39.1)	(131.9)
Constant (Control)	1,381.8	155.2	1,226.6
	(107.8)	(29.6)	(97.3)
N	1,922	1,922	1,922
R^2	0.000	0.000	0.000

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.22: Effects of BWCs on Assaults on Police Officers

	Assault on PO	Felony APO	Misdemeanor APO
	(1)	(2)	(3)
Officer Assigned BWC	156.9	−10.1	168.1
	(136.3)	(38.3)	(124.0)
assault_on_po_1000_rate_pre	0.2***		
	(0.1)		
felony_assault_on_po_1000_rate_pre		0.05	
		(0.04)	
msd_assault_on_po_1000_rate_pre			0.2***
			(0.1)
gender_nonaMale	−31.9	2.7	−34.8
	(196.8)	(59.0)	(185.5)
race_3_nonaRace: Other	235.4	−18.1	242.8
	(170.1)	(46.7)	(154.4)
race_3_nonaWhite	437.0***	88.5*	356.7**
	(169.1)	(51.0)	(151.8)
length_of_service_nona	−91.7***	−10.6***	−81.3***
	(7.8)	(2.1)	(7.1)
Constant	2,088.3	248.1	1,846.7
	(222.2)	(57.1)	(209.2)
N	1,922	1,922	1,922
R^2	0.1	0.02	0.1

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.23: Effects of BWCs on Discretionary Arrests

	Disorderly Conduct	Simple Assault	Traffic Violation
	(1)	(2)	(3)
Officer Assigned BWC	−127.7	430.8	91.1
	(277.2)	(593.1)	(617.2)
Constant (Control)	1,416.5	9,065.7	5,230.6
	(186.3)	(442.5)	(458.2)
N	1,922	1,922	1,922
R^2	0.000	0.000	0.000

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.24: Effects of BWCs on Discretionary Arrests

	Disorderly Conduct	Simple Assault	Traffic Violation
	(1)	(2)	(3)
Officer Assigned BWC	−161.8	765.1	493.5
	(248.6)	(508.8)	(491.0)
disorderly_conduct_1000_rate_pre	0.9***		
	(0.2)		
simple_assault_1000_rate_pre		0.7***	
		(0.1)	
traffic_arrest_1000_rate_pre			0.7***
			(0.1)
gender_nonaMale	368.2*	985.2	270.2
	(204.0)	(642.9)	(639.3)
race_3_nonaRace: Other	732.8**	−71.0	1,299.6*
	(360.2)	(610.4)	(673.4)
race_3_nonaWhite	193.3	2,053.4***	1,222.7**
	(246.0)	(635.8)	(565.0)
length_of_service_nona	−39.5***	−333.9***	−241.1***
	(9.0)	(30.0)	(26.5)
Constant	693.0	8,108.7	5,006.4
	(312.7)	(840.9)	(741.7)
N	1,922	1,922	1,922
R^2	0.2	0.3	0.4

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.25: Effects of BWCs on Domestic Violence Outcomes

	DV Report Taken	DV Report Taken (Family)	DV Report Taken (Not Family)	DV Calls	DV Arrests
	(1)	(2)	(3)	(4)	(5)
Officer Assigned BWC	−9,448.5	−858.5	−8,590.1	−22,217.9	−464.7
	(10,905.5)	(886.4)	(10,260.7)	(21,363.5)	(454.8)
Constant (Control)	230,390.1	12,962.6	217,427.5	446,876.3	4,272.0
	(8,087.3)	(677.6)	(7,582.4)	(15,822.8)	(348.6)
N	1,922	1,922	1,922	1,922	1,922
R^2	0.000	0.000	0.000	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.26: Effects of BWCs on Domestic Violence Outcomes

	DV Report Taken	DV Report Taken (Family)	DV Report Taken (Not Family)	DV Calls	DV Arrests
	(1)	(2)	(3)	(4)	(5)
Officer Assigned BWC	−6,675.5	−729.7	−5,945.7	−17,369.2	−293.4
	(10,668.4)	(867.2)	(10,041.9)	(20,921.0)	(421.0)
dv_report_taken_1000_rate_pre					
dv_report_taken_family_1000_rate_pre					
dv_report_taken_not_family_1000_rate_pre					
dv_calls_1000_rate_pre					
dv_arrests_1000_rate_pre					0.4***
					(0.1)
gender_nonaMale	18,072.1	696.4	17,375.7	44,613.9	753.1
	(15,927.0)	(1,335.4)	(14,937.8)	(30,854.2)	(553.2)
race_3_nonaRace: Other	49,632.8***	−2,241.5**	51,874.3***	107,200.9***	−864.4*
	(13,144.5)	(1,003.5)	(12,421.2)	(26,404.4)	(442.0)
race_3_nonaWhite	29,298.3**	419.1	28,879.2**	43,258.9*	1,438.5**
	(13,539.6)	(1,142.7)	(12,695.0)	(26,260.3)	(563.5)
length_of_service_nona	−4,955.1***	−457.2***	−4,497.9***	−9,116.1***	−168.7***
	(619.8)	(49.8)	(584.8)	(1,215.8)	(22.7)
Constant	251,321.0	18,122.5	233,198.5	475,291.1	3,801.6
	(18,448.4)	(1,602.5)	(17,236.2)	(35,683.2)	(638.0)
N	1,922	1,922	1,922	1,922	1,922
R^2	0.05	0.04	0.05	0.04	0.2

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.27: Effects of BWCs on Judicial Outcomes

	Prosecuted	Found Guilty	Not Found Guilty	Entered Plea	Not Pursued
	(1)	(2)	(3)	(4)	(5)
Officer Assigned BWC	2,421.6	13.5	−15.6	62.8	−114.3
	(2,632.7)	(20.0)	(22.2)	(353.1)	(102.2)
Constant (Control)	33,139.1	39.6	49.3	1,348.5	390.1
	(1,814.6)	(14.1)	(17.7)	(182.0)	(95.9)
N	1,922	1,922	1,922	1,922	1,922
R^2	0.000	0.000	0.000	0.000	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.28: Effects of BWCs on Judicial Outcomes

	Prosecuted	Found Guilty	Not Found Guilty	Entered Plea	Not Pursued
	(1)	(2)	(3)	(4)	(5)
Officer Assigned BWC	3,633.3*	14.9	−14.8	111.0	−111.7
	(2,174.7)	(20.1)	(22.0)	(347.2)	(104.5)
charge_prosecuted_1000_rate_pre	0.9***				
	(0.1)				
trial_guilty_1000_rate_pre		0.01			
		(0.01)			
trial_not_guilty_1000_rate_pre			0.02		
			(0.02)		
not_trial_guilty_1000_rate_pre				0.1**	
				(0.03)	
not_trial_not_guilty_1000_rate_pre					0.03**
					(0.01)
gender_nonaMale	1,692.8	17.6	9.6	82.5	199.3*
	(2,937.1)	(27.8)	(25.8)	(309.9)	(106.0)
race_3_nonaRace: Other	5,274.9*	−24.2	−50.8*	332.0	−336.6**
	(2,845.3)	(23.7)	(26.4)	(533.0)	(146.4)
race_3_nonaWhite	6,831.2***	15.7	9.3	356.7	−157.3
	(2,514.0)	(26.1)	(33.2)	(298.7)	(163.2)
length_of_service_nona	−1,448.9***	−3.7***	−3.7**	−64.6***	−23.3***
	(140.7)	(0.9)	(1.4)	(12.9)	(6.8)
Constant	30,235.4	64.7	88.8	1,318.0	573.1
	(4,129.8)	(26.9)	(32.4)	(388.5)	(175.0)
N	1,922	1,922	1,922	1,922	1,922
R^2	0.3	0.01	0.01	0.04	0.02

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.29: Effects of BWCs on Court Appearances

	Court Appearances	Hours in Court
	(1)	(2)
Officer Assigned BWC	−936.0	−2,639.0
	(868.5)	(2,220.5)
Constant (Control)	11,798.2	28,026.2
	(683.8)	(1,724.3)
N	1,922	1,922
R^2	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.30: Effects of BWCs on Court Appearances

	Court Appearances	Hours in Court
	(1)	(2)
Officer Assigned BWC	−118.2	−464.1
	(711.7)	(1,879.6)
court_appearances_1000_rate_pre	0.5***	
	(0.05)	
court_hours_1000_rate_pre		0.4***
		(0.04)
gender_nonaMale	1,100.8	2,095.6
	(924.9)	(2,475.8)
race_3_nonaRace: Other	562.1	2,648.0
	(946.4)	(2,386.5)
race_3_nonaWhite	1,191.0	4,418.7**
	(812.8)	(2,236.8)
length_of_service_nona	−322.7***	−820.9***
	(46.2)	(108.4)
Constant	7,686.6	20,053.8
	(1,285.0)	(2,861.2)
N	1,922	1,922
R^2	0.3	0.3

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.31: Effects of BWCs on Clinic Visits

	Clinic Visits
Officer Assigned BWC	−23.0
	(32.8)
Constant (Control)	237.3
	(25.0)
N	1,922
R^2	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.32: Effects of BWCs on Clinic Visits

	Clinic Visits
Officer Assigned BWC	−16.2
	(32.4)
clinic_1000_rate_pre	0.1***
	(0.03)
gender_nonaMale	−17.1
	(50.0)
race_3_nonaRace: Other	−88.9**
	(39.2)
race_3_nonaWhite	−37.1
	(40.5)
length_of_service_nona	−7.3***
	(1.8)
Constant	344.0
	(59.3)
N	1,922
R^2	0.02

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table C.33: Effects of BWCs on Tickets

	Tickets
Officer Assigned BWC	−3,059.6
	(7,460.1)
Constant (Control)	24,815.5
	(5,472.1)
N	1,922
R^2	0.000

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.

Table C.34: Effects of BWCs on Tickets

	Tickets
Officer Assigned BWC	4,873.4
	(3,981.5)
tickets_1000_rate_pre	1.1***
	(0.2)
gender_nonaMale	1,488.1
	(3,138.7)
race_3_nonaRace: Other	−2,083.7
	(4,183.7)
race_3_nonaWhite	−3,953.8
	(4,859.2)
length_of_service_nona	99.2
	(173.1)
Constant	−3,881.2
	(4,319.1)
N	1,922
R^2	0.8

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.

Table C.35: Effects of BWCs on Warnings

	Warnings
Officer Assigned BWC	−4.9
	(868.9)
Constant (Control)	4,250.7
	(595.4)
N	1,922
R^2	0.000

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.

Table C.36: Effects of BWCs on Warnings

	Warnings
Officer Assigned BWC	603.4
	(688.3)
warnings_1000_rate_pre	0.6***
	(0.1)
gender_nonaMale	−631.3
	(1,138.8)
race_3_nonaRace: Other	−937.3
	(650.6)
race_3_nonaWhite	1,362.2*
	(825.1)
length_of_service_nona	−34.1
	(32.7)
Constant	2,130.2
	(1,234.3)
N	1,922
R^2	0.4

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.

Table C.37: Effects of BWCs on Compliance Outcomes

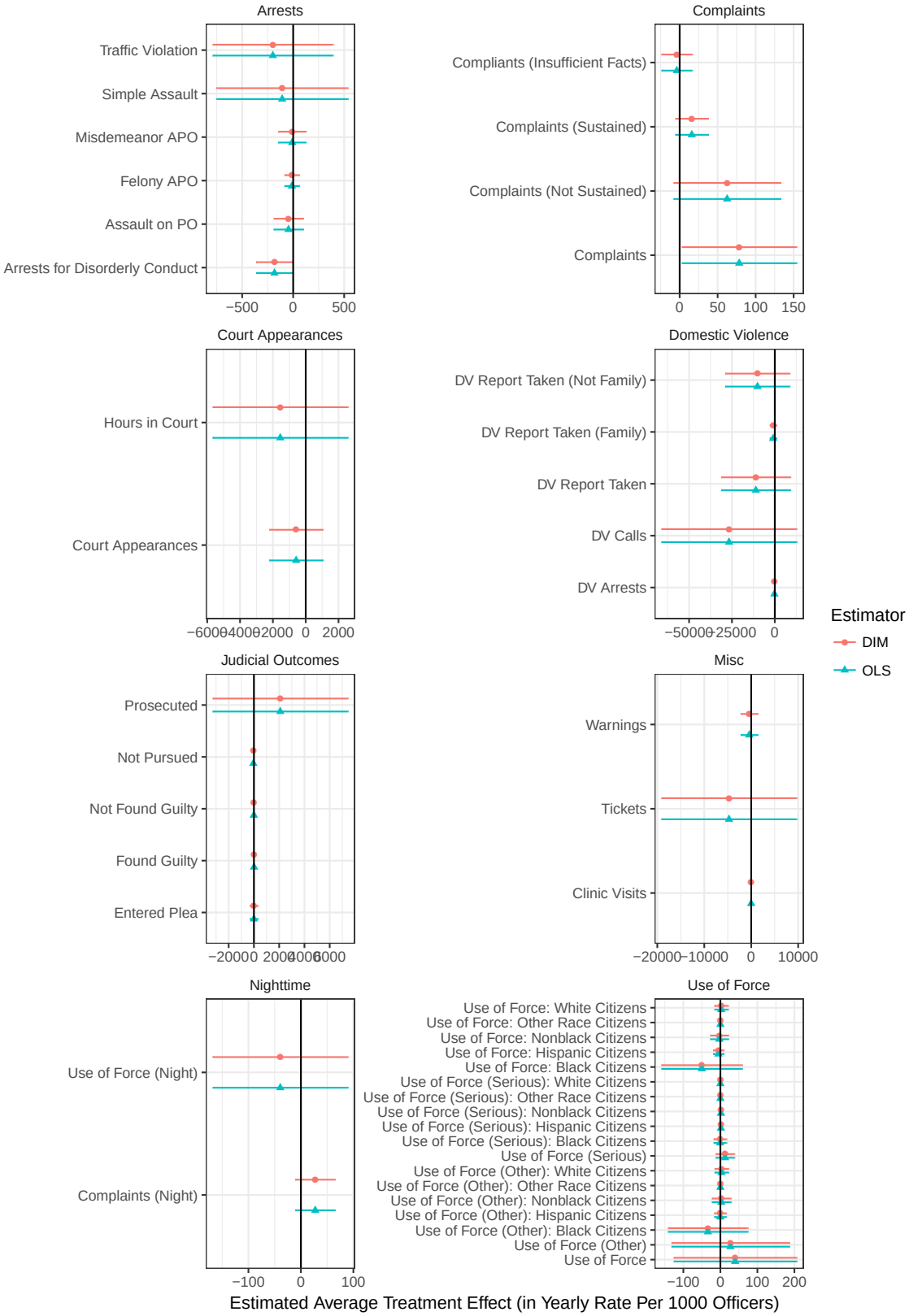
	Videos per year	Average length of videos in minutes
	(1)	(2)
Officer Assigned BWC	649.1***	10.3***
	(17.2)	(0.2)
Constant (Control)	13.9	0.8
	(3.8)	(0.1)
N	1,922	1,922
R^2	0.4	0.6

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.

Table C.37 presents the results of our manipulation check. If officers complied with the randomization protocol, we would expect that officers assigned BWCs would make vastly more videos per year, as well as have a longer average length of videos. We find this to be true, and conclude that MPD officers adhered to the randomization protocol.

D Application of Alternate Measurement Strategy

Figure D.2: Coefficient plots of all outcomes, using the alternate measurement strategy. Each of the panels below plots our estimates of the effect of body-worn cameras on the various outcomes measured. We display estimates with 95% confidence intervals from both the difference-in-means and OLS estimators. Regardless of which measurement strategy we apply, our findings remain the same: we are unable to detect any statistically significant effect of BWCs on the measured outcomes.



E Supplementary Analyses

In addition to the analyses specified in our pre-analysis plan, we completed supplementary analyses of our data, plotting the data for key outcomes of interest (police use of force and complaints filed against MPD members) and taking a closer look at adherence to the BWC program.

E.1 Time-Series Analyses

Figure E.3: Uses of Force per 1000 Officers, 90 days before and after BWC deployment, broken out by police district. This figure plots pre- and post-treatment uses of force for both control and treatment group officers in each police district. As the chart indicates, there is no statistically significant difference between the two groups in either the 90-day period before or after the deployment of BWCs (which occurs on day 0).

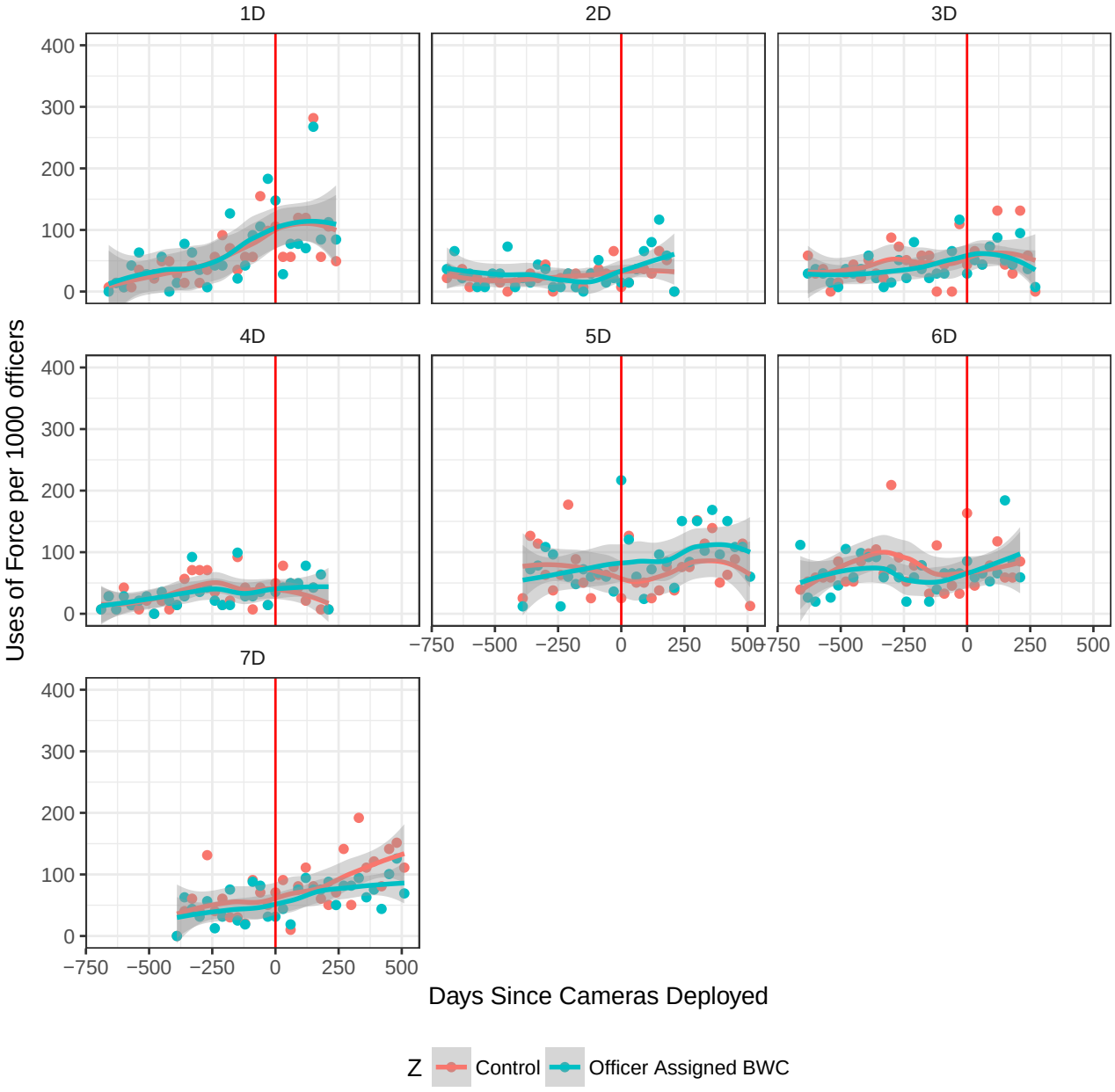


Figure E.4: Complaints per 1000 Officers, 90 days before and after BWC deployment, broken out by police district. This figure plots pre- and post-treatment complaints for both control and treatment group officers in each police district. As the chart indicates, there is no statistically significant difference between the two groups in either the 90-day period before or after the deployment of BWCs (which occurs on day 0).

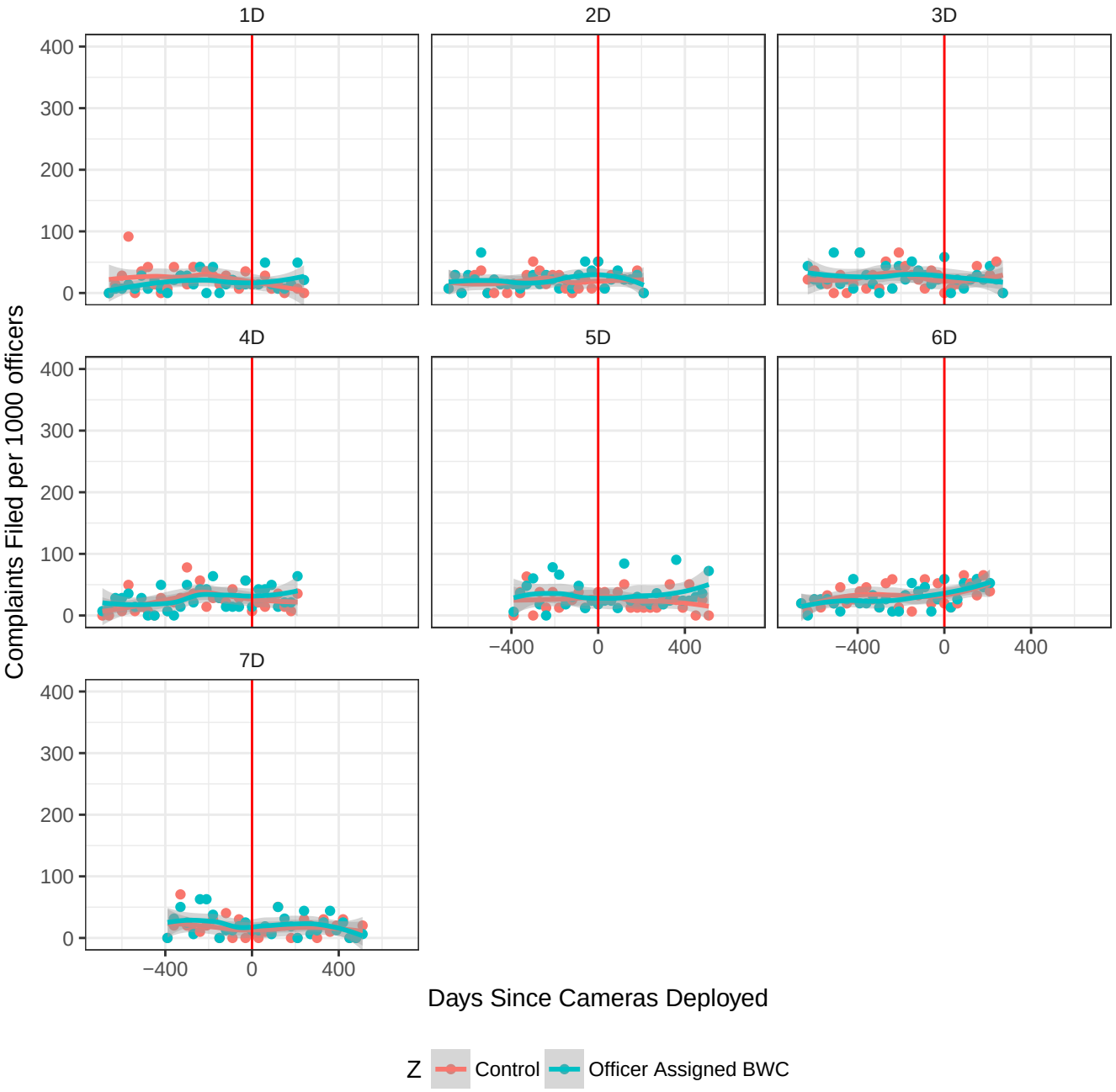
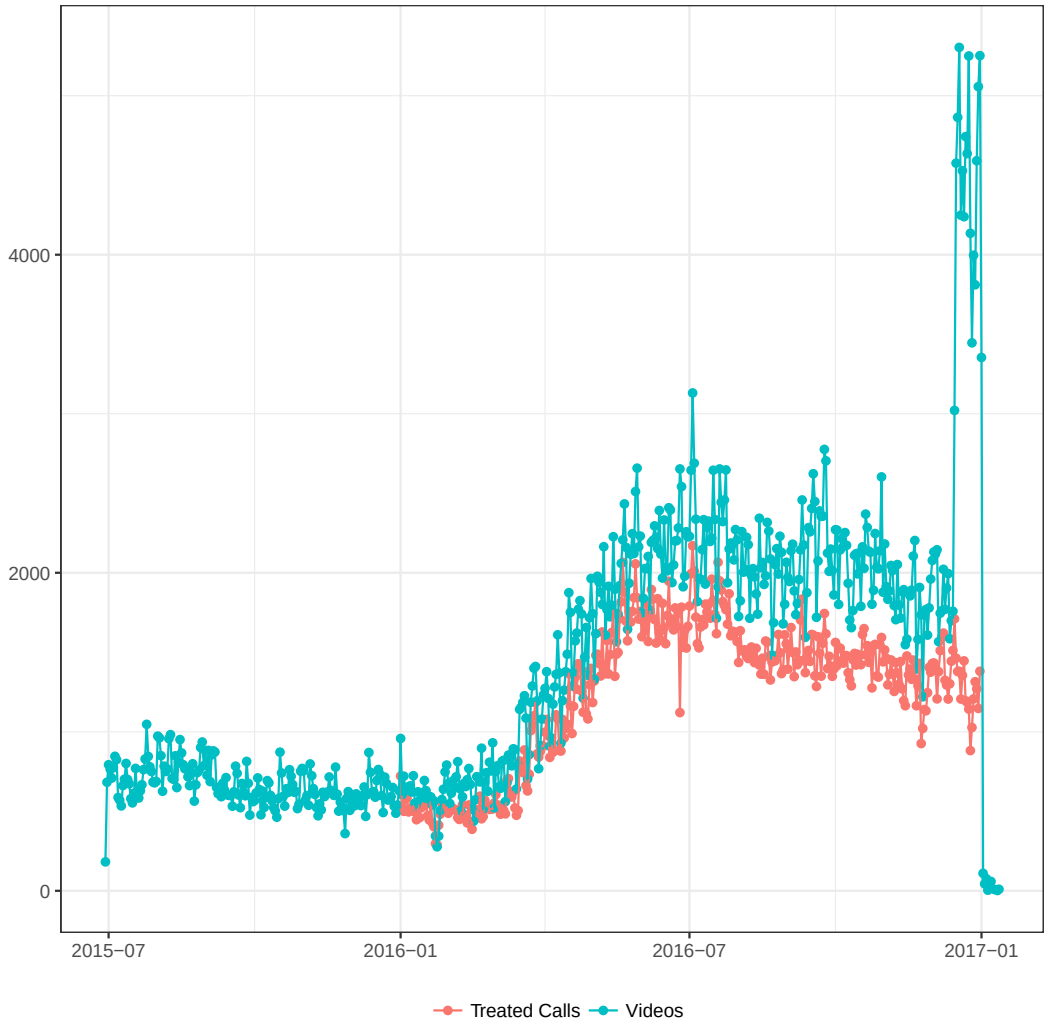


Figure E.5: Case-Generating Calls for Service and Videos Uploaded per Day.



E.2 Adherence to BWC Program

Note: Calls for service data including information about responding officers were not available for 2015, and the treatment period concluded in mid-December 2016, when MPD deployed BWCs to all eligible members.

To gauge adherence with the BWC program, we examined whether officers produced videos for incidents where they should be using their BWCs (see Appendix A for a list of the instances in which MPD members are required to activate their BWCs per department policy). We compare the number of calls for service that generated a central case number (CCN) and had a treated officer on scene to the number of videos produced on the same day. We conclude that MPD officers are producing videos when they should. For 98% of the days in 2016, MPD is averaging at least one video (often many more) per call for service with CCN that had a treated officer on scene. Further, even for the 2% of days in 2016 in which the number of videos is less than the number of incidents for which we would expect them, the difference is minimal, with 96% average compliance based on our measure.

E.3 Examining Count Models

To evaluate the robustness of our findings, we modeled counts using generalized linear models. With the exception of outcome measures that were either 1) non-integer (which included `court_hours` and `length_min`), or 2) took on only two values (typically zero and one), we model all outcome variables as counts. We select the specific type of model using the following process:

- First test the null hypothesis of equidispersion; if we fail to reject the null ($p < 0.05$), then use poisson regression;
- If we reject the null hypothesis of equidispersion, estimate both quasipoisson and negative binomial regression;
- Because quasipoisson uses a quasi-likelihood approach, traditional metrics like AIC are not available, so choose the model with the lowest out-of-sample Root Mean Square Error (RMSE) based on 50-fold cross-validation.

Based on the decision rules outlined above, applying count models to our outcome measures does not change the significance of the vast majority of outcome measures. While some outcomes can be found to have a statistically significant result, it requires a particular model selection. Though there are valid arguments that such a model is appropriate, the result is certainly not robust to multiple specifications and should be taken with extreme skepticism. Indeed, these results were found only after throwing a gauntlet of count models at the data and, for the most part, are not even the best model according to a cross-validated measure of RMSE. In the language of the current replication crisis, if we published only these results, we would rightly be accused of "p-hacking" and so we encourage readers to look skeptically upon the "significant" results.

F MPD General Order SPT-302.13

This general order specifies that "[m]embers, including primary, secondary, and assisting members, shall start their BWC recordings as soon as a call is initiated via radio or communication from OUC [Office of Unified Communications] on their mobile data computer (MDC), or at the beginning of any self-initiated police action. In addition, members shall activate their BWCs for the following events:

1. All dispatched and self-initiated calls-for-service;
2. All contacts initiated pursuant to a law enforcement investigation, whether criminal or civil; *NOTE: Members are not required to record non-investigatory contacts (e.g., business checks).*
3. All stops (i.e., traffic, pedestrian, and bicycle), and frisks as defined in GO-OPS-304.10 (Police-Citizen Contacts, Stops, and Frisks);
4. Vehicle and foot pursuits;
5. All traffic crash scenes;
6. Any incident or traffic crash in which the member is involved;
7. DUI and consumption of marijuana investigations;
8. High-risk encounters (e.g., barricade situations, active shooter situations);
9. Tactical activities, to include canine, Emergency Response Team and Civil Defense Unit deployments;
10. Mental health consumer encounters;
11. Suspicious activities;
12. Use of force situations;
13. Arrests;
14. Encounters requiring the advising of Miranda rights;
15. All transports of prisoners and citizens;
16. Any of the following searches of a person or property: (1) Consent searches; (2) Warrantless searches; (3) Vehicle searches; (4) Searches conducted incident to arrest; (5) Inventory searches; (6) Cursory searches; (7) Probable cause searches; (8) Execution of search or arrest warrants; (9) Frisks; (10) Field searches; (11) Full-custody searches; (12) Strip or squat searches;
17. Hospital guard details;
18. During the initial inventorying of seized money or any high value property;
19. During school-based events...as well as other encounters with juveniles during events defined in this section;
20. During First Amendment Assemblies;

21. While assisting other law enforcement agencies (e.g., United States Park Police, District of Columbia Housing Authority Police) in handling incidents outlined in this section;

22. While interacting with citizens inside a police facility (e.g., station personnel providing police services or information); and

23. Any incident that the member deems it appropriate to activate the BWC in accordance with this order or upon direction from an official."(pp. 6-8).

The MPD General Order on the BWC Program also enumerates several limitations/areas for discretion with respect to BWC use:

1. **Traffic Posts.** While assigned to traffic posts, members shall only activate their BWCs for the events listed above.

2. **First Amendment Assemblies.**

   - Members shall activate their BWC when responding to a First Amendment assembly in accordance with the list enumerated above.
   - In accordance with D.C. Official Code §5-333.09, members shall not record First Amendment assemblies for the purpose of identifying and recording the presence of individual participants who are not engaged in unlawful conduct.
   - Members shall ensure BWC recordings of First Amendment assemblies, whether planned or spontaneous, are recorded in compliance with the law and MPD policy including SOP-11-01 (Handling First Amendment Assemblies and Mass Demonstrations).

3. **Intrafamily, Sexual Assault, and Stalking Incidents and Offenses**

   - Intrafamily Incidents and Offenses:members who respond to intrafamily incidents and offenses as outlined in GO-OPS- 304.11 (Intrafamily Offenses) shall continue their BWC recording but make every effort to provide the victim privacy such that they do not record any discussions between the OnCall Advocacy Program (OCAP) advocate and the victim, regardless of whether the conversation is in-person or over the phone. Members shall position themselves in such a way as to afford the victim as much privacy as possible.
   - Sexual Assault Incidents and Offenses: members who initially respond to allegations of sexual assault shall continue their BWC recording but are reminded that, in accordance with GO-OPS-304.06 (Adult Sexual Assault Investigations), they shall ask only the necessary questions to enable them to determine the type of crime, and to obtain the required information for a lookout broadcast. Members shall not question the victim in detail about the offense.
   - Members are reminded, and may inform the victim or others present at the scene, that BWC recordings taken inside a personal residence or related to an incident involving domestic violence, stalking, or sexual assault will be withheld from release to the public.

4. **Medical Facilities, Ambulances, and Patient Privacy**

- Members shall record ambulance transports when they are present for law enforcement purposes.
- Members are reminded that they shall only activate their cameras in hospitals and other medical facilities for the events listed in at the beginning of this appendix, including hospital guard details.
- Members shall not record in the common areas of medical facilities except when recording an event as required by the above list.
- When recording in hospitals or other medical or psychiatric facilities, members shall be careful to avoid, when possible, recording persons other than the suspect, complainant, and witnesses.
- When members are in hospitals or medical facilities pursuant to the above list, they shall continue to record and make every effort to provide patients with privacy such that they do not record patients during medical or psychological treatment or evaluations by a clinician or similar medical professional. Members shall position themselves in such a way as to afford the patients as much privacy as possible.

G Preanalysis Plan

PRE-ANALYSIS PLAN

A Randomized Controlled Trial of the Police Body-Worn Camera Program in the District of Columbia

Date: October 7, 2016
Contact:[1] David Yokum, JD, PhD
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1 Purpose

This document sets forth a pre-analysis plan for a randomized control trial designed to evaluate the police body-worn camera (BWC) program of the Metropolitan Police Department (MPD) of the District of Columbia (DC). The objective of this plan is to promote scientific research integrity by reducing researcher discretion after experimental outcomes have been realized. It is modeled on best practices for conducting and pre-registering field experiments (e.g., CONSORT 2010 checklist, Gerber and Green 2012).[2] We pre-commit to reporting all the analyses specified below. If we report any analyses in addition to those described here, we will indicate that the analysis was not pre-registered.

2 Background

BWCs have been promoted as a technological mechanism to improve policing and the legitimacy of police and legal institutions. As stated in written testimony submitted to the D.C. Council Committee on the Judiciary in October 2015, Deputy Mayor Kevin Donahue and Chief of Police Cathy Lanier "strongly believe the use of body-worn camera (BWC) footage will benefit

[1] The research team includes Kathy Barnes (University of Arizona), Alex Coppock (Yale University), Ralph Ennis (MPD), Heidi Fieselmann (MPD), Don Green (Columbia University), Derek Meeks (MPD), Anita Ravishankar (MPD), and David Yokum (The Lab @ DC).

[2] CONSORT Transparent Reporting of Trials. Available http://www.consort-statement.org/consort-2010. Accessed 30 June 2016.See http://www.consort-statement.org/consort-2010 ;and Gerber, Alan S. and Donald P. Green. (2012). *Field Experiments: Design, Analysis, and Interpretation*. New York, NY: W.W. Norton & Company.

the District by improving police services, increasing accountability for individual interactions, and strengthening police-community relations."[3] The DC Police Complaints Board elaborates:

> The footage that these cameras capture can be used to resolve citizen complaints and train officers on proper procedures, and even as evidence in criminal and civil litigation. In addition to these benefits, . . . the mere presence of body-worn cameras may even serve to prevent negative interactions by changing officer and citizen behavior. As a result, the use of these devices can lead to enhanced police accountability as well as improved police-community relations.[4]

After review of existing research, input from subject matter experts, and meetings with the body camera advisory group, the District of Columbia Government decided to deploy a BWC program.[5]

BWCs are being widely adopted: 95% of police departments across the country either have already or intend to implement a BWC program.[6]

To date, the empirical record of the effects of BWCs is thin. Several evaluations have been completed (and others are in progress), but many suffer from limited statistical power due to small sample sizes and only a few randomly assign individual officers to wear a BWC or not.[7] The lack of random assignment makes causal inference difficult.[8]

BWCs are expensive and involve new administrative complexities, such as officer training and the storage and dissemination of video footage.[9] Debates related to privacy also remain

[3] Donahue, Kevin and Cathy Lanier. Statement to the D.C. Council Committee on the Judiciary. Public Hearing on Body-Worn Camera Legislation, Oct 21, 2015. Available at http://mpdc.dc.gov/sites/default/files/dc/sites/mpdc/publication/attachments/FINAL%20Donahue%20Testimony_10%2021%2015.pdf; Accessed: 9/19/16.
[4] Report and Recommendations of the Police Complaints Board, "Enhancing Police Accountability Through an Effective On-Body Camera Program for MPD Officers," May 8, 2014.
[5] Testimony on Body-Worn Cameras, October 21, 2015.
[6] Mike Maciag, "Survey: Almost All Police Departments Plan to Use Body Cameras," *Governing.com*, January 26, 2016. *See also* David Hudson, "Building Trust Between Communities and Local Police," *Whitehouse.gov*, December 1, 2014 (President Obama's Body-Worn Camera Partnership Program invests $75 million to underwrite state and local deployment costs for 50,000 BWCs).
[7] For a review of these evaluations, see Michael D. White, *Police Officer Body-Worn Cameras: Assessing the Evidence* (U.S. Department of Justice: Office of Justice Programs, 2014); and Cynthia Lum, Christopher Koper, Linda Merola, Amber Scherer, & Amanda Reioux, *Existing and Ongoing Body Worn Camera Research: Knowledge Gaps and Opportunities: A Research Agenda for the Laura and John Arnold Foundation (Phase 1 Report)*, Fairfax, VA (2015): Center for Evidence-Based Crime Policy, George Mason University.
[8] *See generally* "Introduction to Evaluations | The Abdul Latif Jameel Poverty Action Lab." Massachusetts Institute of Technology. Accessed July 5, 2016. https://www.povertyactionlab.org/research-resources/introduction-evaluations.
[9] *See generally* Police Executive Research Forum, *Implementing a Body-Worn Camera Program: Recommendations and Lessons Learned*, (U.S. Department of Justice, Community Oriented Policing Services, 2014): Chapter 2, "Considerations for Implementation."

unresolved.[10] ***The central question that our study will address is whether BWCs, when deployed in a large metropolitan police force, improve policing outcomes.***

2.1 How do BWCs work?

Though the literature on body-worn cameras is limited given the recent advent and deployment of this technology, the theoretical basis for adopting BWCs is common to other camera and monitoring devices: put simply, "being monitored changes behavior."[11] In addition, camera footage offers an additional source of evidence of police-civilian interactions, with implications for transparency and accountability of policing. Perceived benefits of BWCs include:

- **Deterrence effect:** "The technology might deter officers from engaging in unprofessional behavior or misconduct; it may deter members of the public from inappropriate, aggressive, or resistant behavior; and it may defuse potentially violent interactions between the police and the community--that is, BWCs may generate a 'civilizing effect.'"[12]
- **Evidence collection - Internal Affairs:** "The technology has the potential to record misconduct, use of force, and other problem behavior or unprofessional conduct; and conversely, it has the potential to be used by an officer to disprove an allegation of behavior."[13]
- **Evidence collection - Criminal Investigations:** "The technology has the potential to increase the effectiveness of the police response to crime in general and domestic violence specifically...by improving recollection of an incident when the officer is completing his or her field report, as well as later during court proceedings. The video also can be entered into evidence, which may lead to higher rates of arrest charging, prosecution, and conviction."[14]

The BWC study presented in this pre-analysis plan uses a randomized controlled trial to examine whether these anticipated benefits are, in fact, born out.

[10] *See generally* Alexandra Mateescu, Alex Rosenblat, & Danah Body, "Police Body-Worn Cameras," *Data & Society Research Institute*, February 2015 (working paper).
[11] Adair, J.G. (1984). "The Hawthorne Effect: A Reconsideration of the methodological artifact." *Journal of Applied Psychology* 69(2); Ariel, Barak, Alex Sutherland, Darren Henstock, Josh Young, Paul Drover, Jayne Sykes, Simon Megicks, and Ryan Henderson. (2016). "Wearing body cameras increases assaults against officers and does not reduce police use of force: Results from a global multi-site experiment." *European Journal of Criminology* Research Note, p. 4.
[12] Katz, Charles M., Mike Kurtenbach, DAvid E. Choate, and Michael D. White. (2015) Phoenix, Arizona, Smart Policing Initiative: Evaluating the Impact of Police Officer Body-Worn Cameras. Washington, DC: Bureau of Justice Assistance, p. 2.
[13] Ibid.
[14] Ibid.

2.2 Conducting a Pilot to Inform the Full-Scale Study Design

To determine the appropriate design of the study (e.g., level of randomization, length of study period), the research team conducted a pilot study in two of the seven MPD police districts. In June 2015, eligible officers in these two districts were randomly assigned to receive a BWC or not: 325 officers were outfitted with BWCs, while 180 were not given cameras (the "control" group). This pilot allowed the team to collect sufficient preliminary data to inform the design of the full-scale evaluation. Drawing on this information, and operating in accordance with scientific considerations, legislative obligations to deploy cameras by the end of 2016 in Washington, DC, and the logistics of BWC deployment, we determined that a six- to nine-month study with individual-level randomization would be sufficiently powered to detect the effect (if it exists) of body-worn cameras on key outcomes of interest.

3 Evaluation Summary

We use a randomized controlled trial (RCT) to evaluate the effects of BWCs citywide. The presence or absence of BWCs is randomized at the individual officer level. Specifically, as part of MPD's deployment of 2,800 BWCs to its police force, approximately half of all full duty patrol and station officers will be randomly assigned to wear BWCs, while the other half will remain without BWCs until December 2016. The evaluation period runs from June 28, 2015 to December 15, 2016, at which time MPD will begin issuing BWCs to control group officers. We will track outcomes associated with police activity that occurred during the treatment period until March 31, 2017.

Our study is well-powered to detect even small-to-moderate effects of BWCs. Using administrative data, we will examine the causal effects of BWCs on the following four families of outcome measures: use of force outcomes; citizen complaints outcomes; policing activity outcomes; and judicial outcomes. We also examine process measures related to compliance.

4 Methods

4.1 Trial Design

Eligible officers are individually assigned to one of two groups: (1) no BWC ("control") or (2) with BWC ("treatment"). **Figure 1** below illustrates the study design, followed by details on the eligibility criteria for participants and the randomization procedure.

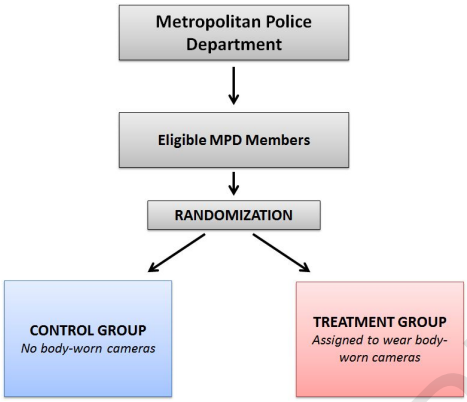

Figure 1. Randomization Process

4.2 Participants and Sample Size

MPD members are **eligible** for the study if they meet all of the following criteria:

- Active, full duty administrative status;
- No change to full duty status known to be occurring during study period (e.g., pending retirement, paid family leave, or detail to another position);
- Hold the title of officer, master patrol officer, senior police officer, or sergeant; and
- Assigned to patrol duties in a patrol district or to a non-administrative role at a police station.

Members in the Narcotics and Special Investigations Division (NSID) and Special Operations Division (SOD) were also held to the same inclusion criteria, with the exception of assignment to a patrol district or police station role, as NSID and SOD are standalone units (in which members are not assigned to any particular district station and have unique responsibilities within MPD).

Based on these eligibility requirements, our sample consists of 2,224 MPD members, with 1,035 members in the control group and 1,189 members in the treatment group.[15]

[15] As noted earlier, MPD will deploy 2,800 BWCs to its police force, yet our sample consists of 2,150 members. The gap in these two figures arises from the set of officers who do not *currently* meet the criteria for study eligibility (see Section 4.2). These members are scheduled to receive cameras in December 2016, at the conclusion of the study, as long as they are still with the force (e.g., not retired or otherwise separated) and maintain a rank of sergeant or lower. In addition, approximately 26 BWCs have been deployed non-experimentally and outcomes from these officers will not be included in the study.

4.3 Randomization

Officers were assigned cameras using a block randomized assignment procedure. Block random assignment uses pre-treatment information to group officers into blocks, and then to randomly assign a fixed number of cameras to officers in each block. The main reasons to employ blocking are to increase the statistical power of the experimental design and to enforce treatment-versus-control balance on the covariates according to which blocking occurred.

We had two levels of blocking, "major" and "minor." The major blocks are the seven districts, and three special units (NSID, SOD, and School Security Division [SSD]).[16]

Except in the blocks involved in the pilot (5D and 7D), we created "minor" blocks based on background characteristics of the officers. We grouped officers into matched pairs so that within each pair, officers were maximally similar to each other according to these characteristics. This pairing was conducted using the BlockTools package for R. We then assigned a camera to one officer within each pair at random. Within 5D and 7D, a fixed number of officers were assigned to receive cameras.

In the first NSID subgroup of officers to be randomly assigned, we were requested to assign cameras to more than 50% of the officers. We first made matched trios, then randomly assigned some trios to get two cameras and others to get one camera, then within trios, assigned the allotment of cameras at random.

In all major blocks, the probability of assignment to a camera is *constant across officers*. This probability is, however, *different across major blocks*. When the probabilities of assignment differ by district/unit, naive estimation strategies will be biased. Our analysis employs inverse probability weights (IPW) to account for this bias.[17] The table below shows the number of units assigned to Control and Treatment in each block, as well as the probability of assignment and the precise covariates used to create the minor blocks. These covariates are slightly different in each block due to data constraints as well as numerical difficulties encountered in the blocking algorithm due to very small variation for some covariates.

[16] Officers assigned to the station in district 1D (1D-station) were assigned separately from other officers in 1D. Random assignment of BWCs to NSID were completed in two separate rounds. This makes a total of 12 major blocks in our randomization strategy.

[17] Gerber, Alan S. and Donald P. Green. (2012). *Field Experiments: Design, Analysis, and Interpretation*. New York, NY: W.W. Norton & Company, Chapter 3.

Table 1. Summary of Random Assignment Results

District / Unit	Control	BWC	Probability of Assignment	Covariates Used in Minor Blocking
1D	142	142	0.5	PSA[18], gender, use of force, race, length of service
1D Station	7	7	0.5	PSA, gender, use of force, length of service
2D	137	137	0.5	PSA, gender, use of force, race, length of service
3D	137	137	0.5	PSA, gender, use of force, race, length of service
4D	141	141	0.5	PSA, gender, use of force, race, length of service
5D	79	166	0.68	N/A
6D	153	152	0.5	PSA, gender, use of force, race, length of service
7D	99	159	0.62	N/A
NSIDa	12	19	0.61	Gender, use of force, race
NSIDb	36	36	0.5	Gender, use of force, race
SOD	48	49	0.5	Gender, use of force, race
School Security	44	44	0.5	Gender, use of force, race

4.4 Implementation

To implement the randomized assignment to treatment and control groups, the research team pulled full rosters for each district and specialized unit and applied the eligibility criteria (listed in Section 4.2 above) to generate rosters of study-eligible MPD members by district and special

[18] Each district is further divided into smaller geographic areas known as Police Service Areas, or PSAs.

unit.[19] The research team then conducted block randomization to assign all MPD members on these rosters to either treatment or control conditions.

Randomized assignments for all districts and units have been transferred to MPD and deployment of BWCs is underway, following the schedule listed below:

Table 2. Dates of BWC Deployment

District	Date of First Deployment in District/Unit
5D	June 28, 2015
7D	June 28, 2015
NSID	February 11, 2016
3D	March 15, 2016
1D	March 22, 2016
6D	April 19, 2016
4D	May 3, 2016
2D	May 17, 2016
SOD	July 22, 2016
School Security	September 14, 2016

Some officers who are assigned cameras might not install or use them, and some officers who are not assigned cameras might nevertheless obtain them. Our intervention will therefore encounter two-sided noncompliance.[20] We will conduct all of our analyses according to the original random assignment in order to preserve symmetry. Our experiment will recover estimates of the effect of being *assigned* to a BWC on a variety of outcomes (the so-called intention-to-treat effect, or ITT).

[19] Per legislative mandate, all MPD officers are required to wear BWCs by the end of 2016, with the implementation of this deployment to be conducted by MPD. In this setting, participation in the study is mandatory for all officers deemed to be eligible based on the criteria in Section 4.2.
[20] See Gerber and Green 2012, Chapter 6.

4.5 Intervention

The intervention is assignment of an eligible participant to wear and use a BWC in accordance with MPD policy. MPD General Order SPT-302.13 specifies that "[m]embers, including primary, secondary, and assisting members, shall start their BWC recordings as soon as a call is initiated via radio or communication from OUC [Office of Unified Communications] on their mobile data computer (MDC), or at the beginning of any self-initiated police action." The order enumerates the range of events for which members shall activate their BWCs; this list is included in Appendix A.

4.6 Outcomes

The data collection period varies for each district, based on the start date of BWC deployment in that district (see Table 2 above). The earliest date of deployment is June 28, 2015. On December 15, 2016, MPD will begin issuing BWCs to control group officers. We will track all outcomes associated with police activity that occurred during the treatment period until March 31, 2017.

All outcomes will be obtained at the officer level and will be translated into **yearly rates**. These rates will be calculated from the date that the cameras were first deployed in each district (i.e., the date on which treatment begins in that district). We will calculate these rates before and after the intervention.

Because districts will receive their assignments at different times, we will calculate two versions of each rate. The main specification will use a version that will use a window of k days, where k is the number of days between deployment and the end of the study period for the district that was the last to receive cameras. The "pre" version will be calculated using the same k-day period from the previous year, to address any seasonality in policing outcomes. See the top panel of **Figure 2**. The pre- and post- treatment periods are of the same length for all districts; the pre-treatment measurements come from the same time of year as the post measurements to account for seasonality in policing and desensitization to the treatment over time.

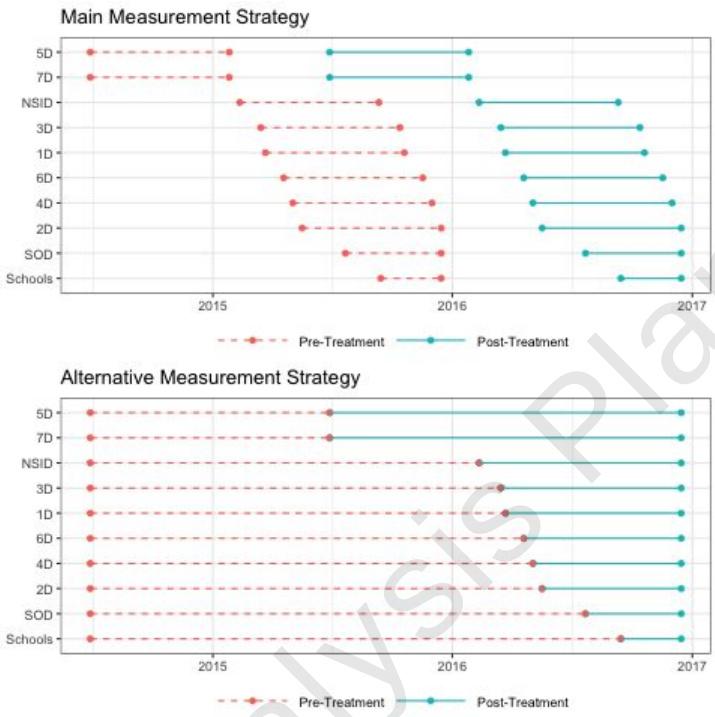

Figure 2.

An alternative version (bottom panel of **Figure 2**) will use all available data for all districts to calculate rates, and will be presented in an appendix. The alternative measurement strategy uses all the available data but may lead to somewhat distorted inferences. For example, the average treatment effect estimates obtained using the alternative measurement strategy will include outcome data for 5D and 7D that is much further removed from the initial deployment of cameras than for the other districts.

We will assess the effect of BWCs on the following four families of outcome measures: use of force outcomes; citizen complaints outcomes; policing activity outcomes; and judicial outcomes.

4.6.1 Use of Force Outcome Measures

MPD requires its members to submit reports documenting all uses of force, as defined in General Order RAR-901.07.[21] We use this data to assess the effect of BWCs on police use of force, and measure the following outcomes:

Use of force incidents. Per MPD policy, a use of force incident is a self-reported use of force.[22] Uses of force can be subdivided, per MPD policy, into "serious uses of force" and "use of force."[23]

Use of force (serious). This includes:

- Firearm discharges
- Officer involved shootings
- Use of force resulting in a broken bone or an injury requiring hospitalization
- Use of ASP (baton)
- All head strikes with an impact weapon
- Use of force resulting in loss of consciousness
- Use of force creating a substantial risk of death, serious disfigurement, disability or impairment of the functioning of any body part or organ
- MPD canine bites
- Use of force involving the use of neck restraints or techniques intended to restrict a subject's ability to breathe
- Other use of force resulting in death

Use of force (other). This includes all uses of force not categorized as a serious use of force.

Race of Subject of Force. We also examine use of force incidents by the race of the subject of the force, again looking at both "uses of force (serious)" and "uses of force (other)." The District of Columbia has a population of approximately 672,000, distributed as follows: 44.1% White; 48.3% Black; 10.6% Hispanic or Latino; 4.2% Asian; 2.7% multiracial; less than 1% each American Indian or Native Hawaiian or

[21] See Metropolitan Police Department. *General Order - Use of Force*. GO-RAR-901.07. Accessed October 6, 2016. https://go.mpdconline.com/GO/GO_901_07.pdf, p. 4 and p. 14 for instances in which MPD members are required to report use of force.
[22] See Metropolitan Police Department. *General Order - Use of Force*. GO-RAR-901.07. Accessed October 6, 2016. https://go.mpdconline.com/GO/GO_901_07.pdf, p. 9.
[23] In GO-RAR-901.07, see p. 3, #9 for definition of serious uses of force, and p. 4, #12 for general use of force definition.

other Pacific Islander.[24] Based on this demographic distribution, we examine use of force across the following race categories: White, Black/African American, Hispanic, and Other/Unknown.

4.6.2 Civilian Complaints Outcome Measures

Citizen complaints are reported to and investigated by both MPD and by the Office of Police Complaints (OPC). We use this data to assess the effects of BWCs on civilian complaints, to be measured as follows:

Civilian Complaints. The complaints outcome measure will aggregate complaints from both sources. We also disaggregate complaints according to whether they were sustained or not by the investigating body:

Complaint Sustained or Not Sustained. A complaint is sustained when the allegation is deemed to be "supported by sufficient evidence to determine that the incident occurred, and the actions of the member were improper."[25] Complaints that are not sustained have a disposition other than "sustained" (e.g., insufficient facts, exonerated, unfounded, pending).

Insufficient Facts. Complaints with a disposition of "Insufficient Facts" will be evaluated separately.

4.6.3 Policing Activity Outcome Measures

We examine the effect of BWCs on a variety of different policing activity measures, including traffic tickets and warnings issued, reports taken from particular types of calls for service, arrests on specific charges, and injuries sustained by officers. We use these measures to evaluate the effects of BWCs on officer discretion, as well as on civilian behavior.

Traffic Tickets and Warnings issued. The tickets and warnings included in this data were issued in personal, face-to-face interactions between MPD officers and members of the public (e.g., no parking tickets or red-light camera tickets are included).

[24] United States Census Bureau. "Quick Facts - District of Columbia." July 1, 2015 estimates. Accessed 6 Sept 2016. Available https://www.census.gov/quickfacts/table/PST045215/11,00.

[25] See Metropolitan Police Department. *General Order - Processing Citizen Complaints.* GO-PER-120.25. Accessed July 19, 2016. https://go.mpdconline.com/GO/GO-PER-120.25.pdf, p. 9 for definitions of complaint dispositions.

Discretionary Arrests. Per our interviews with MPD officials, officers exercise greater discretion to make arrests on charges in the following subset of offense categories:

- Disorderly Conduct
- Simple Assault
- Traffic Violations

We compare the control and treatment groups on the number of arrests officers in each group made on charges in these categories as a measure of the BWCs' effects on officer discretion.

Domestic Violence vs. Family Disturbance Report Taken Calls for Service. Officers responding to intra-family disputes have the discretion to code those calls explicitly as domestic violence events or note them as a "family disturbance." Given the greater workload associated with domestic violence events, we examine all calls for service coded as domestic violence incidents (e.g., event description is noted as "domestic violence"; "domestic violence incident"; or "domestic violence assault) as well as those coded as "family disturbance" events as an additional measure of the cameras' effects on officer discretion.

Domestic Violence Arrests. Arrests associated with domestic violence incidents.

Assault on a Police Officer (APO) arrests. APO arrests include both misdemeanors and felonies, and we look at each separately in our analysis. They are defined in accordance with DC Criminal Code (22-405), "Whoever without justifiable and excusable cause, assaults, resists, opposes, impedes, intimidates, or interferes with a law enforcement officer on account of, or while that law enforcement officer is engaged in the performance of his or her official duties shall be guilty of a misdemeanor..." In addition to the above definition, an APO is a felony when this assault "causes significant bodily injury to the law enforcement officer, or [the individual] commits a violent act that creates a grave risk of causing significant bodily injury to the officer." MPD records all arrests in a database dedicated to this purpose, and codes APOs (misdemeanors and felonies) explicitly.

Officer injuries. In addition to examining APOs as a gauge of the effect (if any) of body cameras on civilian behavior, we also examine officer injuries sustained from interactions with civilians using data obtained from the MPD clinic.

4.6.4 Judicial Outcome Measures (for MPD arrest charges only)

This set of outcomes begins to explore the evidentiary value of BWCs, to be measured as follows:

Prosecutions. Once MPD charges an individual with a crime and makes an arrest, the US Attorney's Office (USAO) or Office of the Attorney General (OAG) must decide whether or not to prosecute the charge based on the evidence available and the means by which that evidence was obtained, among other factors. We examine what happens to those specific charges on which MPD made arrests.[26]

We divide prosecutions into four categories, each of which serves as a separate dependent variable.

1. **Trial and found guilty.** The disposition is Guilty-Court Trial or Guilty-Jury Trial.
2. **Trial and found not guilty.** The disposition is Not Guilty-Acquittal, Not Guilty-Jury Trial, Not Guilty-Court Trial, or Not Guilty-By Reason of Insanity.
3. **Plea.** The disposition is Dismissed-Nolle-Diversion, Dismissed-Nolle-Prosequi, Guilty-904 Guilty Plea, Dismissed-Plea Agreement, Guilty-Plea Judgment Guilty.
4. **Dismissed without plea.** The disposition is Dismissed-DWP, Dismissed-No Probable Cause, Dismissed, Dismissed-Prosecution Abated.

Court Appearances. Court appearances are the number of times an officer appears in court, drawn from the MPD time, attendance, and court information database.

Hours in Court. This is an alternative measure of the amount of time officers spend in court.

4.7 Manipulation Check

As a measure of compliance with MPD BWC policy and treatment assignment, we measure well as the **number of videos uploaded** to the video databases as well as the **average length of the videos in minutes.**

[26] Due to current data limitations, we are unable to analyze the full universe of charges prosecuted by USAO and OAG at this time, and so our analysis of the effect of BWCs on judicial outcomes is limited to the subset of charges brought by MPD. For example, if MPD makes an arrest on felony X, and USAO or OAG changes those charges to misdemeanor X, or adds another charge Y, this event is reflected in our data as Felony X not prosecuted; neither the misdemeanor charge nor the additional charge Y that are prosecuted by OAG are not captured in the data. As this limitation applies to both control and treatment groups, we can still conduct a preliminary analysis on the evidentiary value of BWCs, but make note that the data do not encompass all charges on which individuals are prosecuted in the District of Columbia.

4.8 Statistical Methods

The main specification in our analyses will be a regression of treatment on outcome, with controls for the pre-treatment value of the outcome, pre-treatment covariates for officer, and indicators for each major block. Equation 1, below, provides the exact specification.

Equation 1:

$$Y_{POST} = \beta_0 + \beta_1 Z + \beta_2 Y_{PRE} + \beta_3 Block + \beta_4 X + \varepsilon$$

where ***Z*** is the treatment indicator, ***Y_pre*** is the pre-treatment value of the outcome under study, ***Block*** is a categorical variable for an officer's home district or special unit, ***X*** is a vector of pre-treatment covariates that includes race, gender, length of service, and ε is the error term.

We will estimate Equation 1 using weighted least squares (WLS) regression with inverse probability weights, which are calculated as the inverse of the probability of each unit being in its observed condition. We will estimate HC2 robust standard errors.

Our primary analysis will be conducted among officers in 1D, 2D, 3D, 4D, 5D, 6D, and 7D, excluding officers in the special units (NSID, SOD, and School Security). We will also report an analysis pooling all officers that participated in the study. The reason for separating these analyses is that the policing activities and camera use patterns may differ between the special units and the district officers.

Inference

We will use randomization inference to obtain p-values. The procedure is as follows:

1. Estimate the ITT on the observed data using Equation 1.
2. Estimate 10,000 simulated ITTs under the sharp null hypothesis.
3. Observe how frequently the simulated ITTs are larger in absolute value than the observed ITT.
4. If this frequency (p-value) is smaller than 5%, we will reject the sharp null hypothesis (of no difference in outcomes between Control and Treatment groups).

To guard against drawing false inferences due to multiple comparisons, we will report (in addition to raw p-values), p-values that are corrected by the Benjamini-Hochberg procedure, within "families" of outcome variables ("families" are described above in Section 4.6).[27]

Pre-specified Analyses: 5th and 7th Police Districts

[27] Benjamini, Yoav, and Yosef Hochberg. (1995). "Controlling the false discovery rate: a practical and powerful approach to multiple testing." *Journal of the royal statistical society. Series B (Methodological)* 57(1): 289-300.

Please see Appendix B for the application of our pre-analysis plan to data from our pilot study, conducted in districts 5D and 7D.

Scheduled Data Extraction

Data from all relevant sources will be pulled on the following dates:

1) *December 15, 2016:* This date marks the end of the randomized controlled trial. After this date, all control group officers will be given cameras, along with any additional MPD members now deemed eligible for cameras under MPD policy.
2) *March 31, 2016:* As noted earlier, we will track outcomes associated with police activity that occurred during the treatment period (ending December 15, 2016) through this date (e.g., use of force and complaint investigation outcomes and court outcomes for events that took place during the treatment period).

5 Discussion

5.1 Limitations to Potential Analyses

There are three main limitations to potential analyses:

1. **Mediation analyses are inappropriate in this study.**

   Our randomized design allows us to determine the causal effect of assignment to our intended treatment (BWCs) on the outcomes of interest. It does not allow us to determine the pathway that causal effects takes—that is, which *theoretical model(s) causes the treatment to have the observed effect on the outcomes of interest*. For example, if complaints go down, we could not distinguish whether this was caused by changes in officer behavior, citizen behavior, or some combination of these pathways and others. Theoretically, causal mediation analysis is a method that attempts to determine specific intermediate variable(s) that explain the causal pathway between treatment and outcome. Mediation analysis requires an assumption of sequential ignorability to consistently estimate causal mediation effects. This in turn requires that any mediator—that is, any variable that explains the causal mechanism between treatment and outcome—is independent of all potential outcomes given treatment and observed pretreatment variables.[28] This assumption is unrealistic in our study. We therefore have determined that mediation analyses are inappropriate in this study.

[28] Imai, Kosuke, Luke Keele, and Dustin Tingley.(2010). "A general approach to causal mediation analysis." *Psychological Methods* 15(4):309-334.

2. **We do not investigate heterogeneous effects due to constraints on statistical power.**

   One strength of our study is that we have a relatively large sample size; MPD has a large police force, and the study runs for a long period of time. However, many outcome variables are relatively rare (for example, serious uses of force), and for more prevalent outcomes, such as arrests, our expected effect size is small. We expect that we are well powered to estimate average causal effects but that we should be cautious when investigating whether BWCs have different effects for different officers, so-called heterogeneous effects analyses. Given our constraints on statistical power, we have determined that we will not present any heterogeneous effects analyses unless specifically required to do so by a reviewer, in which case we will note the deviation from the pre-analysis plan.

3. **Our estimand is the Intention-to-Treat (ITT) effect.**

   Our experimental design allows us to estimate the effect of being *assigned* to receive a camera, the so-called Intention-to-Treat (ITT) effect. This is different from the average treatment effect (ATE) of cameras themselves, because some officers will fail to comply with their assigned treatment condition. We have evidence of noncompliance in both directions—officers assigned to treatment who do not use BWC according to policy, as well as officers assigned to control who do use BWCs at times. We could estimate the Complier Average Causal Effect (the CACE), but this amounts to rescaling the ITT by the proportion of compliers in the sample. The choice between ITT and CACE does not affect hypothesis testing, as statistical inference is conducted on the ITT in any case.

4. **We will not be able to distinguish changes in the *occurrence* of events from the *reporting* of events.**

   For many of our outcomes (for example, use of force), we rely on self-reports by officers. This is a fundamental challenge associated with reliance on administrative data. It could be that the presence or absence of BWCs affects only the occurrence of events, only the reporting of events, or both the occurrence and subsequent reporting of events. Our design is not able to distinguish between these two channels.

5.2 Limitations to Generalizability

This is a study at a moment in time, so the results will be generalizable only the extent that the officers and policing contexts of other departments are similar to those of the MPD in 2016.

5.3 Interpretation

When feasible, we will also translate outcomes into time and money saved (e.g., with respect to the time officers spend in court, number of complaints received requiring investigation).

We expect that BWCs will change many of the outcomes listed above; indeed, these outcomes were selected because changes in these variables are among the most commonly theorized consequences of introducing BWCs. We do also note the possibility, however, that all officers behave as though they have BWCs because of the omnipresence of cell phone cameras and other officers' BWCs. When combined with major national events involving footage of controversial officer-involved shootings during the study period, it is possible that the effect of wearing a BWC is overwhelmed by the department-wide effect of these major national events on officers' awareness of being under public scrutiny, regardless of whether they are equipped with a BWC or not. In the event of null results, our design would be unable to distinguish this possibility from the alternative explanation that BWCs have no effect on police behavior.

6 Other Information

In the event that an analysis decision is not covered in this plan, we will default to the standard operating procedures outlined here: https://github.com/acoppock/Green-Lab-SOP.

Appendix A: MPD General Order SPT-302.13

MPD General Order SPT-302.13 specifies that "[m]embers, including primary, secondary, and assisting members, shall start their BWC recordings as soon as a call is initiated via radio or communication from OUC [Office of Unified Communications] on their mobile data computer (MDC), or at the beginning of any self-initiated police action. In addition, members shall activate their BWCs for the following events:

A. All dispatched and self-initiated calls-for-service;
B. All contacts initiated pursuant to a law enforcement investigation, whether criminal or civil; *NOTE: Members are not required to record non-investigatory contacts (e.g., business checks).*
C. All stops (i.e., traffic, pedestrian, and bicycle), and frisks as defined in GO-OPS-304.10 (Police-Citizen Contacts, Stops, and Frisks);
D. Vehicle and foot pursuits;
E. All traffic crash scenes;
F. Any incident or traffic crash in which the member is involved;
G. DUI and consumption of marijuana investigations;
H. High-risk encounters (e.g., barricade situations, active shooter situations);

I. Tactical activities, to include canine, Emergency Response Team and Civil Defense Unit deployments;
J. Mental health consumer encounters;
K. Suspicious activities;
L. Use of force situations;
M. Arrests;
N. Encounters requiring the advising of Miranda rights;
O. All transports of prisoners and citizens;
P. Any of the following searches of a person or property: (1) Consent searches; (2) Warrantless searches; (3) Vehicle searches; (4) Searches conducted incident to arrest; (5) Inventory searches; (6) Cursory searches; (7) Probable cause searches; (8) Execution of search or arrest warrants; (9) Frisks; (10) Field searches; (11) Full-custody searches; (12) Strip or squat searches;
Q. Hospital guard details;
R. During the initial inventorying of seized money or any high value property;
S. During school-based events...as well as other encounters with juveniles during events defined in this section;
T. During First Amendment Assemblies;
U. While assisting other law enforcement agencies (e.g., United States Park Police, District of Columbia Housing Authority Police) in handling incidents outlined in this section;
V. While interacting with citizens inside a police facility (e.g., station personnel providing police services or information); and
W. Any incident that the member deems it appropriate to activate the BWC in accordance with this order or upon direction from an official. " (pp. 6-8).

The MPD General Order on the BWC Program also enumerates several limitations/areas for discretion with respect to BWC use:

1. **Traffic Posts.** While assigned to traffic posts, members shall only activate their BWCs for the events listed above.
2. **First Amendment Assemblies.**
    a. Members shall activate their BWC when responding to a First Amendment assembly in accordance with the list enumerated above.
    b. In accordance with D.C. Official Code § 5-333.09, members shall not record First Amendment assemblies for the purpose of identifying and recording the presence of individual participants who are not engaged in unlawful conduct.
    c. Members shall ensure BWC recordings of First Amendment assemblies, whether planned or spontaneous, are recorded in compliance with the law and MPD policy including SOP-11-01 (Handling First Amendment Assemblies and Mass Demonstrations).

3. **Intrafamily, Sexual Assault, and Stalking Incidents and Offenses**
    a. Intrafamily Incidents and Offenses – members who respond to intrafamily incidents and offenses as outlined in GO-OPS- 304.11 (Intrafamily Offenses) shall continue their BWC recording but make every effort to provide the victim privacy such that they do not record any discussions between the OnCall Advocacy Program (OCAP) advocate and the victim, regardless of whether the conversation is in-person or over the phone. Members shall position themselves in such a way as to afford the victim as much privacy as possible.
    b. Sexual Assault Incidents and Offenses – members who initially respond to allegations of sexual assault shall continue their BWC recording but are reminded that, in accordance with GOOPS-304.06 (Adult Sexual Assault Investigations), they shall ask only the necessary questions to enable them to determine the type of crime, and to obtain the required information for a lookout broadcast. Members shall not question the victim in detail about the offense.
    c. Members are reminded, and may inform the victim or others present at the scene, that BWC recordings taken inside a personal residence or related to an incident involving domestic violence, stalking, or sexual assault will be withheld from release to the public.
4. **Medical Facilities, Ambulances, and Patient Privacy**
    a. Members shall record ambulance transports when they are present for law enforcement purposes.
    b. Members are reminded that they shall only activate their cameras in hospitals and other medical facilities for the events listed in at the beginning of this appendix, including hospital guard details.
    c. Members shall not record in the common areas of medical facilities except when recording an event as required by the above list.
    d. When recording in hospitals or other medical or psychiatric facilities, members shall be careful to avoid, when possible, recording persons other than the suspect, complainant, and witnesses.
    e. When members are in hospitals or medical facilities pursuant to the above list, they shall continue to record and make every effort to provide patients with privacy such that they do not record patients during medical or psychological treatment or evaluations by a clinician or similar medical professional. Members shall position themselves in such a way as to afford the patients as much privacy as possible.

Appendix B: Pre-specified Analyses: 5th and 7th Districts

Metropolitan Police Department of the District of Columbia Randomized Controlled Trial of the Police Body-Worn Camera Program
Preanalysis Plan Analysis Tables and Figures

NOT FOR CIRCULATION OR DISTRIBUTION
September 12, 2016

In this document, we apply the analysis plan detailed in the main pre-analysis plan document to the the 5th and 7th police districts, the two jurisdictions involved in the pilot. The tables and graphs below each analyze a discrete set of outcomes. The regression tables show the estimated treatment effects, while the graphs show the estimated average outcome in the treatment and control groups (with 95% confidence intervals) in the left-hand panels and the estimated treatment effects in the right-hand panels. These plots display unadjusted treatment effect estimates using our main analysis strategy. At a minimum, we will report these exact analyses with data from all districts at the conclusion of the trial.

1

Table 1: Effects of BWCs on Use of Force Outcomes

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−254.6	−40.1	−214.4
	(176.7)	(57.7)	(165.2)
Constant (Control)	911.1	81.6	829.5
	(163.5)	(55.4)	(152.8)
N	503	503	503
R^2	0.01	0.001	0.004

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 1: Effects of BWCs on Use of Force Outcomes

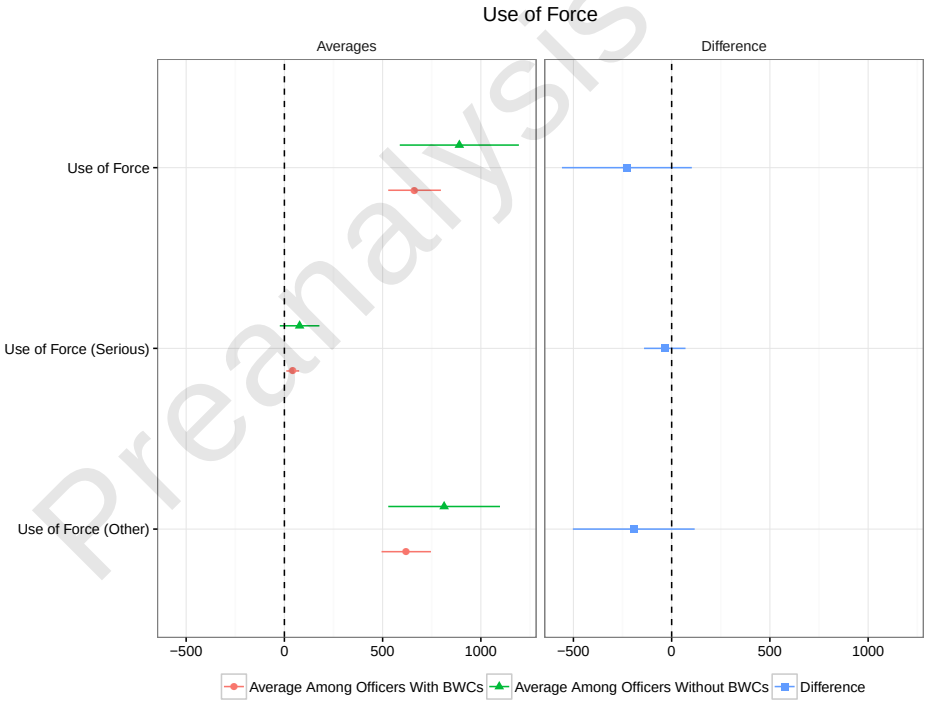

Table 2: Effects of BWCs on Use of Force Outcomes (Black Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−204.2	−29.5	−174.6
	(148.6)	(38.5)	(142.4)
Constant (Control)	715.6	60.3	655.3
	(136.9)	(35.7)	(131.4)
N	503	503	503
R^2	0.005	0.002	0.004

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 2: Effects of BWCs on Use of Force Outcomes (Black Civilians)

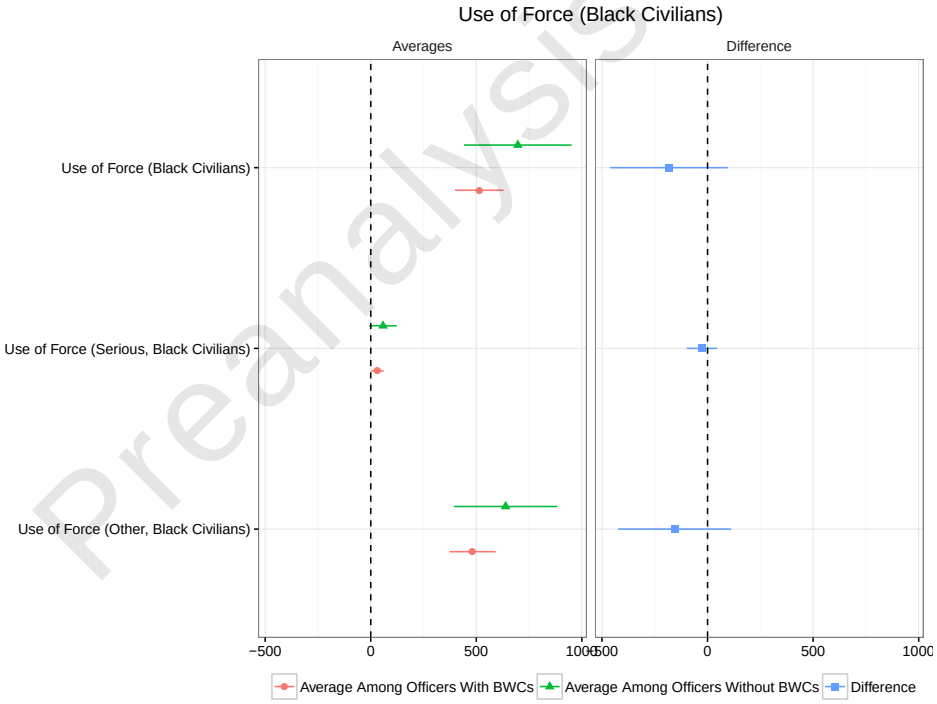

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Table 3: Effects of BWCs on Use of Force Outcomes (Nonblack Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−50.4	−10.6	−39.8
	(55.8)	(22.5)	(51.6)
Constant (Control)	195.5	21.2	174.2
	(46.6)	(21.2)	(42.0)
N	503	503	503
R^2	0.002	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 3: Effects of BWCs on Use of Force Outcomes (Nonblack Civilians)

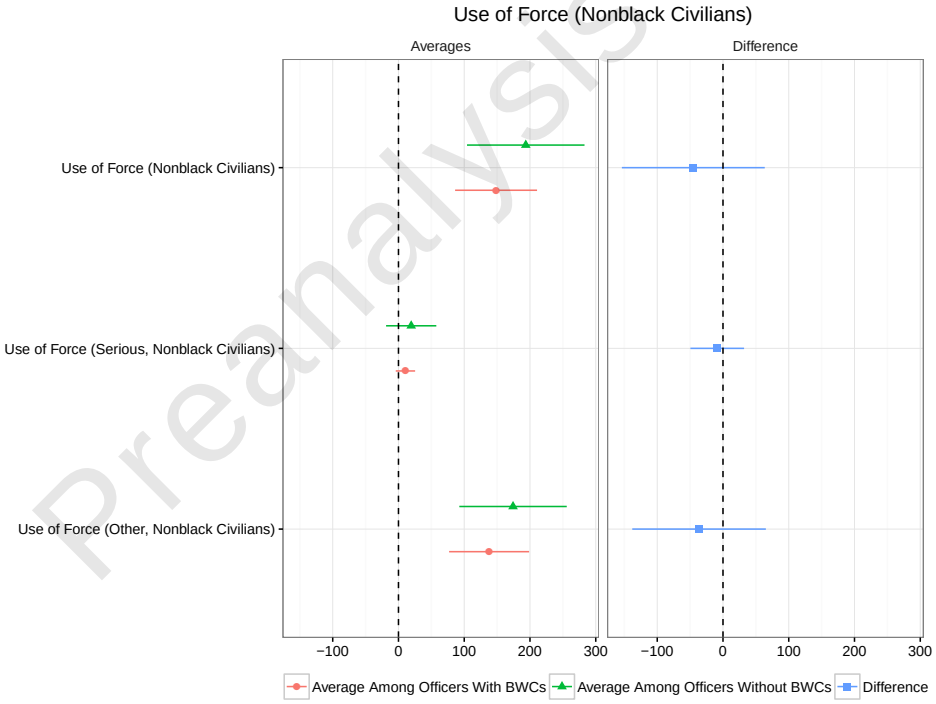

Table 4: Effects of BWCs on Use of Force Outcomes (White Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−0.5	0.0	−0.5
	(14.7)	(0.0)	(14.7)
Constant (Control)	10.6	0.0	10.6
	(10.6)	(0.0)	(10.6)
N	503	503	503
R^2	0.000		0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 4: Effects of BWCs on Use of Force Outcomes (White Civilians)

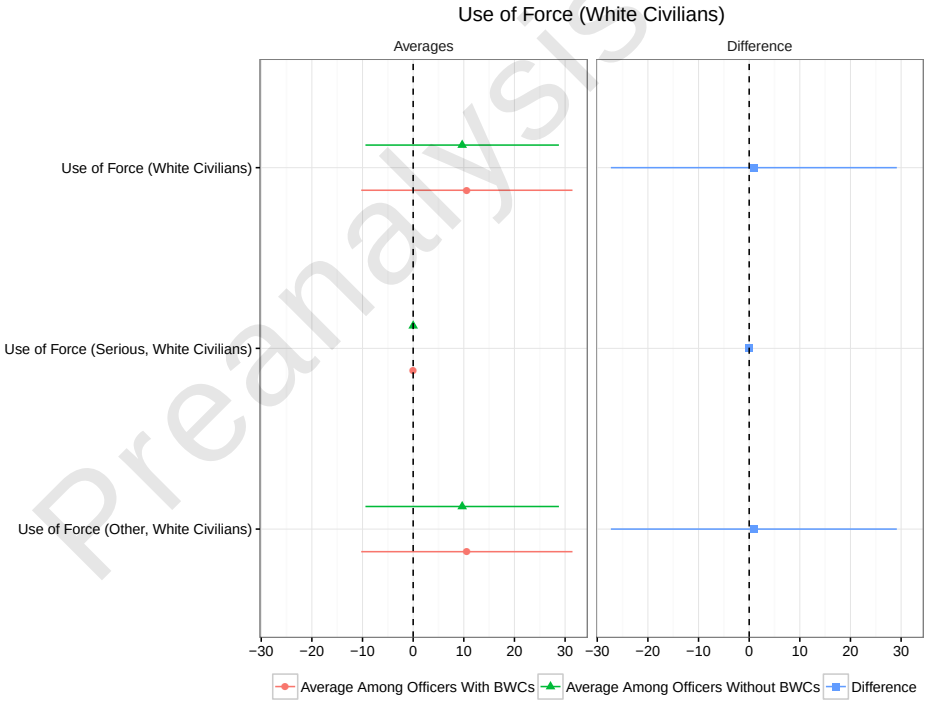

Table 5: Effects of BWCs on Use of Force Outcomes (Hispanic Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−0.5	0.0	−0.5
	(12.8)	(0.0)	(12.8)
Constant (Control)	10.6	0.0	10.6
	(10.6)	(0.0)	(10.6)
N	503	503	503
R^2	0.000		0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 5: Effects of BWCs on Use of Force Outcomes (Hispanic Civilians)

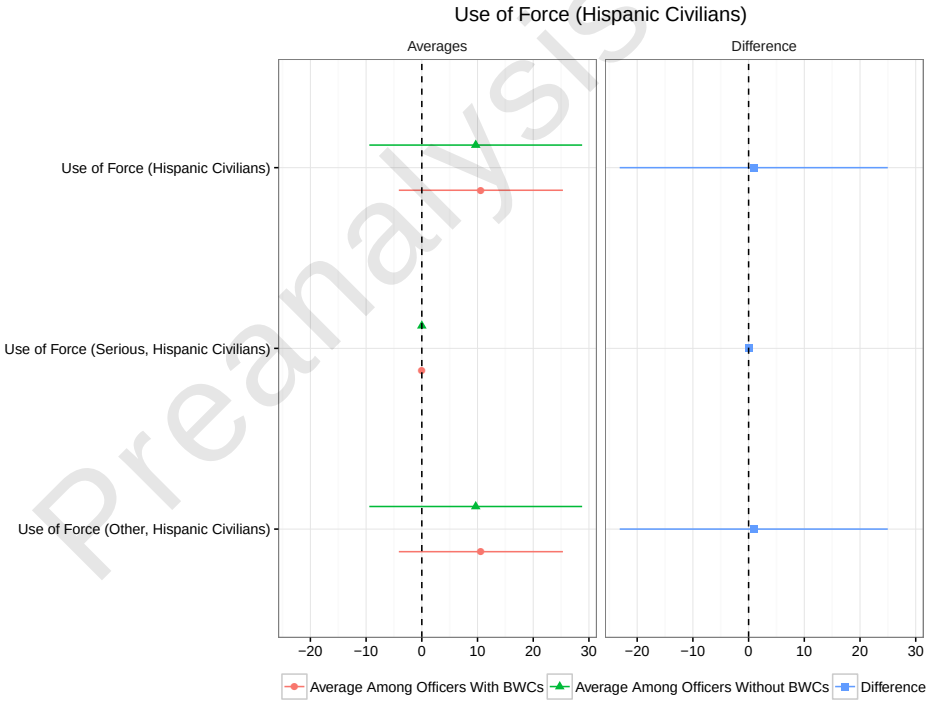

Table 6: Effects of BWCs on Use of Force Outcomes (Other Race Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−49.9	−10.6	−39.3
	(54.2)	(22.5)	(49.8)
Constant (Control)	184.9	21.2	163.6
	(45.6)	(21.2)	(40.9)
N	503	503	503
R^2	0.002	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 6: Effects of BWCs on Use of Force Outcomes (Other Race Civilians)

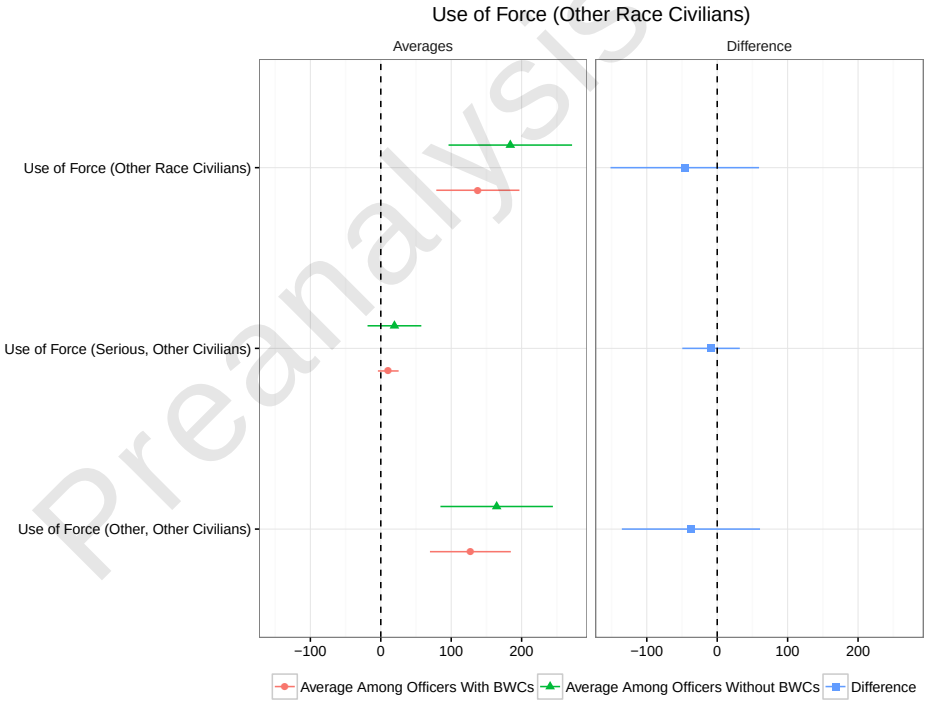

Table 7: Effects of BWCs on Use of Force Outcomes (Unknown Race Civilians)

	Use of Force	Use of Force (Serious)	Use of Force (Other)
	(1)	(2)	(3)
Officer Assigned BWC	−49.4	−10.6	−38.8
	(52.9)	(22.5)	(48.4)
Constant (Control)	174.2	21.2	153.0
	(44.6)	(21.2)	(39.7)
N	503	503	503
R^2	0.002	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Figure 7: Effects of BWCs on Use of Force Outcomes (Unknown Race Civilians)

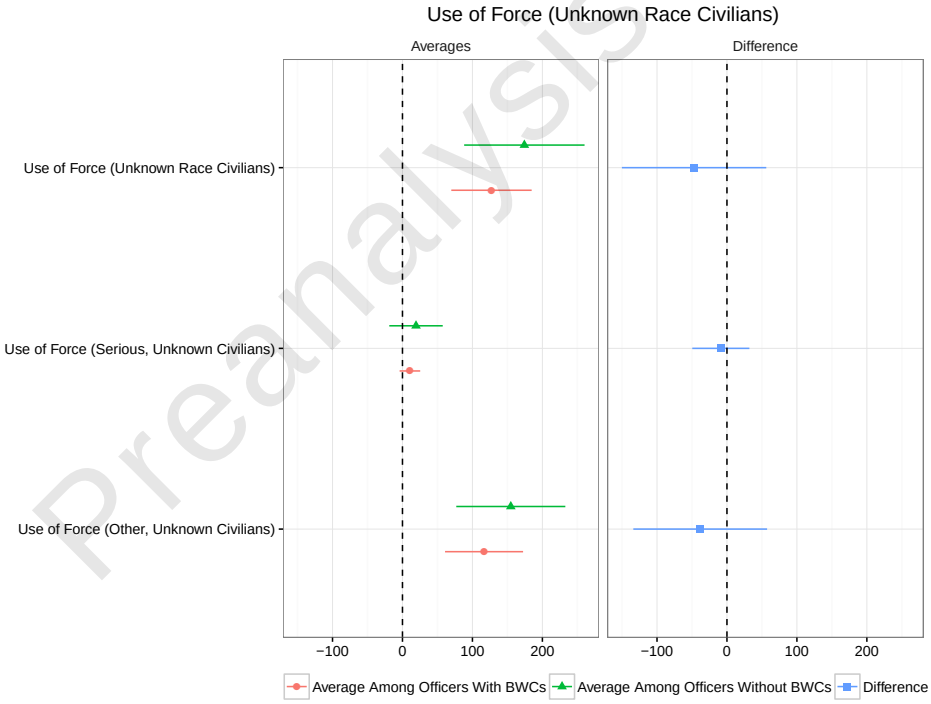

Table 8: Effects of BWCs on Complaints

	Complaints	Complaints (Sustained)	Complaints (Not Sustained)	Compliants (Insufficient Facts)
	(1)	(2)	(3)	(4)
Officer Assigned BWC	162.8*	14.1	148.7*	26.2
	(98.7)	(35.3)	(88.1)	(30.1)
Constant (Control)	312.8	69.3	243.5	42.5
	(69.7)	(25.8)	(61.4)	(21.0)
N	503	503	503	503
R^2	0.01	0.000	0.01	0.002

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

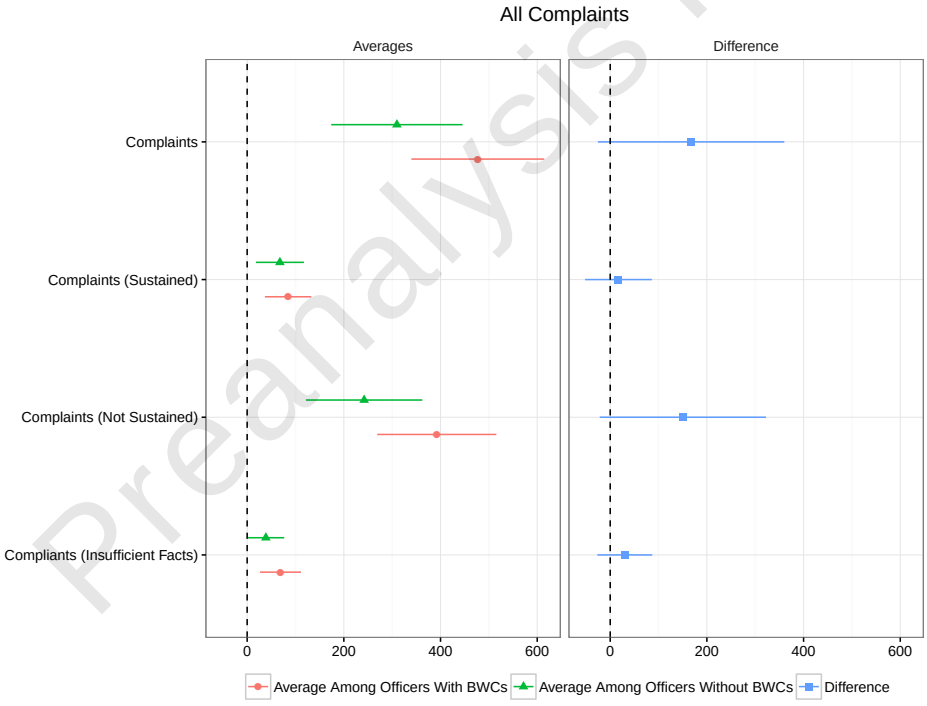

Table 9: Effects of BWCs on Assaults on Police Officers

	Assault on PO	Felony APO	Misdemeanor APO
	(1)	(2)	(3)
Officer Assigned BWC	−19.4	−5.1	−14.3
	(39.0)	(12.0)	(37.2)
Constant (Control)	87.1	10.6	76.5
	(31.2)	(10.6)	(29.5)
N	503	503	503
R^2	0.001	0.000	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

Table 10: Effects of BWCs on Discretionary Arrests

	Disorderly Conduct	Simple Assault	Traffic Violation
	(1)	(2)	(3)
Officer Assigned BWC	−21.2	−21.2	−117.5
	(25.4)	(25.4)	(89.4)
Constant (Control)	48.0	48.0	278.8
	(21.3)	(21.3)	(78.9)
N	503	503	503
R^2	0.002	0.002	0.004

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

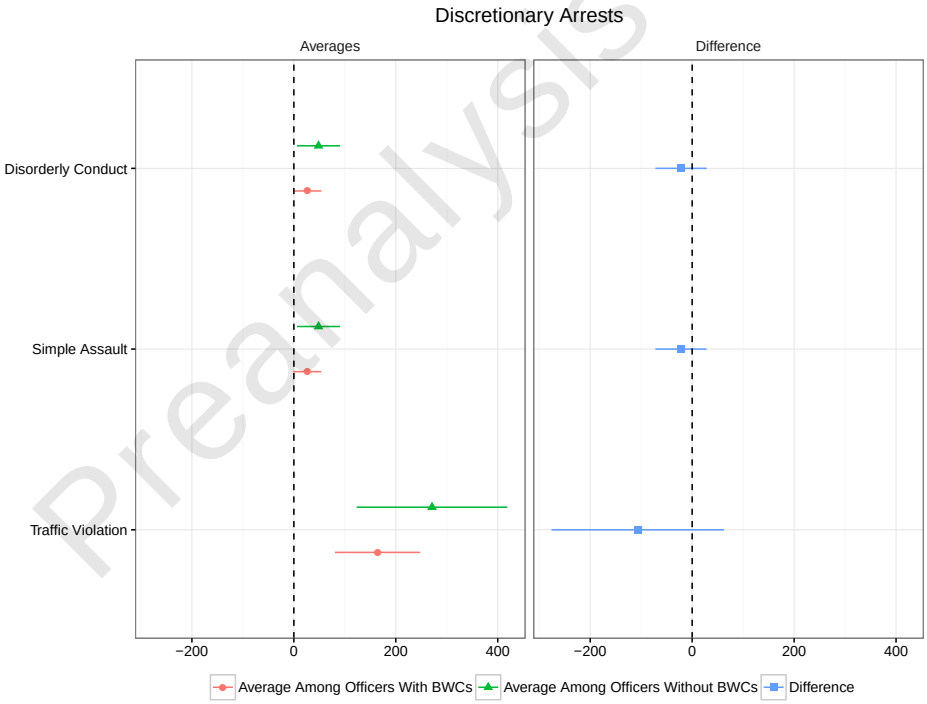

Table 11: Effects of BWCs on Domestic Violence Outcomes

	DV Report Taken	DV Report Taken (Family)	DV Report Taken (Not Family)	DV Arrests
	(1)	(2)	(3)	(4)
Officer Assigned BWC	347.0	−79.4	426.5*	99.2
	(663.3)	(525.4)	(218.8)	(658.7)
Constant (Control)	5,356.3	3,982.8	1,373.6	4,953.4
	(542.4)	(440.9)	(164.0)	(503.3)
N	503	503	503	503
R^2	0.001	0.000	0.01	0.000

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

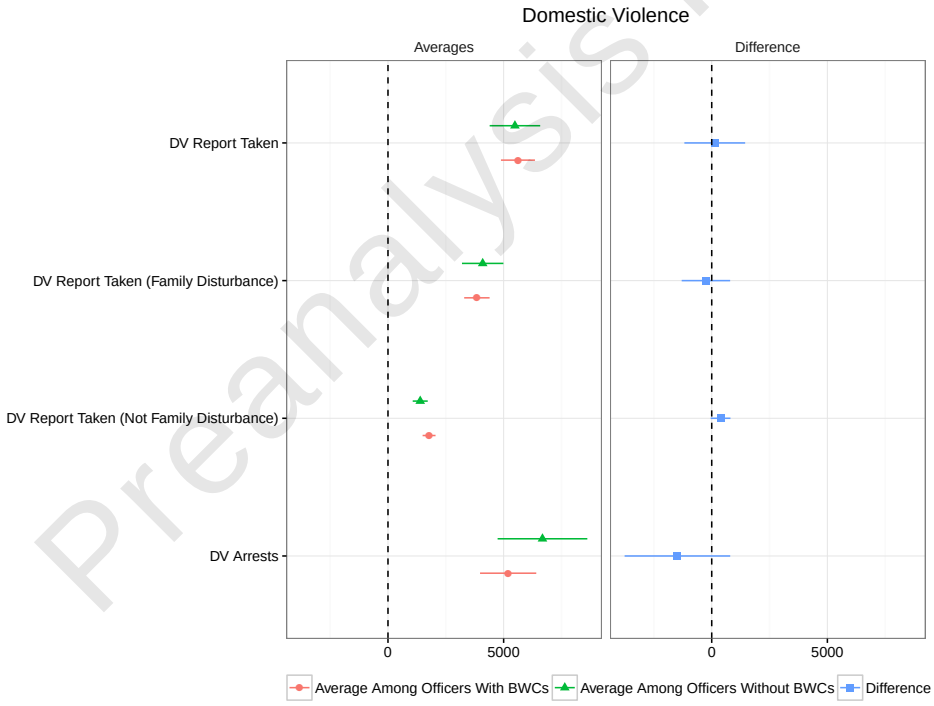

Table 12: Effects of BWCs on Judicial Outcomes

	Prosecuted	Found Guilty	Not Found Guilty	Entered Plea	Not Pursued
	(1)	(2)	(3)	(4)	(5)
Officer Assigned BWC	−1,558.0	−302.2*	40.6	−925.1	−211.9
	(1,955.0)	(164.5)	(99.5)	(1,280.6)	(431.4)
Constant (Control)	12,503.0	705.5	286.9	7,180.6	2,619.6
	(1,692.3)	(150.1)	(74.8)	(1,119.0)	(340.9)
N	503	503	503	503	503
R^2	0.002	0.01	0.000	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

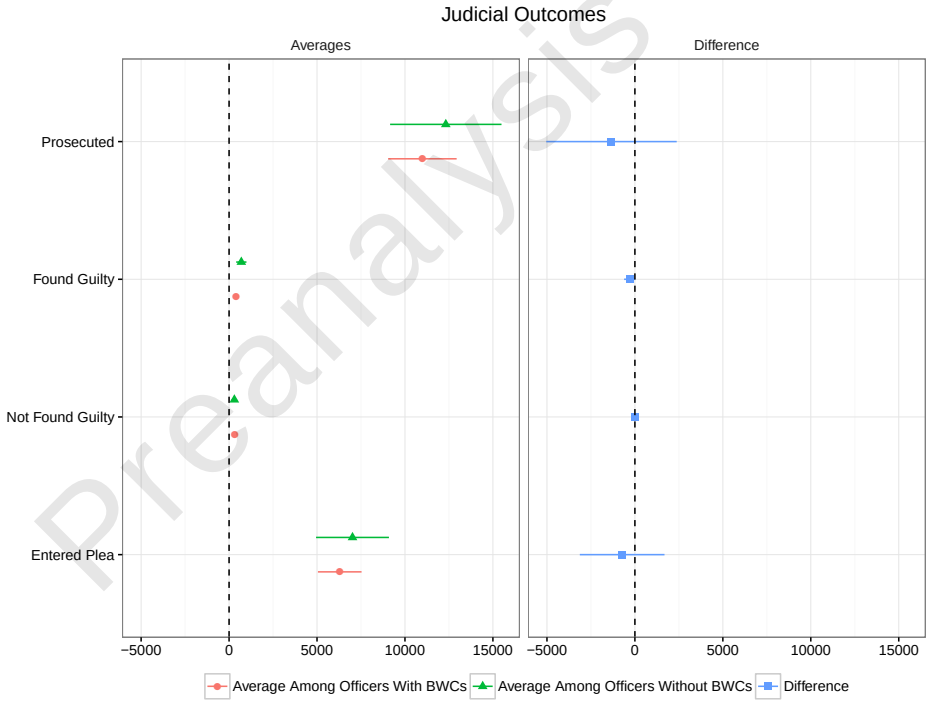

Table 13: Effects of BWCs on Court Appearances

	Court Appearances	Hours in Court
	(1)	(2)
Officer Assigned BWC	−1,298.4	−3,170.8
	(1,743.1)	(4,714.9)
Constant (Control)	14,265.1	35,516.9
	(1,464.7)	(3,893.0)
N	503	503
R^2	0.001	0.001

*p < .1; **p < .05; ***p < .01
Outcomes are yearly event rates per 1000 officers.
Robust standard errors are in parentheses.

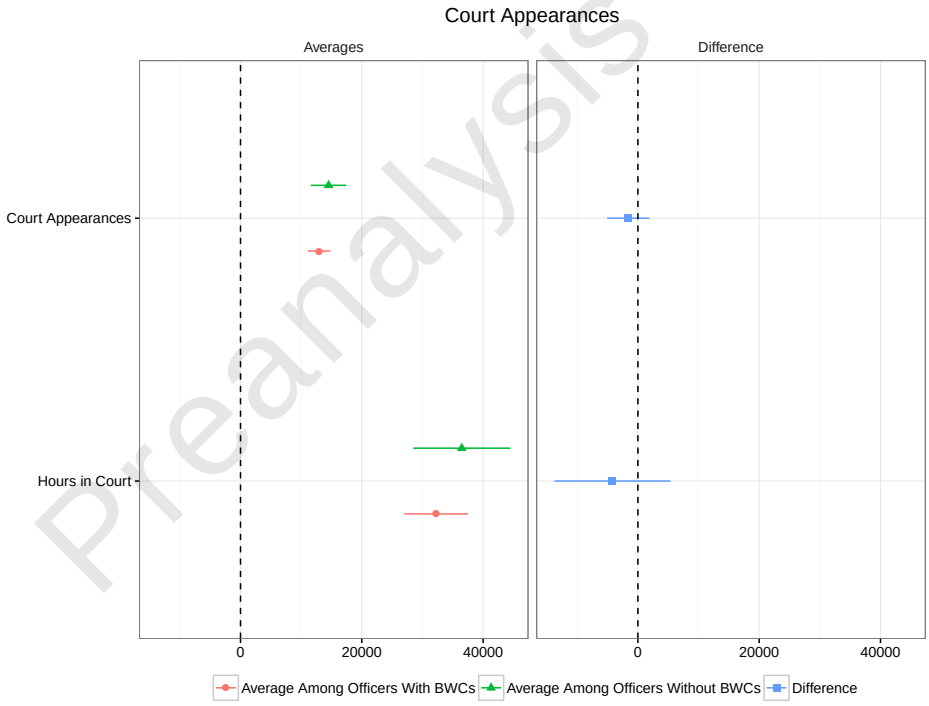

Table 14: Effects of BWCs on Compliance Outcomes

	Videos per year	Average length of videos in minutes
	(1)	(2)
Officer Assigned BWC	581.6***	10.6***
	(28.3)	(0.3)
Constant (Control)	21.1	0.4
	(11.9)	(0.2)
N	503	503
R^2	0.4	0.7

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.