

Online Appendix for
“The Black-White Recognition Gap in
Award Nominations”

A Data Appendix

This section describes the administrative police records that are used for the empirical analysis. Administrative records and information on sworn Chicago Police Department members were obtained by Freedom of Information Act requests through a collaboration with Invisible Institute. In order to connect different datasets, officers are first identified within a dataset using the available unique characteristics, such as name, appointed date, birth year, and race, and then matched with identified officers in different datasets.

Demographics Data on officer race, sex, birth year, and appointment date are obtained from merged data, using the most common observation across datasets.¹⁹ Officer rank is taken from salary data provided by the Chicago Department of Human Resources (DHR), covering 2002 to 2017. Historical unit assignment data lists all units to which an officer was assigned since the beginning of his or her career, as well as start- and end-dates in each unit.

Supervisors This dataset provides information about the supervisor who conducted each officer’s annual evaluation between 2009 and 2017. Our analysis focuses on those at the rank of *Police Officer*, meaning their supervisors are at the rank of *Sergeant*. In this paper, the term “supervisor” refers to a sergeant who is officially assigned to conduct a police officer’s annual evaluation in a given calendar year.

Awards The awards dataset provides information on all department award nominations between 2004 and 2017. The dataset includes the award name, the individual being nominated, the requester, request date, and the final status of the nomination (approved, deleted, or denied).²⁰

Arrests The arrests dataset contains information on all arrests made by police offi-

¹⁹Not all demographic information is complete in each file, so an aggregation of demographic variables across multiple files is necessary for identifying a unique officer. Over 99 percent of officers are matched to a unique gender, race, and appointment date.

²⁰An award may be deleted for various reasons, including: the form was not filled out correctly; supporting evidence was not included; or the nomination does not meet the eligibility requirements of the award. This differs from an award denial, which means the officer did not win the award. Very few awards (2.4 percent) are deleted.

cers. The data include the subject, crime, arrest location, and time of arrest for all arrests from 2001 to 2017 and arrest date starting in 2010. For arrests made in 2009, we use the date the subject was released from the local police station as a proxy for the arrest date.²¹ Crimes are aggregated into three categories: violent crime, property crime, and non-index crime. The Federal Bureau of Investigation classifies violent and property crimes as “index crimes” because they are more serious offenses.²² Non-index crimes capture crimes that are less serious such as municipal code violations, traffic violations, and drug abuse violations.²³

Complaints The complaints dataset contains all recorded allegations of misconduct filed against an officer between 2000 and 2016. Allegations may originate from the public or from other officers in the department.

Use of Force Data on officer use of force come from 2004 to 2016 Tactical Response Reports (TRR). Officers are required to file a TRR if they used any force while performing their duties. A TRR filing requirement can be triggered by three things: the subject’s actions; the officer’s actions; or a subject who is injured or alleges injury resulting from the officer’s use of force option. Using CPD’s guidance on the appropriate use of force in different situations, we identify officer actions that are categorized as “strong use of force.” Strong uses of force involve elevated levels of force that are generally intended to enact harm on or injure the subject.²⁴

²¹In 96.9 percent of cases, the release date is on the same day or the day after the arrest date, and 100 percent of release dates are within four days of the arrest.

²²Violent index crimes are murder, aggravated assault/battery, robbery, and rape. Property index crimes are larceny theft, burglary, arson, and motor vehicle theft.

²³A comprehensive list of crime categories can be found at http://gis.chicagopolice.org/clearmap_crime_sums/crime_types.html.

²⁴Strong use of force may or may not necessarily involve weapons. For example, take-downs, kicks, and punches are also strong uses of force.

B Additional Tables and Figures

Table A1: Department Awards

	Award Name and Description	Share
1	<i>Honorable Mention Certificate</i> for demonstrating outstanding performance above and beyond that required by the member's assignment.	87.48%
2	<i>Department Commendation</i> for an outstanding act or achievement that brings great credit to the Department and involves performance above and beyond that required by the member's basic assignment.	6.88%
3	<i>Unit Meritorious Performance Award</i> for exhibiting exceptional professional skill and conduct during a coordinated action.	1.24%
4	<i>Special Commendation</i> for making a significant impact on public safety or crime prevention.	0.97%
5	<i>Problem Solving Award</i> for an exemplary effort to identify, analyze, and successfully respond to causes, conditions, and problems that may lead to crime and neighborhood disorder.	0.79%
6	<i>Joint Operations Award</i> for efforts and participation in a broad multi-agency joint operation/event, spanning several days or more, significantly contributing to the overall successes of the operation.	0.77%
7	<i>Lifesaving Award</i> for a successful effort in saving a human life that involved exceptional courage or performance.	0.65%
8	<i>Police Officer of the Month</i> for performance of duty during a specific month was characterized by such exceptional professional skill that it merits recognition by the entire Department.	0.32%
9	<i>Traffic Stop of the Month Award</i> for excellence in conducting professional traffic stops that result in quality arrests.	0.26%
10	<i>Superintendent's Award of Valor</i> for an act of outstanding bravery or heroism by which the member has demonstrated in great degree the characteristics of selflessness, personal courage, and devotion to duty.	0.24%
11	<i>Arnold Mireles Special Partnership Award</i> for making a significant impact upon the quality of life within their community by identifying and resolving problems.	0.16%
12	<i>Superintendent's Award of Merit</i> for an outstanding accomplishment that has resulted in improved administration, improved operations, or substantial savings in manpower or operational costs, wherein the member has gone far beyond the requirements of their normal assignment.	0.14%
13	<i>Top Gun Arrest Award</i> for exceptional commitment to the recovery of illegal firearms.	0.06%
14	<i>Police Blue Star Award</i> is granted to any sworn member who has been seriously, critically, or fatally injured while in the performance of police duty.	0.03%
15	<i>Police Blue Shield Award</i> is granted to any sworn member who, as a result of accidental causes, has been seriously, critically, or fatally injured while in the performance of police duty.	0.01%
16	<i>Chicago Police Leadership Award</i> for exemplary service, dedication, and leadership.	0.01%
17	<i>Special Service Award</i> for contributing to any event that has a significant impact upon the historical direction and operations of the Department.	0.01%
18	<i>Superintendent's Award of Tactical Excellence</i> for exceptional tactical skills or verbal approaches and techniques to mitigate any deadly force situation resulting in the saving or sustaining of a human life.	0%

Source: Chicago Police Department Special Order S01-01-01 "Description and Eligibility for Department Awards", retrieved from <http://directives.chicagopolice.org/directives/> and CPD analysis sample.

Notes: This table lists the 18 department awards considered in the analysis in decreasing order of prevalence.

Table A2: Supervisor Race and Lagged Officer Work Measures

Sample: Coefficients for:	Outcome Variable: Supervisor is White			
	Full Sample		Analysis Sample	
	White (1)	Black-White Diff (2)	White (3)	Black-White Diff (4)
Violent-crime Arrests	0.00183 (0.00149) [1.000]	0.000639 (0.00181) [1.000]	0.00147 (0.00142) [1.000]	0.00298 (0.00200) [1.000]
Property-crime Arrests	0.00245 (0.00177) [1.000]	0.000327 (0.00206) [1.000]	0.000659 (0.00133) [1.000]	3.87e-05 (0.00170) [1.000]
Non Index-crime Arrests	-0.000151 (0.000408) [1.000]	0.000393 (0.000741) [1.000]	0.000683** (0.000298) [0.593]	-0.000697 (0.000527) [1.000]
Complaints	9.55e-05 (0.00539) [1.000]	0.00275 (0.00753) [1.000]	1.90e-05 (0.00431) [1.000]	0.00858 (0.0102) [1.000]
TRR Filings	-0.00973* (0.00566) [1.000]	0.0109 (0.00850) [1.000]	-0.0114 (0.00768) [1.000]	-0.000401 (0.0149) [1.000]
Strong Force Ratio	0.00750 (0.0115) [1.000]	-0.0113 (0.0234) [1.000]	0.000391 (0.0146) [1.000]	-0.00628 (0.0300) [1.000]
Observations		31,263		19,423
R-squared		0.091		0.075
p-value for joint F-test	0.294	0.535	0.128	0.434

Source: CPD analysis sample.

Notes: The table reports estimates for lagged annual work measures on the likelihood of being assigned to a white supervisor. Columns 1-2 report results from the full officer sample. Columns 3-4 report results from the analysis sample, which is restricted to all supervisor-officer relationships that last one year. Coefficients for white officers are reported in columns 1 and 3, and coefficients for the Black-white difference are reported in columns 2 and 4. Estimates also control for officer race, birth year, tenure, unit, and year. Non-index arrests include arrests for non-property and non-violent crimes. The sample excludes units in years where there were only white supervisors. Standard errors clustered by unit are in parentheses. Sharpened False Discovery Rate q-values to adjust for multiple hypothesis testing are in square brackets. p-values for a joint F-test for white officers are reported in columns 1 and 3, and for Black officers in columns 2 and 4. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A3: Racial Difference in Nomination Likelihood by Arrests: All Supervisor Assignments

Specification:	Outcome Variable: Nominated	
	Original Model (1)	All Assignments (2)
Two to three arrests last month	0.0146*** (0.00171)	0.0227*** (0.00225)
Four or more arrests last month	0.0457*** (0.00388)	0.0626*** (0.00478)
<i>Interactions with Black Officer</i>		
Two to three arrests last month	-0.00727*** (0.00247)	-0.0134*** (0.00288)
Four or more arrests last month	-0.0177*** (0.00530)	-0.0224*** (0.00664)
<i>Interactions with Hispanic Officer</i>		
Two to three arrests last month	0.000838 (0.00319)	-0.00254 (0.00291)
Four or more arrests last month	-0.0121** (0.00552)	-0.0133** (0.00536)
Observations	176,552	288,485
Mean Pr(Nom) for Reference Group	0.013	0.017

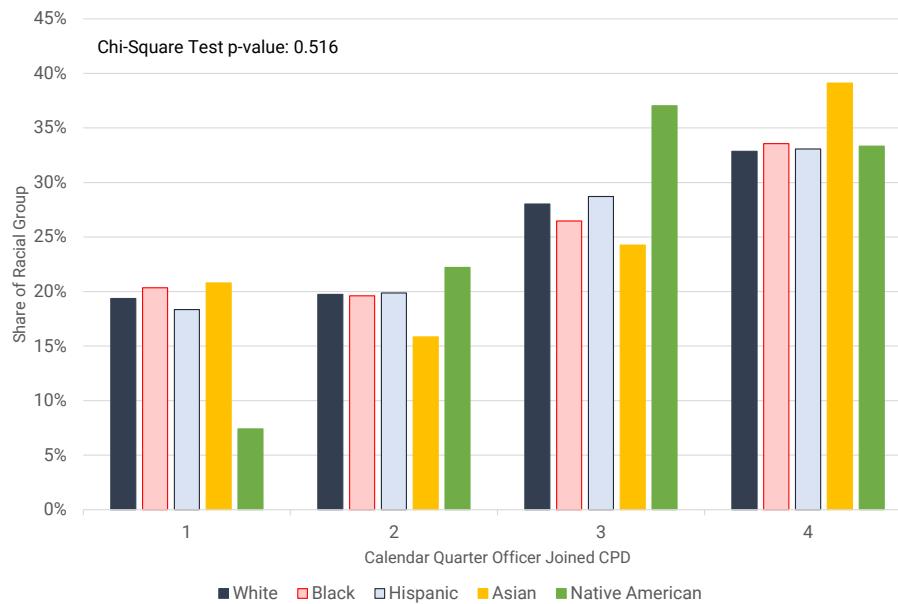
Notes: This table reports estimates for the impact of an officer's lagged arrest record on the probability of nomination by white supervisors. Column 1 reports the original specification, which was restricted to supervisor-officer assignments that lasted exactly one year. Column 2 expands the sample to all supervisor-officer assignments. All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year and tenure. Standard errors clustered by supervisor are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A4: Racial Difference in Nomination Likelihood by Quarter: All Supervisor Assignments

Specification:	Outcome Variable: Nominated			
	Original Model	All Assignments		
		All Years	First Year	Subsequent Years
	(1)	(2)	(3)	(4)
Black Officer	0.00358 (0.00363)	-0.00332 (0.00405)	0.0226** (0.0106)	-0.0259*** (0.00953)
<i>Quarter relative to two quarters before evaluation</i>				
Two quarters pre-evaluation	0.0116*** (0.00308)	0.00792** (0.00317)	0.0251*** (0.00876)	0.000127 (0.00693)
One quarter pre-evaluation	0.0175*** (0.00322)	0.0118*** (0.00338)	0.0341*** (0.00930)	-0.00393 (0.00786)
Evaluation quarter	0.0207*** (0.00368)	0.0131*** (0.00347)	0.0464*** (0.0109)	-0.0143* (0.00772)
One quarter post-evaluation	0.0133*** (0.00383)	0.00875** (0.00388)	0.0427*** (0.0122)	-0.00969 (0.00905)
Two quarters post-evaluation	0.0111*** (0.00415)	0.00411 (0.00424)	0.0452*** (0.0121)	-0.0265*** (0.00997)
Three quarters post-evaluation	0.00689 (0.00481)	0.000462 (0.00510)	0.0394*** (0.0129)	-0.0261** (0.0127)
<i>Two quarters pre-evaluation x</i>				
Black Officer	-0.00971** (0.00383)	-0.00652* (0.00394)	-0.0293** (0.0114)	0.0146 (0.00945)
Hispanic Officer	-0.00574 (0.00486)	-0.00279 (0.00539)	-0.00536 (0.0126)	-0.00160 (0.0142)
<i>One quarter pre-evaluation x</i>				
Black Officer	-0.0130*** (0.00372)	-0.00719* (0.00403)	-0.0194 (0.0118)	0.00966 (0.00994)
Hispanic Officer	-0.00479 (0.00512)	-2.82e-05 (0.00532)	0.00651 (0.0130)	-0.00343 (0.0140)
<i>Evaluation quarter x</i>				
Black Officer	-0.0136*** (0.00399)	-0.00790* (0.00422)	-0.0360*** (0.0125)	0.0163 (0.0106)
Hispanic Officer	-0.00480 (0.00543)	-0.00158 (0.00561)	-0.0103 (0.0131)	-0.00105 (0.0147)
<i>One quarter post-evaluation x</i>				
Black Officer	-0.0139*** (0.00392)	-0.00734* (0.00427)	-0.0241** (0.0122)	0.0144 (0.0118)
Hispanic Officer	-0.00864* (0.00500)	-0.00491 (0.00550)	-0.00206 (0.0122)	-0.00847 (0.0152)
<i>Two quarters post-evaluation x</i>				
Black Officer	-0.0130*** (0.00410)	-0.00314 (0.00476)	-0.0275* (0.0143)	0.0290** (0.0122)
Hispanic Officer	-0.00775 (0.00533)	-0.00115 (0.00599)	0.00978 (0.0147)	-0.00606 (0.0162)
<i>Three quarters post-evaluation x</i>				
Black Officer	-0.0123** (0.00521)	-0.00338 (0.00581)	-0.0294* (0.0153)	0.0261* (0.0158)
Hispanic Officer	-0.0140** (0.00591)	-0.00891 (0.00687)	-0.0157 (0.0163)	-0.000824 (0.0188)
Observations	176,552	288,485	41,862	64,896
Mean Pr(Nom) for Reference Group	0.019	0.046	0.041	0.104

Notes: The table depicts how the probability of nomination changes by quarter relative to three quarters before the officer's evaluation. Column 1 reports the original specification, which was restricted to supervisor-officer assignments that lasted exactly one year. Columns 2-4 expand the sample to all supervisor-officer assignments. All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year, tenure, and lagged arrests. Standard errors clustered by supervisor are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure A1: Evaluation Quarter by Officer Race



Source: CPD analysis sample.

Notes: This figure displays the share of officers in each CPD start quarter, which determines the evaluation quarter, by officer race. The p-value of a chi-square test of independence across the race categories is 0.516.

Table A5: Nomination Likelihood by Lagged Arrests and Officer Race: Additional Controls

	Outcome Variable: Nominated				
	(1)	(2)	(3)	(4)	(5)
Two to three arrests last month	0.0146*** (0.00171)	0.0145*** (0.00172)	0.0143*** (0.00173)	0.0143*** (0.00173)	
Four or more arrests last month	0.0457*** (0.00388)	0.0453*** (0.00388)	0.0449*** (0.00390)	0.0449*** (0.00390)	
Index-crime arrests: 2-3 arrests last month					0.00565** (0.00258)
Index-crime arrests: 4 or more arrests last month					0.0170*** (0.00596)
Non-Index crime arrests: 2-3 arrests last month					0.0184*** (0.00260)
Non-Index crime arrests: 4 or more arrests last month					0.0547*** (0.00589)
<i>Interactions with Black Officer</i>					
Two to three arrests last month	-0.00727*** (0.00247)	-0.00732*** (0.00247)	-0.00730*** (0.00247)	-0.00728*** (0.00247)	
Four or more arrests last month	-0.0177*** (0.00530)	-0.0177*** (0.00531)	-0.0177*** (0.00531)	-0.0177*** (0.00531)	
Index-crime arrests: 2-3 arrests last month					-0.00198 (0.00354)
Index-crime arrests: 4 or more arrests last month					-0.0189*** (0.00723)
Non-Index crime arrests: 2-3 arrests last month					-0.00764* (0.00432)
Non-Index crime arrests: 4 or more arrests last month					-0.0145 (0.00901)
<i>Interactions with Hispanic Officer</i>					
Two to three arrests last month	0.000838 (0.00319)	0.000859 (0.00319)	0.000866 (0.00319)	0.000850 (0.00319)	
Four or more arrests last month	-0.0121** (0.00552)	-0.0121** (0.00551)	-0.0121** (0.00551)	-0.0122** (0.00551)	
Index-crime arrests: 2-3 arrests last month					-0.000937 (0.00381)
Index-crime arrests: 4 or more arrests last month					-0.00400 (0.00873)
Non-Index crime arrests: 2-3 arrests last month					0.00176 (0.00449)
Non-Index crime arrests: 4 or more arrests last month					-0.0130 (0.00839)
Observations	176,552	176,552	176,552	176,552	176,552
Mean Pr(Nom) for Reference Group	0.013	0.013	0.013	0.013	0.014
Controls for:					
Complaints		Yes	Yes	Yes	Yes
TRR Filings			Yes	Yes	Yes
Strong Force Ratio				Yes	Yes

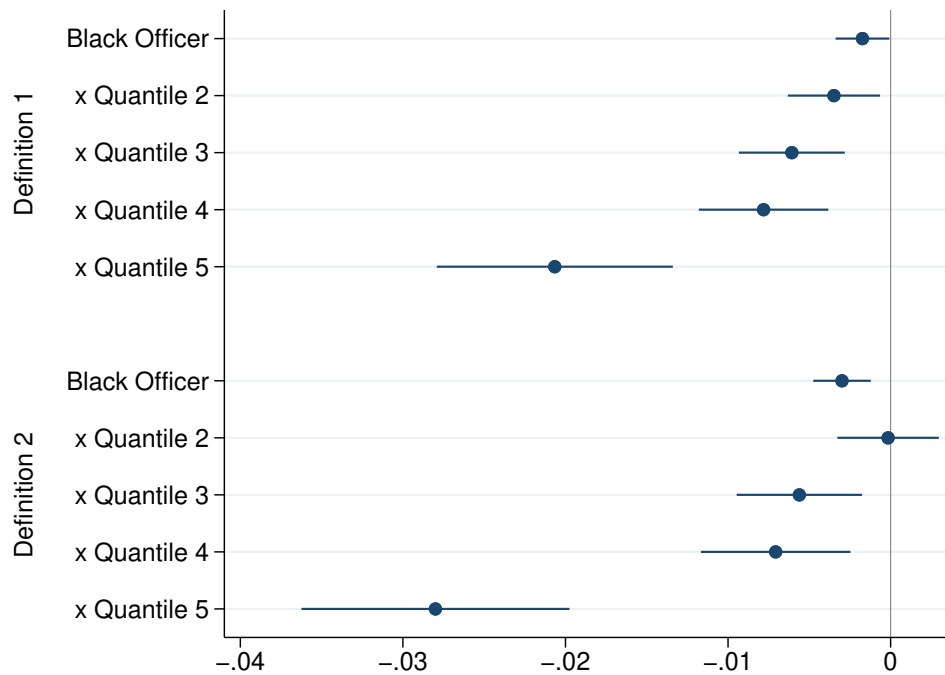
Notes: This table reports estimates for the impact of an officer's lagged arrest record on the probability of nomination by white supervisors. All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year and tenure. Standard errors clustered by supervisor are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A6: Nomination Likelihood by Lagged Arrests and Officer Race: Robustness Checks

Specification: Standard errors clustered by:	Outcome Variable: Nominated				
	Original Model Supervisor (1)	Officer FE Supervisor (2)	Sup + Off FE Supervisor (3)	Officer FE Officer (4)	Sup + Off FE Officer (5)
Two arrests last month	0.0146*** (0.00171)	0.00785*** (0.00173)	0.00743*** (0.00174)	0.00785*** (0.00174)	0.00743*** (0.00173)
Three or more arrests last month	0.0457*** (0.00388)	0.0238*** (0.00284)	0.0202*** (0.00265)	0.0238*** (0.00275)	0.0202*** (0.00251)
<i>Interactions with Black Officer</i>					
Two to three arrests last month	-0.00727*** (0.00247)	-0.00400 (0.00244)	-0.00381 (0.00244)	-0.00400 (0.00243)	-0.00381 (0.00245)
Four or more arrests last month	-0.0177*** (0.00530)	-0.00960** (0.00470)	-0.00727 (0.00457)	-0.00960** (0.00478)	-0.00727 (0.00449)
<i>Interactions with Hispanic Officer</i>					
Two to three arrests last month	0.000838 (0.00319)	0.00253 (0.00303)	0.00321 (0.00300)	0.00253 (0.00301)	0.00321 (0.00297)
Four or more arrests last month	-0.0121** (0.00552)	-0.00532 (0.00429)	-0.00573 (0.00415)	-0.00532 (0.00499)	-0.00573 (0.00452)
Observations	176,552	176,552	176,552	176,552	176,552
Mean Pr(Nom) for Reference Group	0.013	0.013	0.013	0.013	0.013
Controls for:					
Supervisor	Yes		Yes	Yes	Yes
Officer		Yes	Yes		Yes

Notes: Each column is a separate regression. This table reports estimates for the impact of an officer's lagged arrest record on the probability of nomination. All estimates include unit, month, and year fixed effects, and control for officer birth year and tenure. Clustered standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure A2: Black-White Nomination Gap by Predicted Nomination Probability



Source: CPD analysis sample.

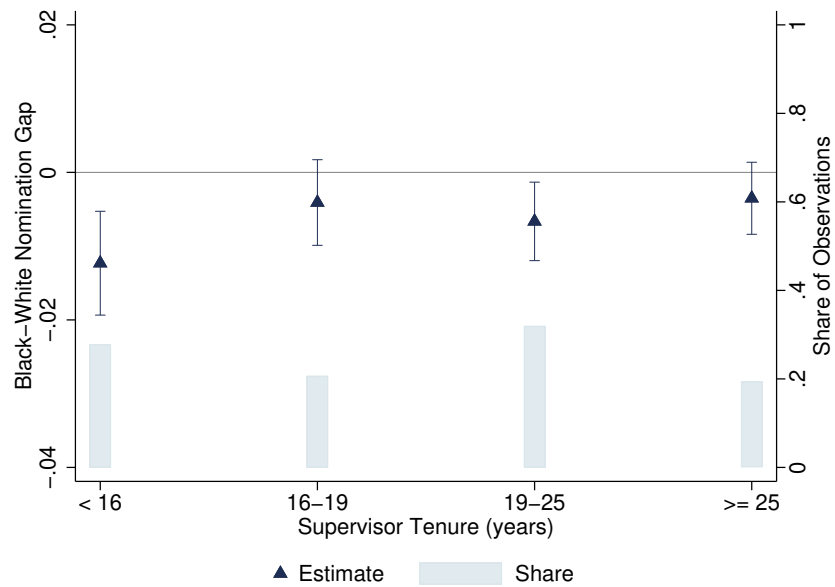
Notes: This figure reports the Black-white nomination gap by quantile of predicted nomination probability. The predicted nomination probability was obtained from an out-of-sample regression of a binary nominated outcome variable on lagged violent-crime arrests, lagged property-crime arrests, lagged non-index-crime arrests, lagged TRR filings, lagged complaints, lagged ratio of strong use of force, birth year, tenure, unit, and month. "Definition 1" uses 2009, 2010, and 2011 as out-of-sample years. "Definition 2" uses 2009, 2011, 2013, and 2015 as out-of-sample years.

Table A7: Impact of Lagged Arrests on Nomination Likelihood by Supervisor Race

Supervisor Race:	Outcome Variable: Nominated		
	White (1)	Black (2)	Hispanic (3)
Two to three arrests last month	0.0146*** (0.00171)	0.00720* (0.00372)	0.0109*** (0.00325)
Four or more arrests last month	0.0457*** (0.00388)	0.0336*** (0.00811)	0.0407*** (0.00725)
<i>Interactions with Black Officer</i>			
Two to three arrests last month	-0.00727*** (0.00247)	-0.00337 (0.00472)	0.00244 (0.00680)
Four or more arrests last month	-0.0177*** (0.00530)	-0.0100 (0.0136)	-0.0122 (0.0143)
<i>Interactions with Hispanic Officer</i>			
Two to three arrests last month	0.000838 (0.00319)	0.00156 (0.00937)	0.000892 (0.00483)
Four or more arrests last month	-0.0121** (0.00552)	-0.0183* (0.0105)	-0.00608 (0.0108)
Observations	176,552	30,476	37,436
Mean Pr(Nom) for Reference Group	0.013	0.006	0.011

Notes: This table reports estimates for the impact of an officer's lagged arrest record on the probability of nomination by white supervisors (column 1), Black supervisors (column 2), and Hispanic supervisors (column 3). All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year and tenure. Standard errors clustered by supervisor are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

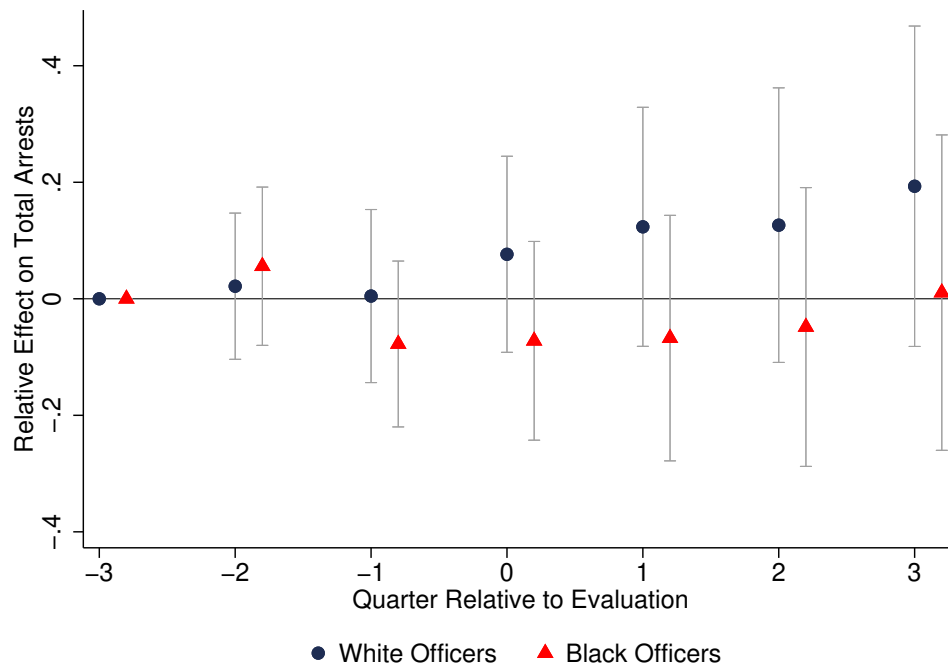
Figure A3: Black-White Nomination Gap by Supervisor Tenure



Source: CPD analysis sample.

Notes: This figure depicts how the Black-white nomination gap changes by supervisor tenure, with quantiles defined by the 25th, 50th, and 75th percentile values (about 16 years, 19 years, and 25 years, respectively). All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year, lagged arrests, the number of supervisees, and the share of Black supervisees. Wings depict 95% confidence intervals using clustered standard errors.

Figure A4: Number of Arrests by Relative Quarter and Officer Race



Source: CPD analysis sample.

Notes: This figure depicts how the quarterly number of arrests changes relative to three quarters before the officer's evaluation, separately for white and Black officers. All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year and tenure. Wings depict 95% confidence intervals using clustered standard errors.

Table A8: Impact of Lagged Arrests on Nomination Likelihood by Nominating Source

Nominations by:	Outcome Variable: Nominated		
	Current Supervisor (1)	Everyone (2)	Non-Sup. Sergeants (3)
Two to three arrests last month	0.0146*** (0.00171)	0.0885*** (0.00394)	0.0645*** (0.00347)
Four or more arrests last month	0.0457*** (0.00388)	0.165*** (0.00598)	0.110*** (0.00517)
<i>Interactions with Black Officer</i>			
Two to three arrests last month	-0.00727*** (0.00247)	-0.0393*** (0.00581)	-0.0247*** (0.00532)
Four or more arrests last month	-0.0177*** (0.00530)	-0.0438*** (0.00907)	-0.0315*** (0.00757)
<i>Interactions with Hispanic Officer</i>			
Two to three arrests last month	0.000838 (0.00319)	-0.0101* (0.00579)	-0.00782 (0.00502)
Four or more arrests last month	-0.0121** (0.00552)	-0.0130* (0.00683)	-0.00479 (0.00590)
Observations	176,552	288,485	288,485
Mean Pr(Nom) for Reference Group	0.013	0.126	0.099

Notes: This table reports estimates for the impact of an officer's lagged arrest record on the probability of nomination by white supervisors. Column 1 reports the original specification from Table 4 column 1, nominations by the officer's current supervisor. Column 2 reports nominations by all nominating sources. Column 3 reports nominations by any sergeant who is neither a current supervisor nor a past supervisor. All estimates include supervisor, unit, month, and year fixed effects, and control for officer birth year and tenure. Standard errors clustered by supervisor are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$