UC Irvine

UC Irvine Previously Published Works

Title

RIPA in the LAPD Technical Report

Permalink

Authors

Owens, Emily

Rosenquist, Jaclyn

Publication Date

2023-12-13

Peer reviewed

RIPA in the Los Angeles Police Department: Technical Report

EMILY OWENS and **JACLYN ROSENQUIST**

CALIFORNIA POLICY LAB

CONTENTS

NEIGHBORHOODS AND RIPA STOPS IN LOS ANGELES:

This technical report contains additional detail about the analysis underlying the CPL report, along with additional statistical and graphical analysis of RIPA data, conducted at different levels of aggregation.

We begin by presenting some basic geographic information about Los Angeles, specifically spatial patterns of income, neighborhood change, and crime. These spatial patterns can then be compared to the spatial distribution of RIPA stops made by the Los Angeles Police Department (LAPD) between July of 2018 and October of 2019. The underlying unit of observation is a stopped individual, and these individual level observations will be, in general, aggregated to different geographic levels (e.g. Census block group, Census tract, or LAPD station).

In Figure 1, we divide block groups into categories, based on household income in the 2014-2018 American Community Survey (ACS). There are two clearly defined low-income areas in Los Angeles, one in northern L.A., and one in the southern tier. Figure 2 shows that neighborhoods within these two low-income areas are distinct. In particular, based on applying the Freeman Gentrification Criteria (Freeman 2005) to the 2009-2013 and 2014-2018 ACS, the eastern half of the northern low-income area, and the western half of the southern low-income area, are in the process of gentrification.

Figure 3 divides block groups into quartiles, based on the number of violent crimes (FBI Uniform Crime Report definition) known to the LAPD in 2018. This figure shows that violent crime is concentrated in the poorer parts of L.A. Perhaps surprisingly, in the northern low-income area, there is more violent crime in the more gentrified places. The central portion of the southern low-income area is also a place of concentrated violent crime.

We present the location of people stopped in RIPA in Figure 4, again dividing block groups into quartiles based on stop frequency. The northern and southern low-income areas are still identifiable from the map of stops. Notably, however, areas with high numbers of stops are not as concentrated as income, gentrification, or violence in L.A. Block groups with the highest number of stops extend beyond block groups where household income is below average.

FIGURE 1. Median Income by Block Group

Above Median Income
Below Median Income
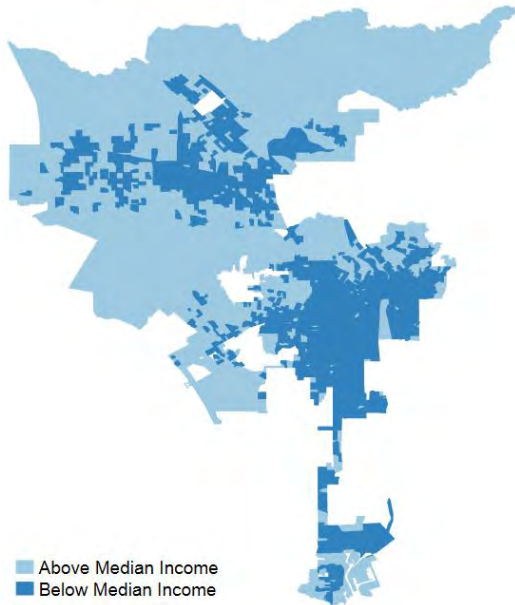
FIGURE 2. Gentrifying by Block Group

Not: Below Median
Not: Above Median
Potentially Gentrifying
Gentrifying
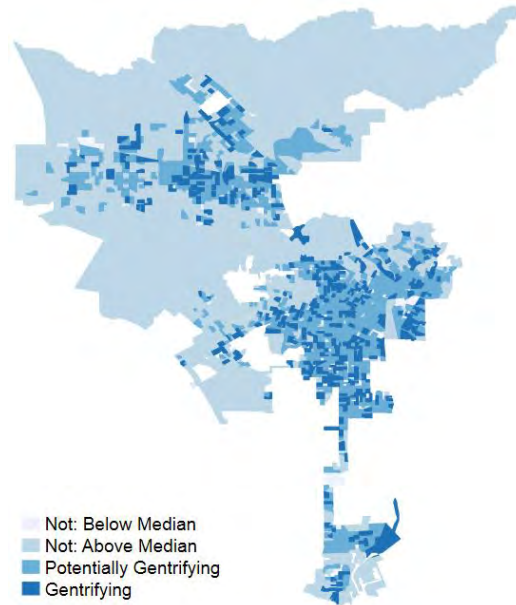
FIGURE 3. Violent Crime by Block Group

166 - 778 crimes
100 - 166 crimes
62 - 100 crimes
0 - 62 crimes

FIGURE 4. Stops by Block Group

367 - 10,162 stops
170 - 367 stops
70 - 170 stops
0 - 70 stops

POLICE CONTACT AND NEIGHBORHOOD DEMOGRAPHICS

In order to more formally present the relationship between neighborhood demographics and RIPA encounters, we identified, for each Census tract in L.A., the fraction of the residential population that is White, along with the number of people stopped, 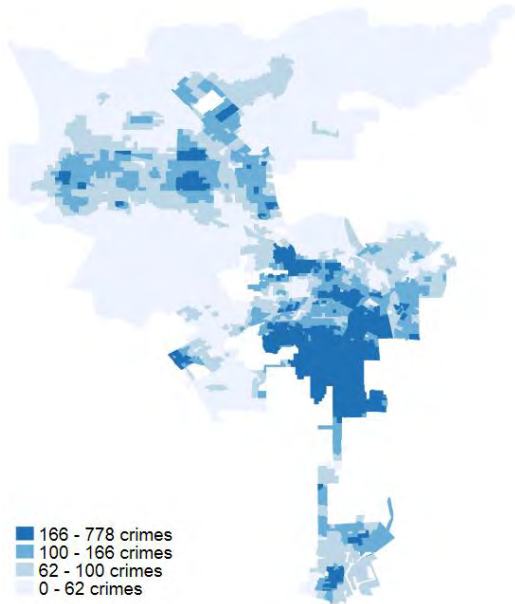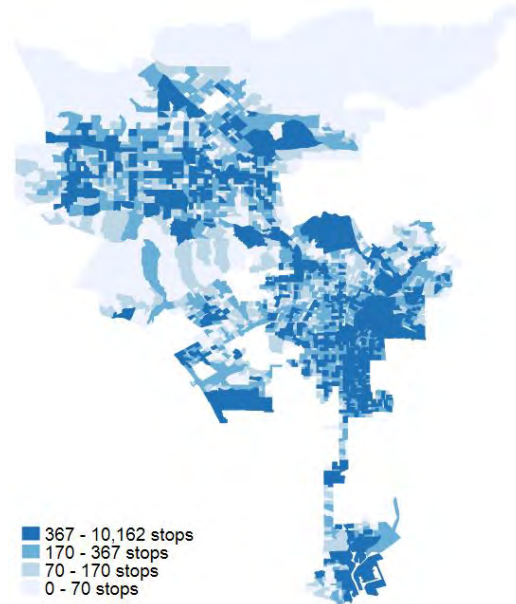the fraction of those stops where a search was conducted, the fraction of searches where contraband was found, and the fraction of stops where the officer used force. Figures 5, 6, 7, and 8 plot the relationship between these factors. We also include lines indicating the average number of people stopped, searches, discoveries and use of force for all people, and by identify group, for those stopped in increasingly more White neighborhoods.

We find a weak relationship between the overall number of people stopped in a place and the fraction of residents who are White; most stops occur in places where few White people live, but once White people make up more than 5% of the residential population, the overall number of people stopped is relatively constant across places. Further, the RIPA data suggests that as the residential population becomes more and more White, the number of Black people stopped remains constant, despite the increasing number of White people living in these neighborhoods; the number of Latinx people stopped declines in neighborhoods with more White people.

There is a negative relationship between the frequency with which officers conduct searches and the White population of a place. Notably, the difference in search rate between Black and White people stopped is larger in Whiter neighborhoods. We observe little relationship between the probability that these searches result in contraband being found (the hit rate) and the racial composition of a neighborhood, although again we observe an increasingly lower hit rate for Black people relative to other groups in Whiter neighborhoods. Use of Force (UOF) per stop also appears to be weakly declining in the fraction of the residential population that is White.

Officers initiate stops with different levels of information. When responding to a call for service, officers frequently have information about potential suspects, and almost always are engaging with a citizen who has requested LAPD involvement. Pedestrian stops that are not made in response to a call for service, however, are based on an officer's observation of behavior that likely constitutes a criminal act, or individualized suspicion of criminal activity based on the totality of circumstances known to the officer. Traffic stops are generally not

made in response to a call for service, and at the beginning of the encounter officers may observe very little information about the identity of the driver.
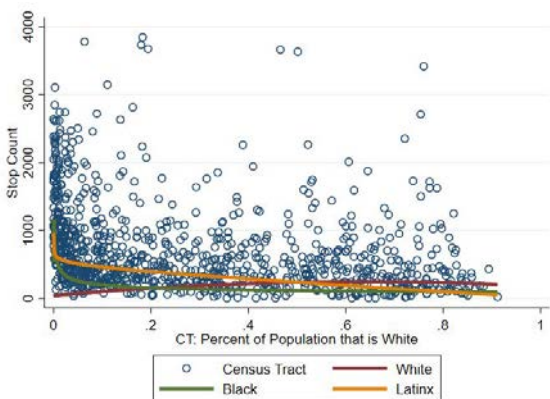
FIGURE 5. Stops
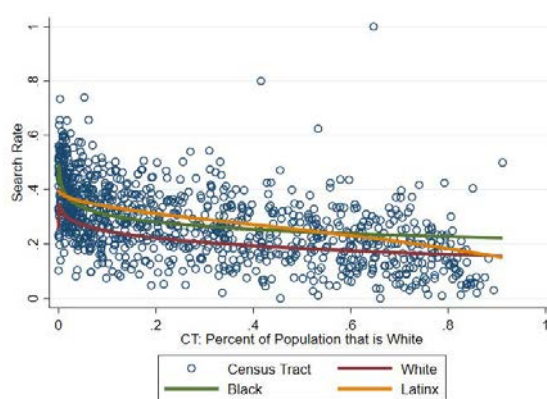

FIGURE 6. Search Rate

FIGURE 7. Hit Rate
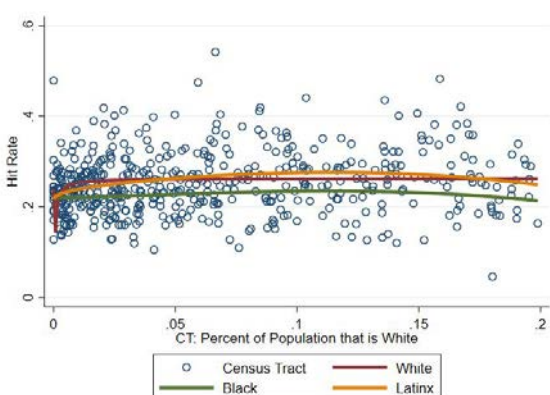
FIGURE 8. Use of Force Rate
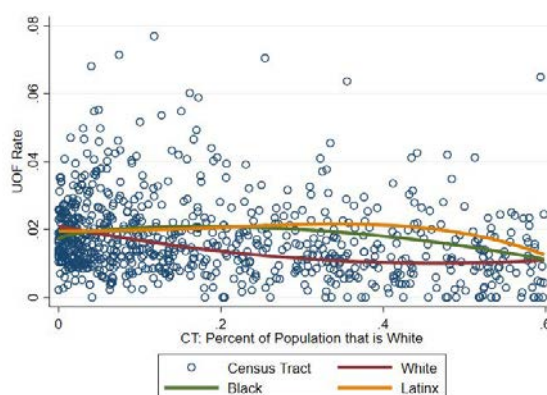
Figures 9-12 only include stops that were made in response to a call for service. Compared to stops overall, there is a flatter profile of number of people stopped in response to a call for service in relation to the fraction of residents who are White, and a similar relatively constant probability of force being used in neighborhoods with some White people in them. However, the reduced probability to conduct a search in response to calls made by residents of neighborhoods that are more White is still evident, as well as a small increase in the probability that searches that are conducted result in contraband being discovered as the White population increases.

FIGURE 9. Stops: Calls for Service

FIGURE 10. Search Rate: Calls for Service
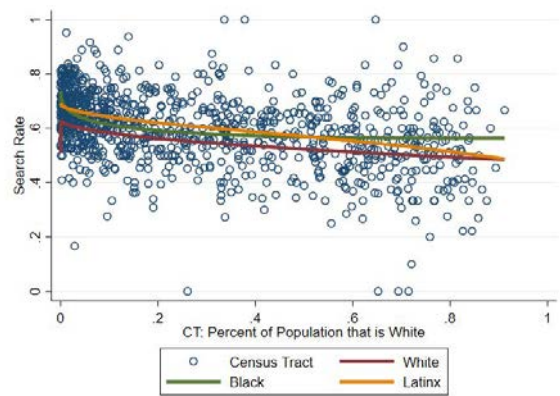
FIGURE 11. Hit Rate: Calls for Service
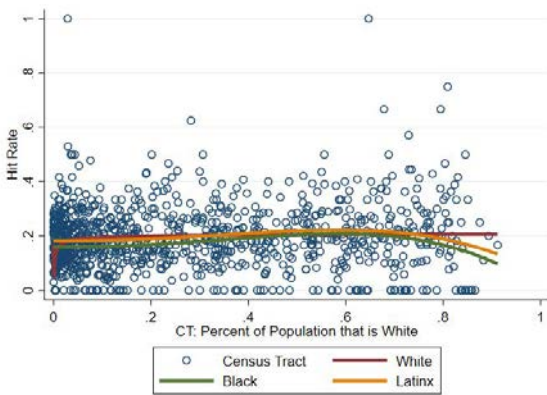
FIGURE 12. Use of Force Rate: Calls for Service
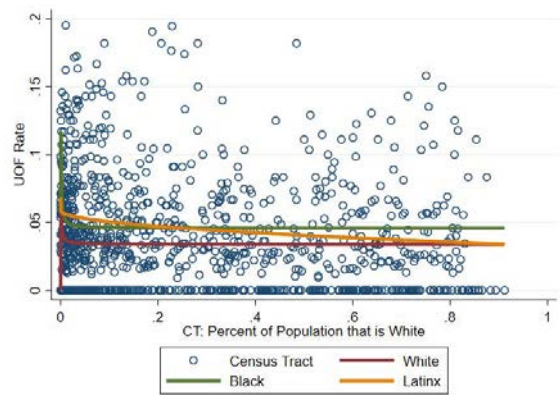
In contrast to hit rates for service call stops, searches resulting from pedestrian stops that are not made in response to a call for service are slightly less likely to result in contraband discovery in Whiter neighborhoods (Figure 15), where searches also appear to be conducted less frequently (Figure 14). Force is less likely to be used against Black people stopped in more White neighborhoods than it is in neighborhoods with fewer White people (Figure 16).

FIGURE 13. Stops: Non-Service Calls, Non-Traffic Stops.

FIGURE 14. Search Rate: Non-Service Calls, Non-Traffic Stops.

FIGURE 15. Hit Rate: Non-Service Calls, Non-Traffic Stops.
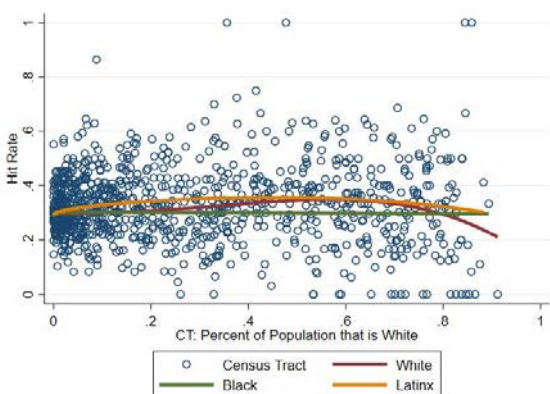
FIGURE 16. Use of Force Rate: Non-Service Calls, Non-Traffic Stops.
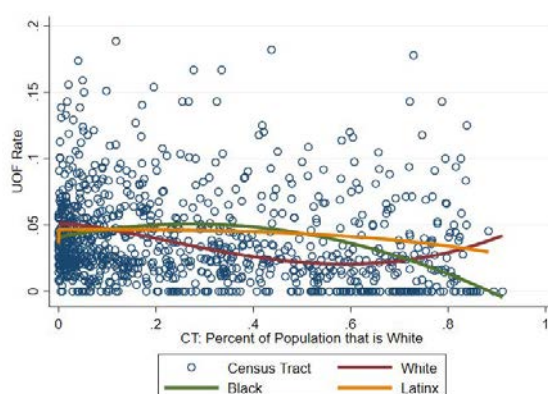
Traffic stops are most common in places with fewer White residents (Figure 17), and there is a clear negative relationship between the probability of a search being conducted and how many residents are White (Figure 18). Further, searches made during traffic stops in White neighborhoods are almost twice as likely to result in contraband being discovered than in neighborhoods where no residents are White (Figure 19). Use of force rates in traffic stops are low, but are also less common in places that are more White (Figure 20).

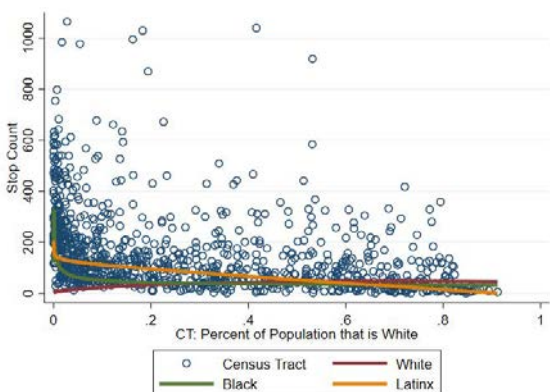**FIGURE 17.** Stops: Non-Service Calls, Traffic Stops.

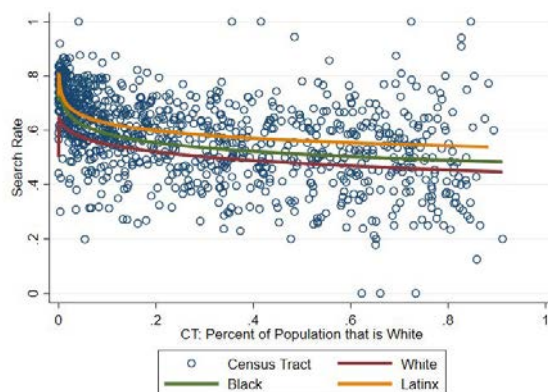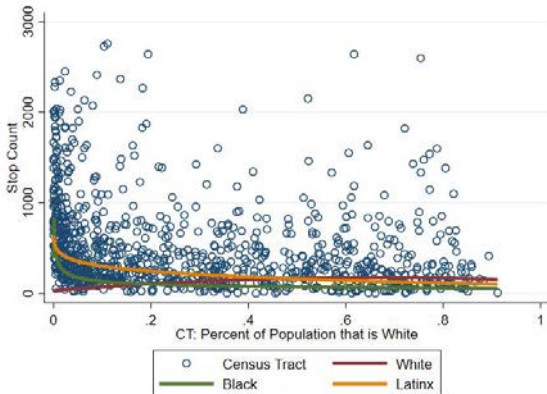**FIGURE 18.** Search Rate: Non-Service Calls, Traffic Stops.
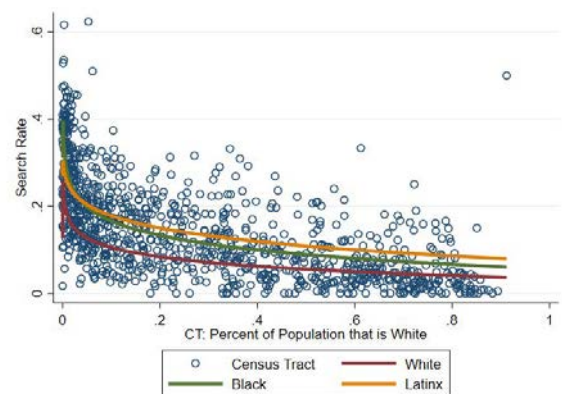
FIGURE 19. Hit Rate: Non-Service Calls, Traffic Stops.
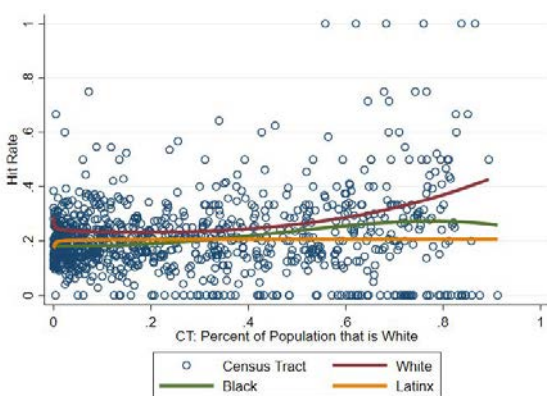
FIGURE 20. Use of Force Rate: Non-Service Calls, Traffic Stops.
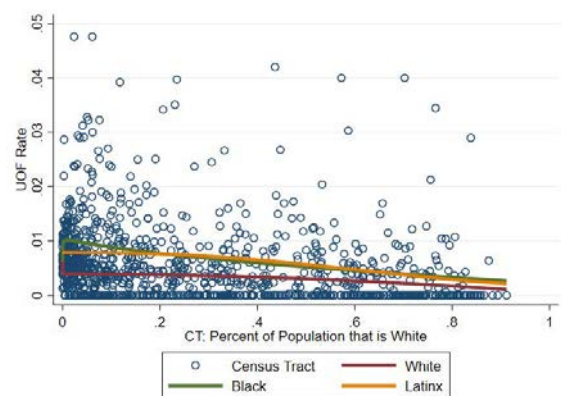
NEIGHBORHOOD PREDICTORS OF RIPA STOPS: INCOME, CRIMINAL ACTIVITY, AND VICTIMIZATION

We now conduct a more formal statistical evaluation of where LAPD contact occurs. For this report, these analyses take two forms. First, we conduct a univariate analysis of the predictive power of two dimensions of quality-of-life across L.A. neighborhoods: income and criminal victimization. Both of these factors can be reliably measured at the block-group level, by identity group. This univariate analysis produces a mathematical estimate of how strongly

quality-of-life indicators are associated with LAPD activity, and can be used to answer the question: as neighborhoods change along one dimension (e.g. income or violence), how responsive is the LAPD to these changing conditions? The closer the estimated correlation is to 1, or negative 1, the more responsive the LAPD appears to be.

Second, we conduct a multivariate analysis that quantifies the average disparity in LAPD contact across identity groups, and then estimate the extent to which differences in violent crime, and involvement in violent crime across identity groups, generate these disparities. We conduct these analyses at the Census tract and LAPD station level. These analyses allow us to identify potential areas where additional investigation by LAPD administrative and command staff may reveal substantively important strategies to reduce disparities, as opposed to areas that may be predictive of LAPD activity, but not of disparate LAPD activity per se.

UNIVARIATE ANALYSIS OF RIPA STOPS

The following tables present estimated correlations between stop outcomes and the per capita income and victimization of White, Black, and Latinx groups at the block group level. Correlations test whether a linear relationship exists between two variables, e.g. how much one variable moves when the other variable moves. A correlation near 1 (or negative 1) indicates a strong positive (or negative) relationship. Correlations near 0 indicate no relationship (or co-movement). The squared correlation (called the "R-squared") is equal to the percentage of the variation in one variable that can be explained by variation in the other. These correlations tell us, by identity group, how LAPD activity appears to be related to other measures of neighborhood quality, and, if that responsiveness varies by identity group. It provides insight into the question: is LAPD stop activity responsive to neighborhood conditions and demand for police protection?

If these quality-of-life indicators predict LAPD actions in the same way across identity groups then it suggests that structural inequalities (which, for example, may lead to differences in income across identity groups), are important contributors to disparities in LAPD contact. If the correlations are not the same, it suggests that LAPD is responding to the circumstances of people in different identity groups in different ways.

Whether or not the correlations between quality of life indicators and LAPD activity are different across identity groups can be evaluated in two ways. First, the substantive difference in the strength of the correlation can be compared (e.g. is one twice the size of the other?). Second, we can test whether or not the correlations can be statistically distinguished from each other (e.g. is the difference a reliable measure?). We include stars to represent whether the correlations for each non-White group are "statistically different" from the White group. The statistical difference depends on the strength of each individual estimated relationship, the substantive difference in relationship strength across groups, and the number of observations.

Income and Contact

Across identity groups, the wealth of a community is negatively related to police contact along all dimensions (see Table 1). In wealthier neighborhoods, police stop fewer people,

TABLE 1. Income by Race/Ethnicity Correlations

Per Capita Income	Stops	Searches	Search Rate:	Contra	Hit Rate:	UOF	UOF Rate
White	-0.061	-0.159	-0.176	-0.103	-0.007	-0.151	-0.045
	[0.004]	[0.025]	[0.031]	[0.011]	[0.000]	[0.023]	[0.002]
Black	-0.061	-0.138	-0.128**	-0.096	-0.021	-0.125	-0.033
	[0.004]	[0.019]	[0.016]	[0.009]	[0.000]	[0.016]	[0.001]
Latinx	-0.065	-0.165	-0.186	-0.106	0.025	-0.148	-0.028
	[0.004]	[0.027]	[0.035]	[0.011]	[0.001]	[0.022]	[0.001]
N	3365	3365	3365	3365	3365	3365	3365

R-squared in brackets.

* p<0.10, ** p<0.05, *** p<0.01

P-values calculated using a Fisher z-transformation testing the difference between one group with the white group.

conduct fewer searches during those stops, and are also less likely to use force. However, the variation in income explains 2% or less of the variation in police contacts across L.A. neighborhoods, and essentially none of the variation in rates of contraband discovery. One notable outlier is the likelihood that police conduct a search. Here, we also observe a statistically distinguishable difference across identity groups. Variation in the income of White and Latinx residents explains 3% of the variation in search rates, twice the explanatory power as the income of Black residents. An extension of this statistical finding is that as White or Latinx people in Los Angeles move up the socioeconomic spectrum they may anticipate a (small) reduction in the rate at which police search them, but this is less true for Black people in Los Angeles.

Victimization and Contact

Police stop people in places with more crime victims, although the strength of the relationship depends on the specific group (see Table 2). Variation in the number of Latinx crime victims explains 8% of the variation in the frequency of people stopped. This a much stronger relationship than we observe with Black or White victims, which only explain 3% of the variation across place. The identity of victims is also related to what police do during a stop. There is a small negative relationship between how many White people are crime victims in an area and how likely officers are to conduct searches that take place in that area. Differences across places in how many Black or Latinx people are victimized explains 10% and 16% of the geographic variation in propensity to conduct searches, respectively. The number of White crime victims in an area provides more information about the likelihood that a search is successful than the number of victims of any other identity group. Whether or not force is used during a stop has a very weak linear relationship with the number of crime victims, although what relationship exists is negative for White victims (in places with more White crime victims force is used less frequently, per stop) and a positive one for non-White victims (places with more Black, or Latinx victims are also places where there is a higher probability of force being used).

The basic relationship between victimization and police contacts is consistent with more policing resources being directed towards places with more crime, although it also raises questions of whether the response of the LAPD is identity-neutral. It's possible that variation

TABLE 2. Victimization by Race/Ethnicity Correlations

# of Victims	Median	Mean	Stops	Search Rate:	Hit Rate:	UOF Rate
White	16	21	0.170	-0.145	0.154	-0.037
			[0.029]	[0.021]	[0.024]	[0.001]
Black	10	39	0.184	0.315***	-0.037***	0.021**
			[0.034]	[0.099]	[0.001]	[0.000]
Latinx	50	66	0.279***	0.399***	-0.007***	0.012**
			[0.078]	[0.159]	[0.000]	[0.000]
N			3365	3365	3165	3365

R-squared in brackets.

* p<0.10, ** p<0.05, *** p<0.01

P-values calculated using a Fisher z-transformation testing the difference between one group with the white group.

in where people in different identity groups live, and what the crime rate is in those places, may explain some of the difference in the strength of the relationship between number of victims, by identity group, and RIPA activity. We take the additional step of examining the relationship between who is victimized and officer actions by estimating the correlation between officer actions and the percent of crime victims in a certain identity group (Table 3). Note these do not add to 100 because we exclude victims in other racial groups. When we look at the composition of victims within a neighborhood, rather than the number of victims, we find evidence that the relationship is a function of the victim's identity. Places with a higher concentration of White victims are places where police stop fewer people, and are less likely to make searches (but more likely to find contraband in searches) or use force. In contrast, in places where a larger fraction of crime victims are Black or Latinx, there are more people stopped, more searches, more force, and less contraband discovered during

those searches. Variation in the percent of crime victims who are White explains almost 20% of the variation in search rates.

TABLE 3. Victimization Composition by Race/Ethnicity Correlations

% of Victims	Median	Mean	Stops	Search Rate	Hit Rate	UOF Rate
White	20%	23%	-0.161	-0.437	0.076	-0.067
			[0.026]	[0.191]	[0.006]	[0.004]
Black	11%	17%	0.147***	0.287***	-0.069***	0.039***
			[0.022]	[0.082]	[0.004]	[0.002]
Latinx	44%	45%	0.079***	0.301***	-0.022***	0.047***
			[0.006]	[0.091]	[0.000]	[0.002]
N			3365	3365	3165	3365

R-squared in brackets.
* p<0.10, ** p<0.05, *** p<0.01

P-values calculated using a Fisher z-transformation testing the difference between one group with the white group.

MULTIVARIATE ANALYSIS OF RIPA STOPS

The next step in our analysis is to analyze how spatial patterns of violent crime, and identity-specific patterns of victimization, are related to police-citizen contact. We focus on four outcomes of interest to the LAPD and the public at large: the number of people stopped per Census tract resident, the search rate per stop, the use of force rate per stop, and the rate at which contraband is found per reported search. We calculate these outcomes for people perceived by the police as Black, Latinx and White separately.

We then examine the role of individual race or ethnicity, local violent crime rates, and the involvement of different identity groups in violent crime. We use the victimization rate as a proxy for criminal involvement at the tract level, and both victimization and suspect race or ethnicity at the station level. Note this analysis is conducted using larger areas of geography than our univariate correlations, due to concerns about the geographic accuracy of LAPD crime incidents at sub-Census tract levels.

In our summary report, these multivariate regressions are used to construct the reported predicted stop, use of force, search and hit rates, by identity group. The estimates reported in these tables correspond to the difference in the height of the bars representing the different predicted rates in the non-technical summary report.

RIPA Stops by Census Tract

The results of our multivariate analysis at the Census tract level are presented in Table 4. When we do not adjust our estimates for local crime or victimization, we estimate that in L.A. Census tracts there are, on average, 0.4 additional Black people stopped per Black resident, and 0.8 fewer Latinx people stopped per Latinx resident, compared to White residents. Our estimates also suggest that there is a large amount of variation in these comparisons across L.A., and as a result we do not identify a statistically significant difference in stop rate across identity groups.

Once we adjust our estimates to reflect differences in crime rates and the criminal involvement of each group, as victims of violent crime, we find that, relative to White residents, Black and Latinx residents are stopped 0.3 additional and 0.6 fewer times per resident, respectively. For each additional violent crime in a Census tract, there are about 4 more stops of people in each group, and for each percentage point increase in the share of a particular group in the population of violent crime victims, there are -0.01 fewer stops. Adjusting our estimates for differences in the spatial and racial patterns of crime increases the statistical precision of our estimates, confirming the idea that much of the spatial variation in LAPD activity is driven by patterns of crime. Notably, including controls for the local violent crime rate, as well as the relative concentration of crime victims in a particular identity group, does not substantively alter our findings.

In contrast, we find that, conditional on being stopped, people perceived by police as Black or Latinx are 7 percentage points more likely to be searched than people perceived to be White. We find relatively less variation in this difference across L.A. tracts. In addition, we find that controlling for either racial differences in violent crime involvement, or the violent crime rate overall, slightly increases, and slightly decreases, the disparate search probability for Black and Latinx people respectively. Note that the violent crime rate in an area is negatively related to the probability that officers decide to conduct a search, which is consistent with officers considering the local crime rate in their evaluation of the overall justification for a stop (as allowed by Illinois v Wardlow 2000).

Almost half of searches (46%) conducted by the LAPD during our sample period were arguably policy driven, or "non-discretionary" on the part of the officer - the searches were conducted incident to an arrest, a condition of parole or probation, or as part of a vehicle inventory after an arrest. In order to address the concern that Black and Latinx people may be more likely to be searched because of their increased likelihood of being in one of these categories, we also present results where we exclude all searches where any reported reason was one of these three non-discretionary categories. Our estimates show that an increased likelihood to be in situations where LAPD officers are required to conduct a search can explain half of the disparate search rates for Black and Latinx people relative to White people. This means Black people are still 3 percentage points more likely to be searched in discretionary contexts that are not explained by local crime rates.

We also find evidence that searches of Black people are 3 percentage points less likely to result in contraband discovery than searches of White people. This finding is not explained by differences in local crime rates or victimization patterns. However, when we exclude non-discretionary searches, the estimated difference in hit-rates falls by half.

It is important to note that the public's perception of bias by the LAPD may be driven, in part, by seeing searches conducted by LAPD officers because of "upstream" decisions - either LAPD policy or L.A. County parole and probation policies. Witnesses or bystanders, who are likely unaware of these policies, may perceive that the LAPD searches more Black and Latinx people than White people, without an obvious ex-post justification of contraband discovery.

If Black and Latinx people are disproportionately under criminal supervision because of more structural or fundamental social inequality, then policies directing searches of people under criminal supervision will likely perpetuate, rather than mitigate these social problems.

The LAPD's role in addressing these structural issues is outside the scope of this report but may be considered by command staff.

Finally, we examine how likely an officer uses force, as defined by RIPA, in order to regain control of a stop. We find that this is 0.4 percentage points more likely to occur when an officer stops a Black or Latinx person, and that this is not explained by differences in crime rates, or group-specific involvement in crime. While use of force is an infrequent event, given its central role in shaping perceptions of police legitimacy, further investigation into why officers are making these decisions, perhaps through additional case-by-case review, may be warranted.

TABLE 4. Census Tract Analysis

	Stop Rate	Stop Rate	Search Rate	Search Rate	Discretionary Search Rate	Discretionary Search Rate
Black	0.391	0.320	0.067***	0.076***	0.028***	0.034***
	(0.438)	(0.401)	(0.005)	(0.005)	(0.003)	(0.003)
Latinx	-0.848*	-0.603	0.072***	0.040***	0.038***	0.017***
	(0.415)	(0.536)	(0.004)	(0.005)	(0.003)	(0.003)
Share Violent Victimization by Race or Ethnicity		-1.008		0.131***		0.086***
		(0.754)		(0.011)		(0.007)
Violent Crime Rate/100		408.915*		-0.405***		-0.238***
		(187.847)		(0.121)		(0.048)
Mean	1.705	1.705	0.275	0.275	0.122	0.122
N	2984	2984	2984	2984	2984	2984

Robust Standard errors in parentheses

* p<0.05 ** p<0.01 *** p<0.001

TABLE 4. Census Tract Analysis *continued*

	Hit Rate	Hit Rate	Discretionary Hit Rate	Discretionary Hit Rate	UOF Rate	UOF Rate
Black	-0.028***	-0.026***	-0.015	-0.014	0.004**	0.004**
	(0.008)	(0.008)	(0.009)	(0.009)	(0.001)	(0.001)
Latinx	0.000	-0.008	0.004	-0.004	0.004**	0.004***
	(0.007)	(0.007)	(0.008)	(0.009)	(0.001)	(0.001)
Share Violent Victimization by Race or Ethnicity		0.036*		0.033		0.001
		(0.015)		(0.018)		(0.004)
Violent Crime Rate/100		0.191		0.041		-0.028**
		(0.140)		(0.042)		(0.010)
Mean	0.254	0.254	0.478	0.478	0.017	0.017
N	2924	2924	2772	2772	2984	2984

Robust Standard errors in parentheses

* p<0.05 ** p<0.01 *** p<0.001

RIPA Stops by Station

Differences across identity groups in violent crime victimization is an imperfect proxy for differences in the set of people at-risk of being stopped by the LAPD. For this report, we were given access to station-level counts of the racial and ethnic identity of suspects provided to the LAPD. Using this measure, we calculated, for each identity group and station, the fraction of all suspects of that particular identity. The racial and ethnic identity of suspects,

as opposed to victims, may better capture variation in violent behavior, particularly in cases of cross-racial violence. However, suspect race or ethnicity is also reliant on victim perceptions and reporting behavior, which itself may be a function of bias on the part of victims.

There are clear differences in the racial and ethnic composition of victims and suspects in the LAPD data; On average, Black people are twice as likely to be identified as suspects than as victims (16% of victims are Black, but 39% of suspects are), and are overrepresented as suspects relative to victims by at least 40% in all stations. In contrast, there are 1.6 times more White victims as there are suspects. Given that the National Crime Victimization Survey found that, in 2018, 70% of Black victims of violent crime and 62% of White victims believed their assailant(s) to be in their same identity group, these patterns may warrant further investigation by the LAPD. This issue is explored in more detail in the Summary Report.

When we aggregate our data to the station level, we observe that, on average, 0.08 additional Black people are stopped relative to White people, conditional on residential population. Note that this is a smaller difference than what we observed at the tract level, which is a mathematical regularity, known as Jensen's inequality, associated with calculating ratios at different levels of aggregation. This increased stop rate is explained by differences in the violent crime rate, as well as the participation of different identity groups in crime; particularly as suspects. As noted earlier, suspect identity is information provided by witnesses or victims to the LAPD, is only provided in a subset of cases, and is referenced as a reason for a stop in only 6% of people stopped in the RIPA data.

Conditional on stop, we find that there are 0.1 additional searches of Black and Latinx people, relative to stopped individuals perceived to be White. Approximately half of the increased propensity to search Latinx people is due to differences in the violent crime rate where they were stopped, and the fraction of crime suspects, and crime victims, identified as Latinx. However, these spatial features explain very little of the Black-White disparity in searches. Like our estimates at the Census tract level, we find that half of the disparity in search rates is due to Black (and Latinx) people being more likely to be in situations where LAPD officers are required, by policy, to conduct searches. We also observe the same patterns for hit rates; these non-discretionary searches are less likely to result in the discovery of contraband.

Finally, we find that variation in local violent crime, or estimated rates of participation in violent crime as a suspect or as a victim, is responsible for 15% (20%) of the increased rate of force used in stops of Black (Latinx) people relative to White people.

TABLE 5. LAPD Station Analysis

	Stop Rate	Stop Rate	Search Rate	Search Rate	Discretionary Search Rate	Discretionary Search Rate
Black	0.084***	0.014	0.109***	0.101***	0.050***	0.051***
	(0.015)	(0.018)	(0.013)	(0.014)	(0.009)	(0.008)
Latinx	0.004	0.009	0.101***	0.060***	0.056***	0.026**
	(0.005)	(0.009)	(0.010)	(0.012)	(0.006)	(0.007)
Share of Suspects by Race or Ethnicity		0.399*		0.064		0.007
		(0.148)		(0.073)		(0.040)
Share of Victims by Race or Ethnicity		-0.427*		0.085		0.101
		(0.163)		(0.086)		(0.050)
Violent Crime Rate		6.239***		7.823**		5.637**
		(1.454)		(2.347)		(1.977)
Mean	0.069	0.069	0.232	0.232	0.111	0.111
N	63	63	63	63	63	63

Robust Standard errors clustered at the station level in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

TABLE 5. LAPD Station Analysis *continued*

	Hit Rate	Hit Rate	Discretionary Hit Rate	Discretionary Hit Rate	UOF Rate	UOF Rate
Black	-0.030**	-0.033	-0.009	-0.023	0.007***	0.006***
	(0.008)	(0.017)	(0.009)	(0.014)	(0.001)	(0.001)
Latinx	-0.008	-0.010	0.010	0.007	0.005***	0.004***
	(0.009)	(0.012)	(0.007)	(0.012)	(0.001)	(0.001)
Share of Suspects by Race or Ethnicity		0.019		0.085		0.005
		(0.083)		(0.064)		(0.007)
Share of Victims by Race or Ethnicity		-0.013		-0.077		-0.002
		(0.098)		(0.079)		(0.008)
Violent Crime Rate or Ethnicity		-0.803		1.183		0.113
		(1.656)		(1.211)		(0.197)
Mean	0.278	0.278	0.459	0.459	0.013	0.013
N	63	63	63	63	63	63

Robust Standard errors clustered at the station level in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

Taken as a whole, multivariate analysis of people stopped, searches, and use of force by the LAPD suggest that spatial differences in violent crime, and who is involved in violent crime, generate the majority of Black-White and Latinx-White disparity in stop rates, but little of the difference in what happens after a stop is made. Only a small fraction of the disparity in

search rates, or contraband discovery, across Black, White, and Latinx individuals can be explained by differences in the observed totality of circumstances LAPD officers may take into consideration when they interact with citizens. However, at least half of the disparity in search rates, and hit rates, is driven by Black and Latinx people being in situations where officers are required to conduct searches. These searches are dictated by policy, seem to generally fail to lead to the discovery of contraband, and are likely to impose a substantial cost to the LAPD in terms of generating perceptions of bias. It may be beneficial to explore the extent to which officers may have more discretion to avoid conducting searches in these circumstances.

At the same time, local crime rates and constraints on officer discretion do not explain increased rates of force used against Black or Latinx people and leave approximately 50% of the disparities in search rates unaccounted for. Further exploration to better understand the course of these disparities is necessary in order to identify strategies that may be effective at mitigating these differences.

Further Investigation of Stops at the Station Level

In order to better understand how officer actions may vary across stations we construct figures, analogous to Figures 5-8, that compare average officer actions to the racial composition of people stopped in that station's jurisdiction. Note here that, unlike previous figures, we order stations by the fraction of stopped individuals who are White, rather than the characteristics of the neighborhoods they patrol. We observe a relatively constant higher search rate for Black or Latinx versus White people across stations, although search rates are highest for stations which stop relatively higher numbers of non-White people.

We also find that stations that stop relatively fewer White people have low hit rates, and the hit rates for all people searched are relatively equal, on average. Outside of this extreme, searches of White people are more likely to yield contraband than searches of Black or Latinx people. The difference between the outcomes of searches across groups is the largest in stations that stop the most White people.

Stations that stop fewer White people (less than 5% of people stopped are White) are more likely to use force during those stops. The difference in use of force rates across identity groups is also the smallest in these stations. There is a relatively consistent 0.7 percentage

point higher probability of force being used against Black people than White people across all other stations. In places where suspects are more diverse, Black and Latinx people have force used against them at more similar rates.

FIGURE 21. Search Rate by LAPD Station
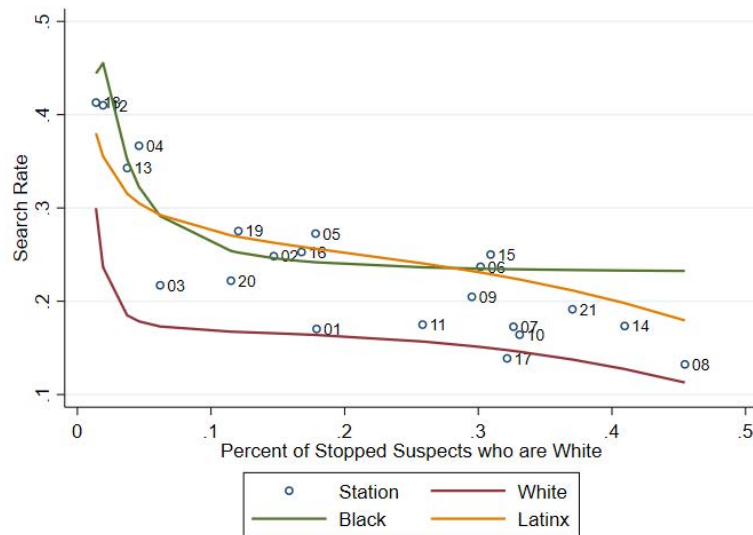
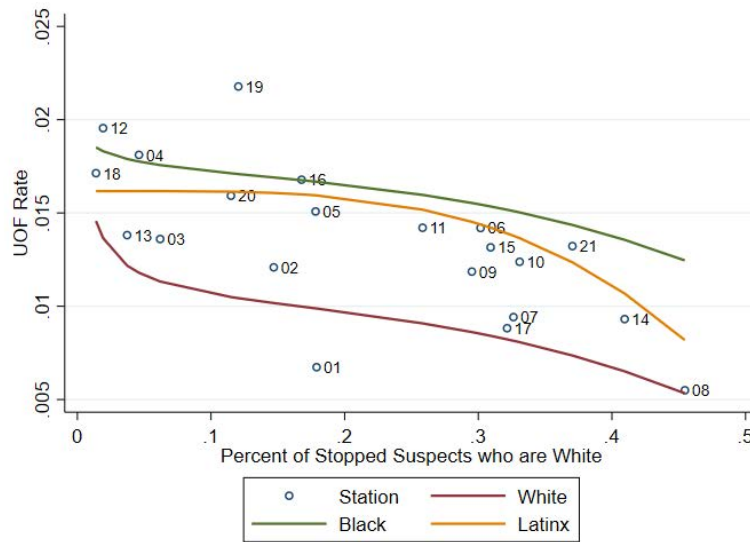FIGURE 22. Hit Rate by LAPD Station
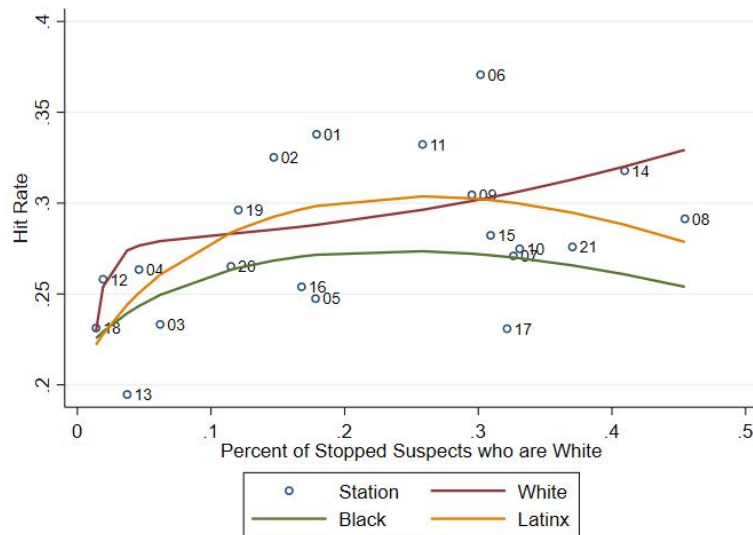
FIGURE 23. Use of Force Rate by LAPD Station

SPATIAL PATTERNS OF RIPA STOPS: IDENTITY GROUP DIFFERENCES WITHIN PLACES

The statistical analysis identified average differences in RIPA interactions, and potential sources of those differences. We now present pictures of the full range of RIPA interactions in each LAPD neighborhood and Station, identifying how much of the average disparities observed in the previous analysis are the result of a few outlier neighborhoods, or reflect a more consistent pattern.

The following graphs plot the stop, search, and hit rates for all people stopped within a Census tract (or neighborhood). Each dot represents the rate, by race/ethnicity, in one L.A. neighborhood (Goel, Rao and Shroff (2016). If Black people and Latinx people had the same probability of being stopped as White people in a particular place, that place would fall on the indicated 45 degree line. We also present, for each graph, the percent of places where the White interaction rate is lower than the interaction rate for Black or Latinx people, which more specifically summarizes how widespread any disparities are that disadvantage non-White people in Los Angeles.

We present each plot for traffic stops (identified by stop reason), stops following calls for service, and stops following non-traffic, non-calls for service. In addition, we divide places into quartiles based on violent crime rates, identifying whether disparities are related to differing LAPD tactics in high and low crime places. Finally, we compare the frequency of LAPD interactions by identity group to the frequency of criminal participation (as victim or suspect) in the same place.

Neighborhood Stop Rates, by Identity Group

On average, there were 0.3 additional Black people and 0.6 fewer Latinx people stopped than White people, per resident. When analyzed at the station level, this disparity appears to be related to violent crime rates and the criminal participation of individuals as known to the LAPD. These graphs reveal that Black people are stopped at a higher rate than White people in 85% of Census tracts. The disparity between Latinx and White people is much less pronounced, but Latinx people are stopped more frequently than White people in 59% of Census tracts (Figures 24-25).

FIGURE 24. White-Black Stop Rate
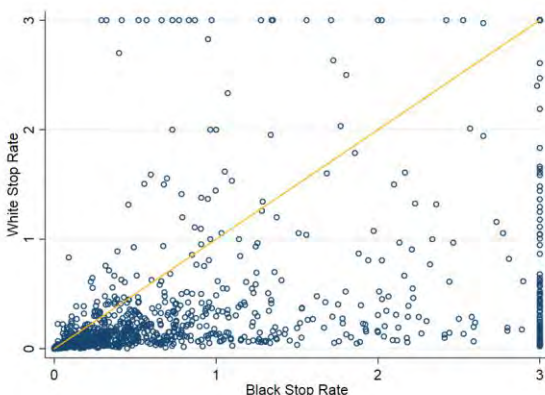
85% of observations fall below the 45 degree line.

FIGURE 25. White-Latinx Stop Rate
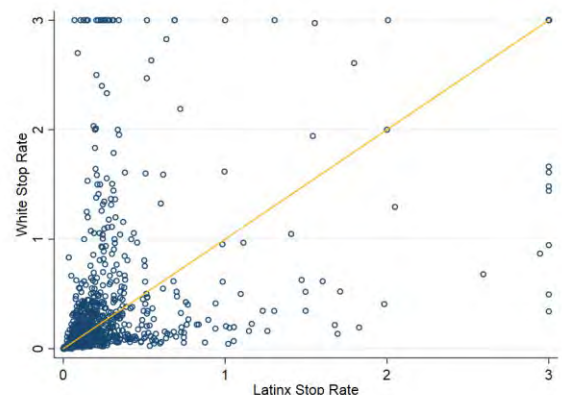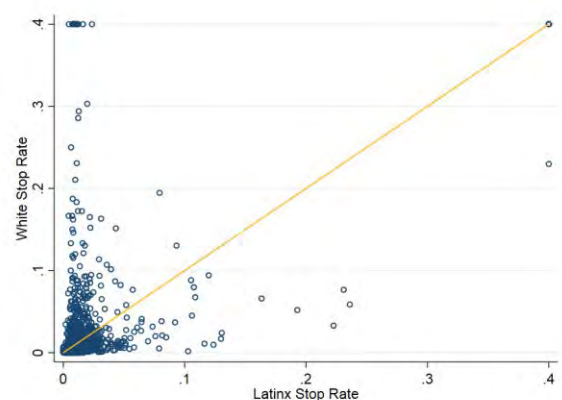

59% of observations fall below the 45 degree line.

Neighborhood Stop Rates, by Type of Stop

In the following graphs, we present the results of three different types of stops: stops made in response to calls for service (Figures 30-31), traffic stops (Figures 28-29), and non-traffic stops that were not made in response to calls for service (Figures 26-27). In each type of stop, LAPD officers likely have different levels of discretion, and different levels of information about the identity of the person when they make a stop. In response to calls for service, officers may have specific descriptive information about a criminal suspect. Traffic stops may be initiated before the officer has clear information about the identity of the driver. Non-traffic stops that are not made in response to a call for service, however, are situations where officers are more likely to observe an individual's race or ethnicity and are more likely the result of an encounter initiated by the officer.

Comparing stop rates across each type of stop reveals that, in non-traffic stops, there are many Census tracts where the stop rates are strikingly different across identity groups - either the White stop rate is substantially higher than the Black stop rate, or the Black stop rate is substantially higher than the White stop rate. In contrast, during traffic stops, there are many more places where the Black and White stop rates are relatively more like each other, although the stop rates for Black people are higher than the stop rates for White people in 84% of neighborhoods.

FIGURE 26. White-Black Stop Rate: Non-Service Calls, Non-Traffic Stops
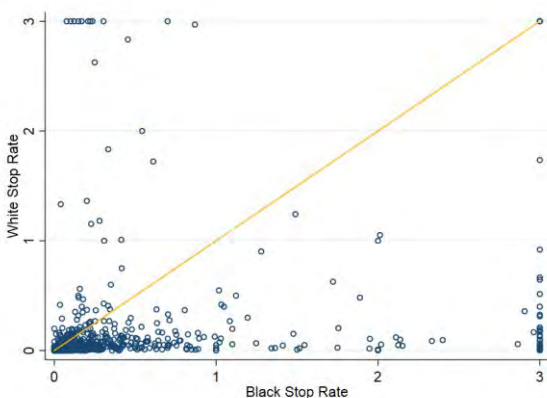
79% of observations fall below the 45 degree line.

FIGURE 27. White-Latinx Stop Rate: Non-Service Calls, Non-Traffic Stops
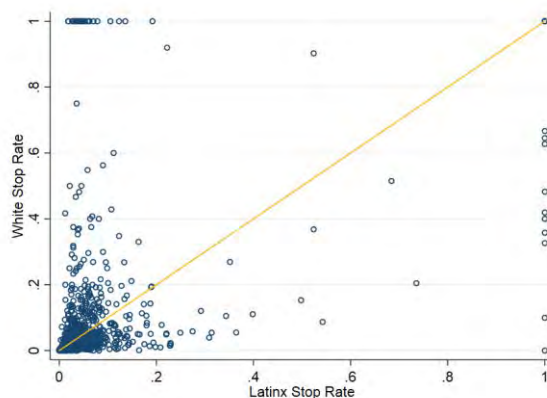
60% of observations fall below the 45 degree line.

We see a similar, although not as stark, pattern for Latinx stops relative to White stops. While neighborhoods are roughly equally likely to have higher stop rates for Latinx or White people, we observe more Census tracts with very different stop rates for Latinx and White people when we examine pedestrian stops (either in response to a call for service, or officer initiated). Traffic stops, on the other hand, tend to have more places with relatively equal stop rates.

FIGURE 28. White-Black Stop Rate: Non-Service Calls, Traffic Stops
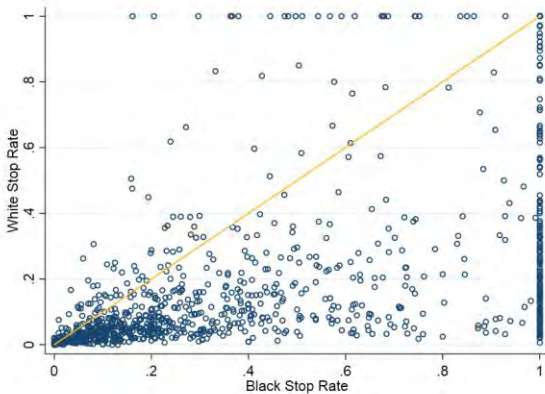
84% of observations fall below the 45 degree line.

FIGURE 29. White-Latinx Stop Rate: Non-Service Calls, Traffic Stops
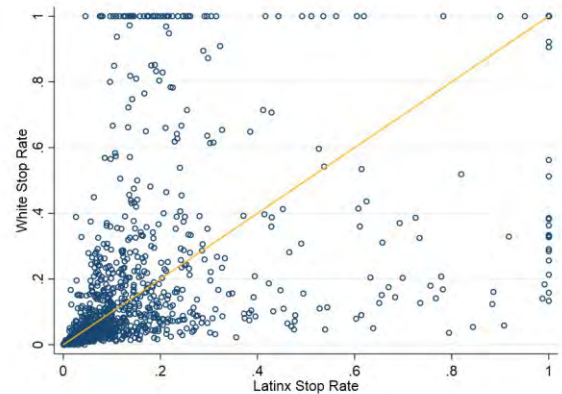
56% of observations fall below the 45 degree line.

FIGURE 30. White-Black Stop Rate: Service Calls
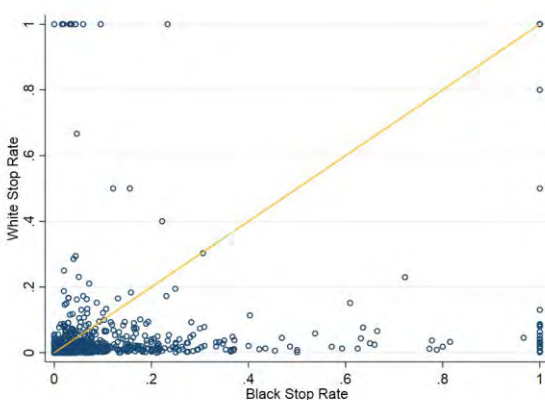
77% of observations fall below the 45 degree line.

FIGURE 31. White-Latinx Stop Rate: Service Calls

52% of observations fall below the 45 degree line.

Neighborhood Stop Rates, by Violent Crime Rate

The following graphs plot the stop, search and hit rates for all stops within a Census tract (or neighborhood). The graphs are broken out into four crime quartiles (each of the four quadrants contain the same number of Census tracts) where the first quartile represents the least violent neighborhoods and the fourth quartile represents the most violent neighborhoods. Again, each dot represents the rate, by race or ethnicity, in one L.A. neighborhood. If neighborhood violent crime is the driver behind any disparities that might be present in the data, we might expect to see roughly equal stop rates of Black and White people in neighborhoods within quartiles, but higher stop rates for all people in more violent places. If Black people tended to live in places with more violence, this would then result in higher stop rates for Black people overall. We do observe higher stop rates in the most violent places, but racial disparities exist, and in fact are most pronounced, in the least violent Los Angeles neighborhoods. We observe a similar pattern when comparing Latinx to White stops.

FIGURE 32. White-Black Stop Rates by Violent Crime Quartile
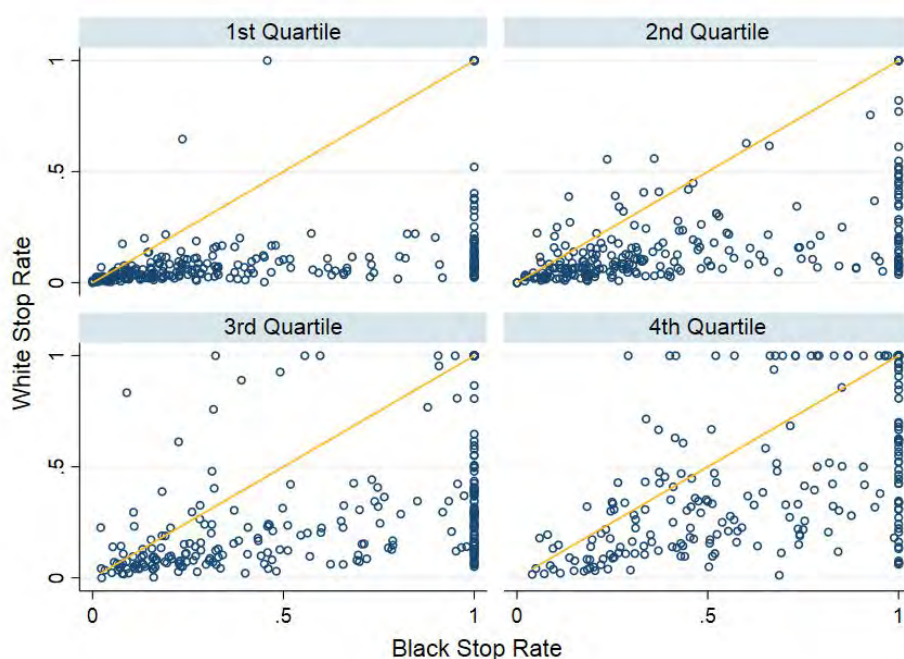
89%, 88%, 82% and 66% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

FIGURE 33. White-Latinx Stop Rates by Violent Crime Quartile
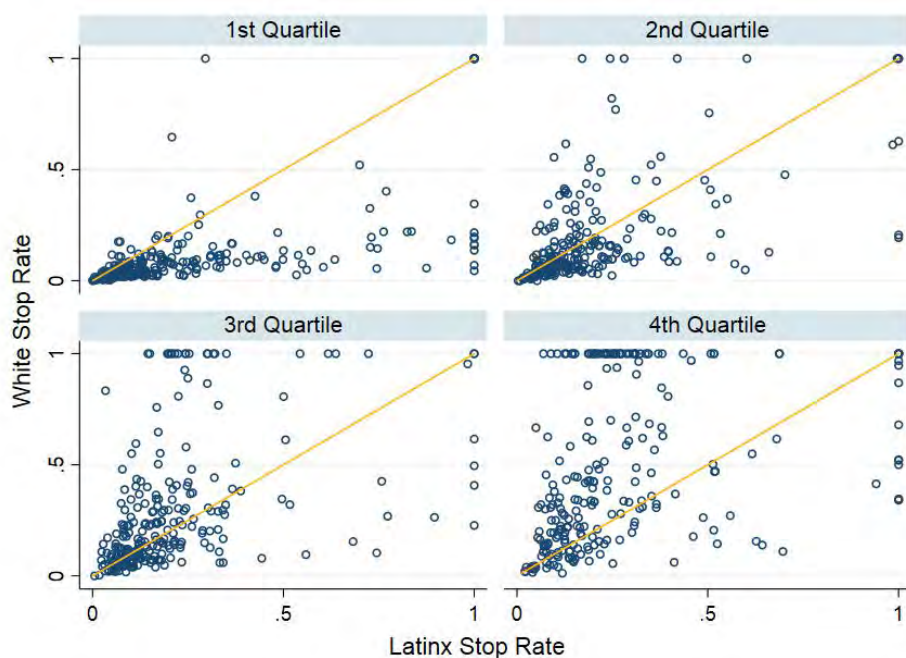
85%, 68%, 45% and 31% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

The graphs above plot the group-specific stop rate (people stopped per population of racial group within a Census tract) broken out by crime quartiles. When comparing Black and White stop rates, 89% 88%, 82% and 66% of Census tracts fall below the 45 degree line in the first, second, third and fourth quartiles respectively. For Latinx-White stop rates, 85%, 68%, 45% and 31% of Census tracts fall below the 45 degree line in the first, second, third and fourth quartiles respectively. It is notable that neighborhoods in the fourth quartile, which is the most violent, actually display a much smaller disparity than the other graphs, as indicated by the observation that the data appear to be closest to the 45 degree line in that quartile.

Station-Level Stop Rates, by Criminal Involvement

Finally, we present graphs where we scale the number of people stopped not by population, but by criminal involvement, as either victim or suspect. Since suspect identity is only known at the station level, we will show these estimates aggregated to that level, after replicating the initial population-based graphs at the station level as well. The following graphs plot the stop, search and hit rates for all people stopped within a station. Each dot represents the rate, by race or ethnicity, in each of the 21 LAPD stations. The values for each station can be found in Appendix Table A1.

At the station level, we see that the Black stop rate is higher than the White stop rate in all stations, with the largest disparity at the 6th station (Figure 34 and 35). The Latinx stop rate is generally closer to the White stop rate, and in a handful of stations (2nd, 3rd, 12th, 13th, 18th and 20th) the White stop rate is higher.

FIGURE 34. White-Black Stops Per Population by LAPD Station
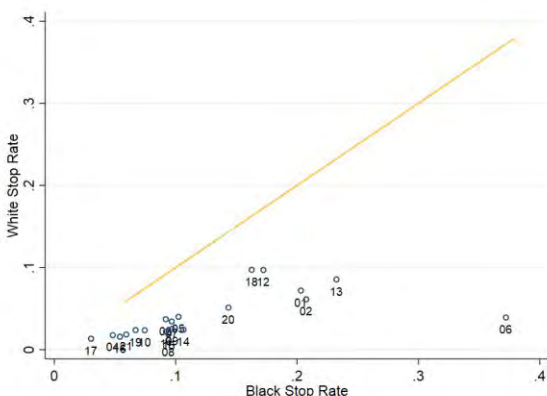
FIGURE 35. White-Latinx Stops Per Population by LAPD Station
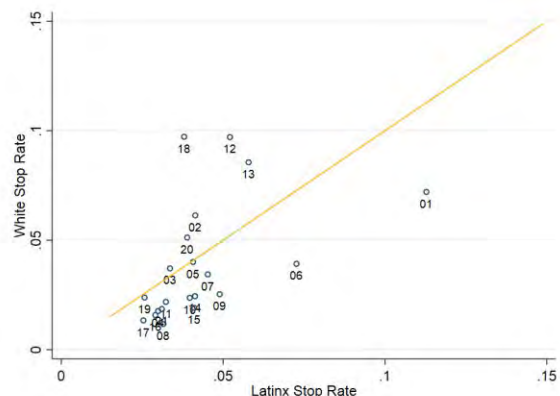
When we compare the number of stops to the number of victims in each identity group, across stations (Figure 36 and 37), we find that involvement in crime can explain a fair amount of the observed station-level disparities; for both Black-White and Latinx-White comparisons, stations are much closer to the 45 degree line. While stop rates for Black people and Latinx people are higher than stop rates for White people in most places, there

are stations where stop rates per victim are close to equal across groups, or where there are more White people stopped than non-White people (Latinx people in particular).

FIGURE 36. White-Black Stops Per Violent Victimization by LAPD Station
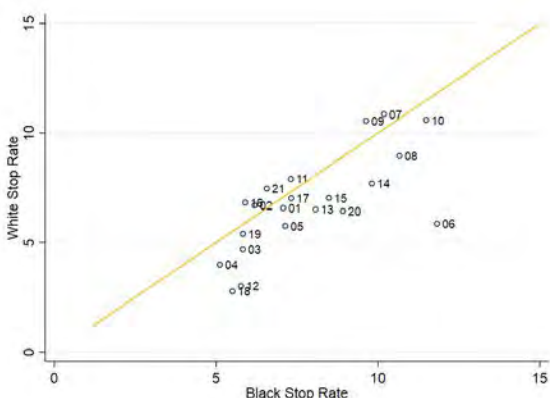
FIGURE 37. White-Latinx Stops Per Violent Victimization by LAPD Station
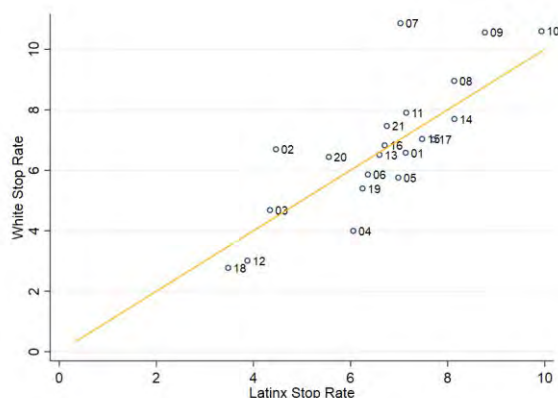
FIGURE 38. White-Black Stops Per Suspects by LAPD Station
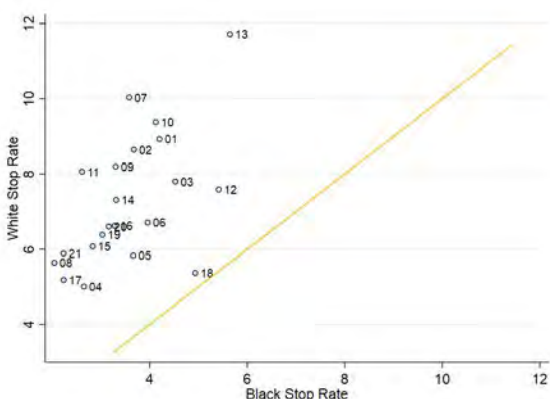
FIGURE 39. White-Latinx Stops Per Suspect by LAPD Station
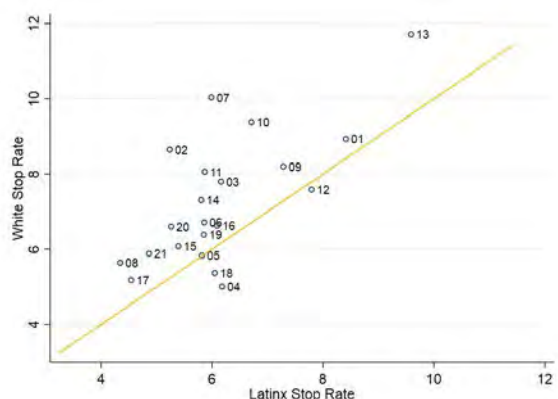
Finally, we calculate the stop rate for each station as the number of stopped individuals by race/ethnicity divided by the number of known suspects by race/ethnicity.

Recall that the denominator in this measure may contain some important causes of racial disparities in police contact- specifically biased behavior on the part of reporting victims or

RIPA in the LAPD: Technical Report

witnesses. Consistent with this, the suspect-based stop rate calculated is higher for White individuals than Black and Latinx individuals in most stations. Focusing on the 6% of stops where "matched suspect description" is listed as the reason for the stop leads to more equality in stop rates at this level of aggregation, but there is still a generally higher stop rate for White people than Black people in most stations. The observation that disparities are smaller for stops of people matching a suspect description is expected, as RIPA data tells us that the officer was using suspect information in these cases, but the low frequency with which officers actively report using suspect information is additional evidence that suspect race/ethnicity may not be an appropriate benchmark when examining other types of stops.

FIGURE 40. White-Black Stops Per Suspects by LAPD Station (Matched Suspect Description)
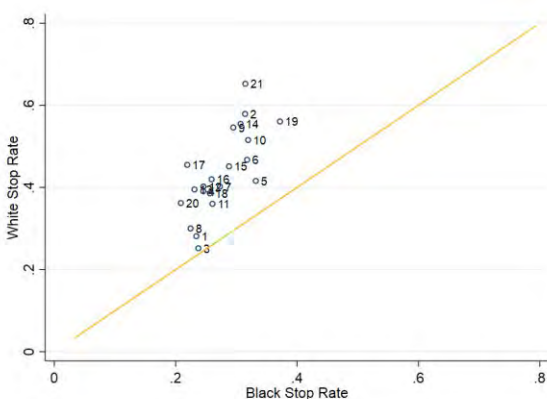
FIGURE 41. White-Latinx Stops Per Suspects by LAPD Station (Matched Suspect Description)
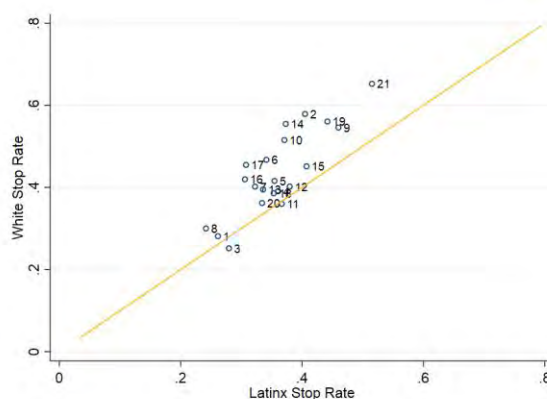
Neighborhood Search Rates, by Identity Group

In the multivariate analysis, we found that both Black and Latinx people were 7 percentage points more likely to be searched than White people. Examining the neighborhood-level search rate shows that this disparity is present in the majority of neighborhoods. White people are less likely to be searched, conditional on being stopped, than Black or Latinx people in 75% of neighborhoods.

FIGURE 42. White-Black Search Rate
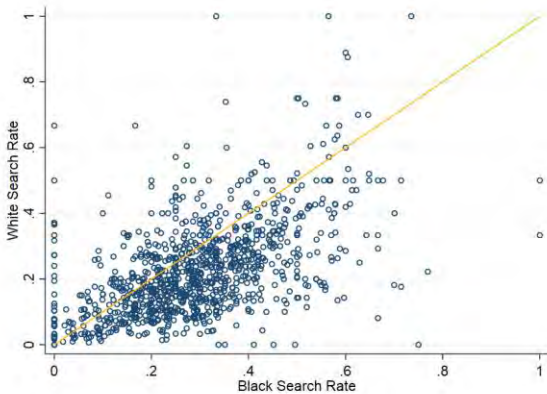
74% of observations fall below the 45 degree line.

FIGURE 43. White-Latinx Search Rate
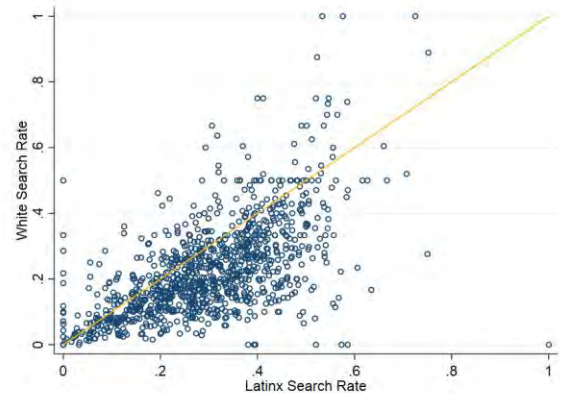
76% of observations fall below the 45 degree line.

Neighborhood Search Rates, by Type of Stop

Dividing searches by type of stop reveals two key insights: First, there appear to be more neighborhoods where Latinx people have a higher probability of being searched, particularly in pedestrian stops that are not made in response to a call for service. Second, search rates in traffic stops are generally lower than search rates for pedestrian stops (note where the plotted points fall on the horizontal and vertical axes). However, there are more neighborhoods with disparities in search rates for vehicle stops - over 70% of neighborhoods have higher vehicle search rates for Black drivers than White drivers, and 80% of neighborhoods have higher search rates for Latinx drivers relative to White drivers. When focusing on stops made in response to calls for service, we find that the number of neighborhoods with higher search rates for White people is closer to the number of neighborhoods with higher search rates for Black or Latinx people.

FIGURE 44. White-Black Search Rate: Non-Service Calls, Non-Traffic Stops
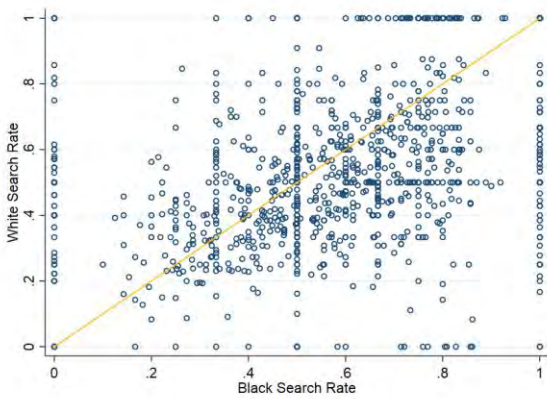
57% of observations fall below the 45 degree line.

FIGURE 45. White-Latinx Search Rate: Non-Service Calls, Non-Traffic Stops
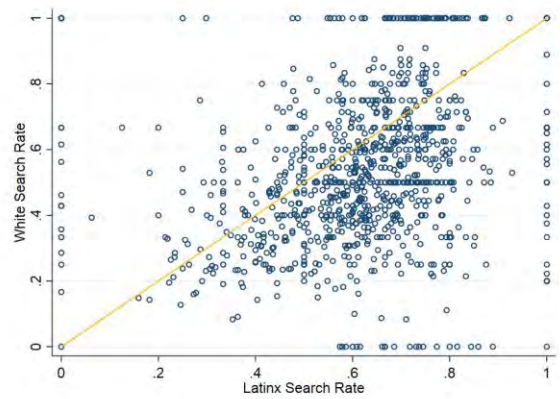
67% of observations fall below the 45 degree line.

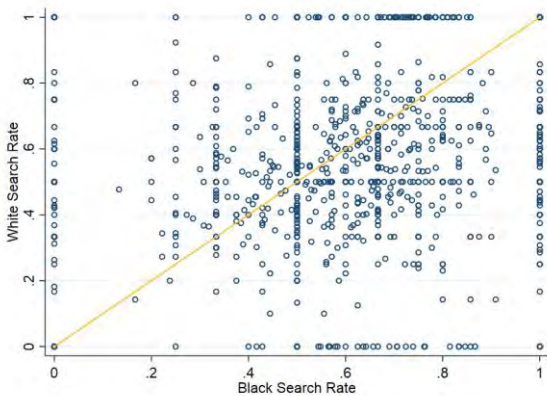## FIGURE 46. White-Black Search Rate: Non-Service Calls, Traffic Stops
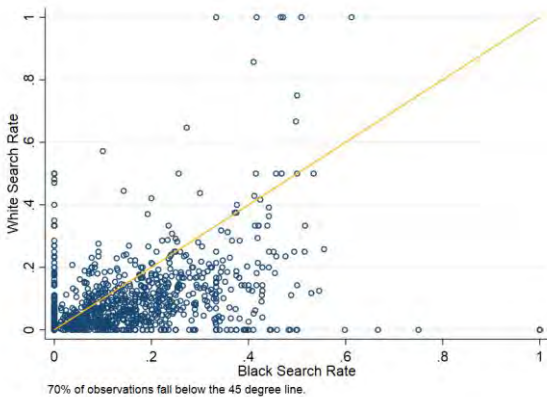
70% of observations fall below the 45 degree line.

FIGURE 47. White-Latinx Search Rate: Non-Service Calls, Traffic Stops
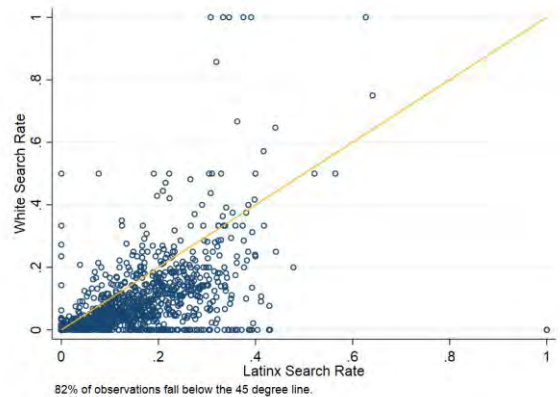
82% of observations fall below the 45 degree line.

FIGURE 48. White-Black Search Rate: Service Calls

55% of observations fall below the 45 degree line.

FIGURE 49. White-Latinx Search Rate: Service Calls
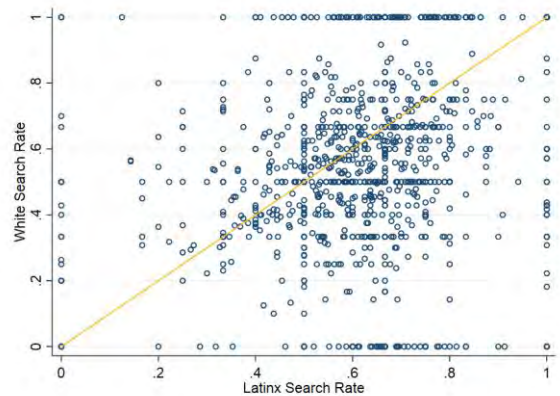
57% of observations fall below the 45 degree line.

Neighborhood Search Rates, by Violent Crime Rate

FIGURE 50. White-Black Search Rates by Violent Crime Quartile
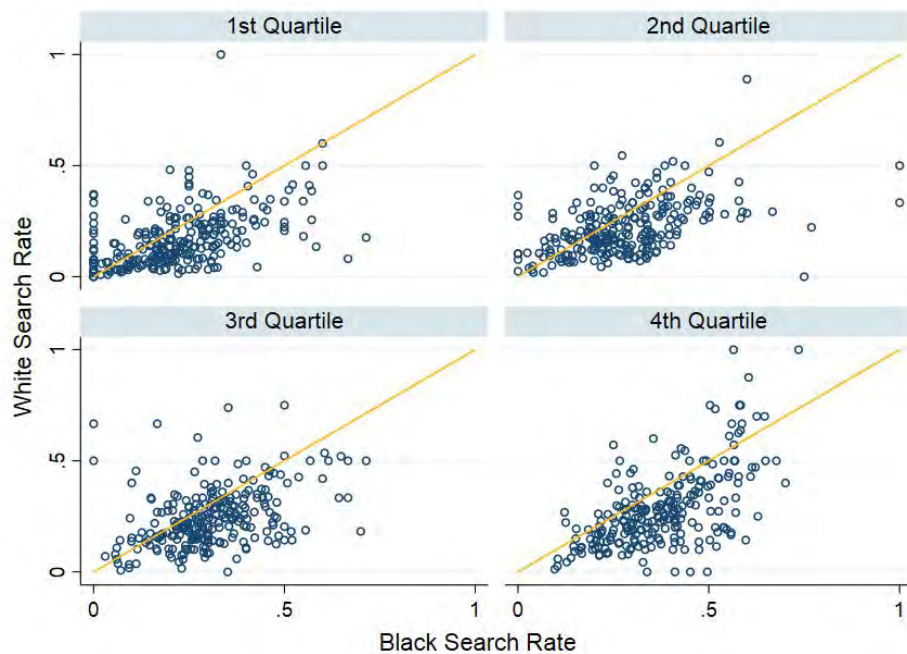
70%, 67%, 76% and 80% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

Search rates are higher in more violent neighborhoods, particularly search rates of White people. In very few neighborhoods in the 1st and 2nd quartile of violence (i.e. the least violent neighborhoods) are more than half of stopped White people also searched. At the same time, dividing neighborhoods by violent crime rates suggests that there are also more places with larger Black-White disparities in search rates in the more violent places in L.A. In contrast, the most violent places in L.A. are relatively more likely to have higher search rates for White people when compared to neighborhoods in the lower quartiles or violence.

FIGURE 51. White-Latinx Search Rates by Violent Crime Quartile
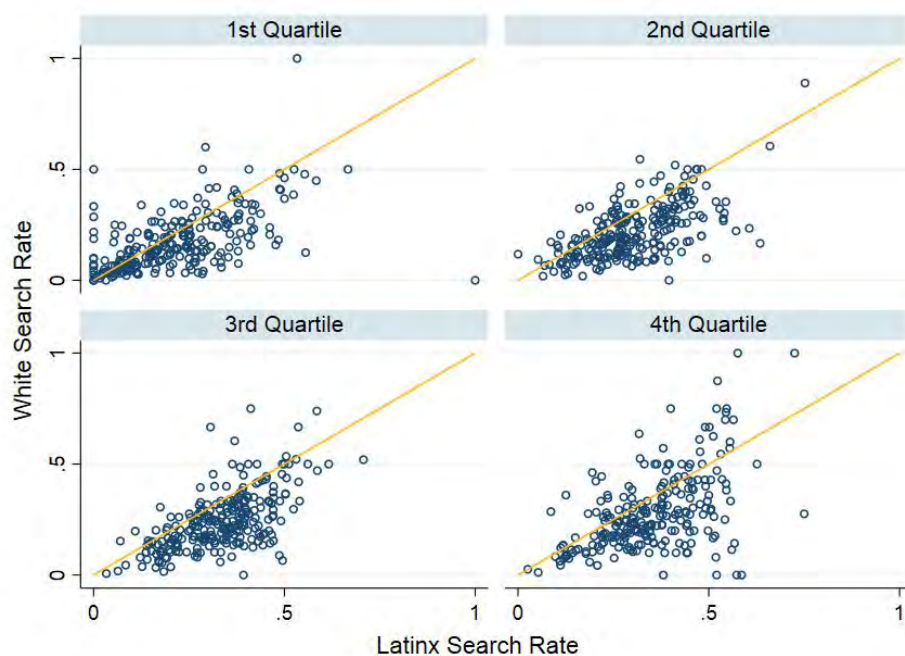
71%, 79%, 85% and 72% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

Station-Level Search Rates, by Criminal Involvement

Finally, we incorporate proxies for criminal involvement, by calculating, for each station, the number of searchers per (violent) crime victim and criminal suspect. The values for each station can be found in Appendix Table A2. For the sake of comparison, we also show the search rate, per person stopped, for each station. Consistent with the neighborhood level

analysis, search rates are higher for Black and Latinx people in all stations. It is also clear that places with higher search rates of Black and Latinx people tend to have higher search rates of White people as well.
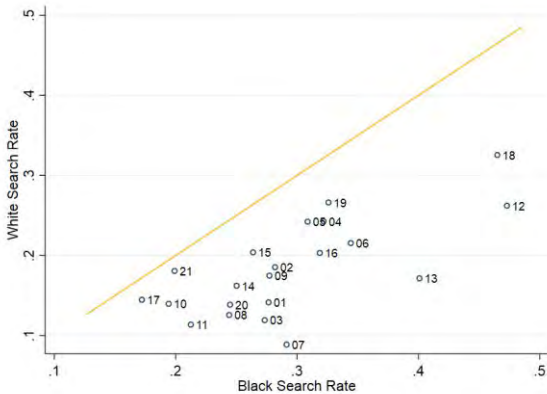
FIGURE 52. White-Black Searches Per Stop by LAPD Station

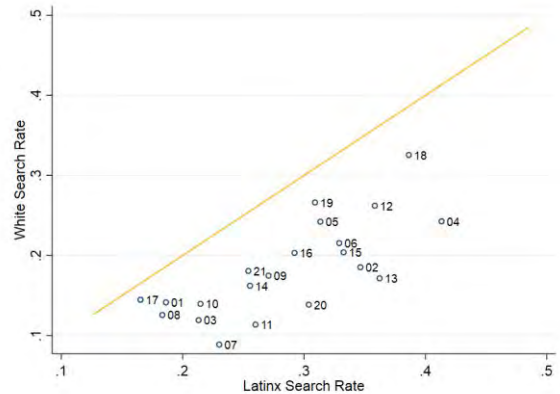**FIGURE 53.** White-Black Searches Per Stop by LAPD Station

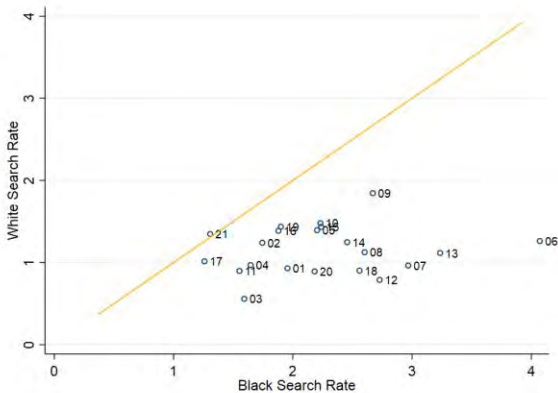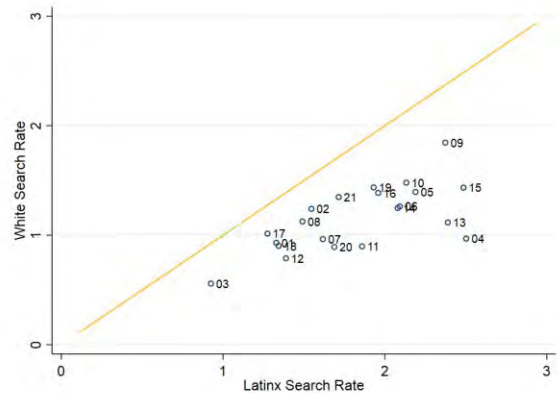**FIGURE 54.** White-Black Searches Per Violent Victimization by LAPD Station

FIGURE 55. White-Latinx Searches Per Violent Victimization by LAPD Station

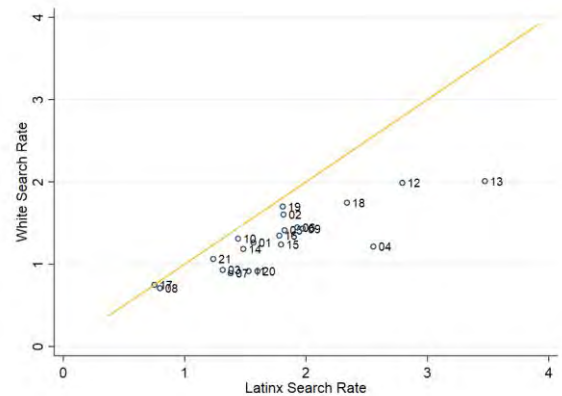**FIGURE 56.** White-Black Searches Per Suspect by LAPD Station
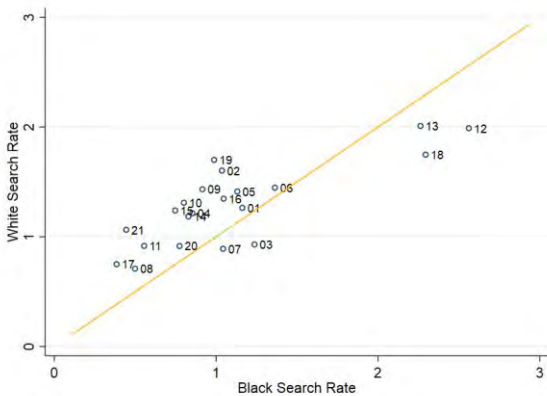
**FIGURE 57.** White-Latinx Searches Per Suspect by LAPD Station

Scaling the number of searches conducted by the number of crime victims tends to exacerbate the disparate search rates, particularly for Black vs White searches. Dividing the total number of searches conducted by the total number of suspects shows different results for Black-White and Latinx-White disparities. The number of searches per criminal suspect generally falls close to the 45 degree line, with many stations having more searches of White people than of Black people. Latinx-White disparities, however, are still present in all stations when searches are compared to the number of criminal suspects.

## Neighborhood and Station-Level Hit Rates, by Identity Group

Compared to stop and search rates, there is less of a clear pattern in hit rates across space. Figures 58 and 59 show that there are slightly more (59%) neighborhoods where White hit rates are higher than Black hit rates. There are also roughly as many neighborhoods where hit rates are higher for White people as there are neighborhoods where hit rates are higher for Latinx people. Aggregating to the station level also reveals stations on both sides of the 45 degree line; we do not estimate hit rates by criminal involvement because the denominator reflects the number of police actions, rather than the number of people acted upon. In other words, the fact that an officer decided to conduct a search is itself an indicator that they had individualized suspicion of criminal activity. The values for each station in Figure 60 and 61 can be found in Appendix Table A3.

FIGURE 58. White-Black Hit Rate
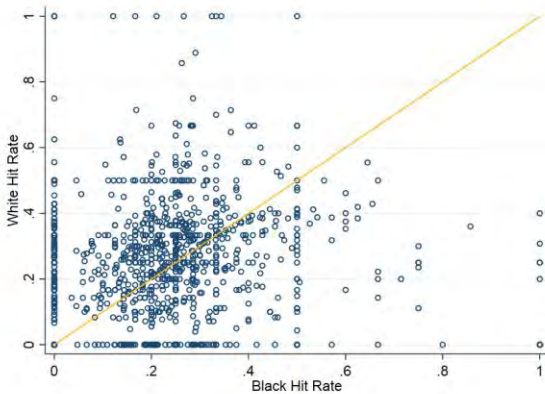
41% of observations fall below the 45 degree line.

FIGURE 59. White-Latinx Hit Rate
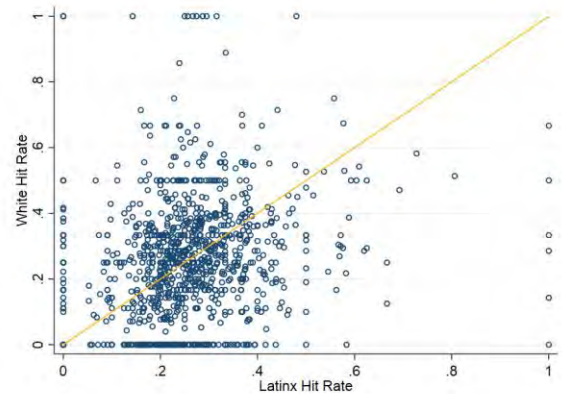
51% of observations fall below the 45 degree line.

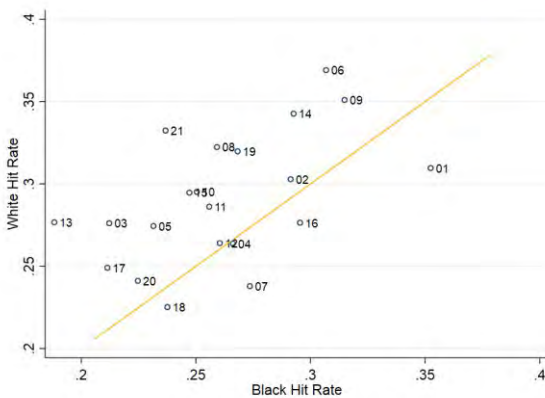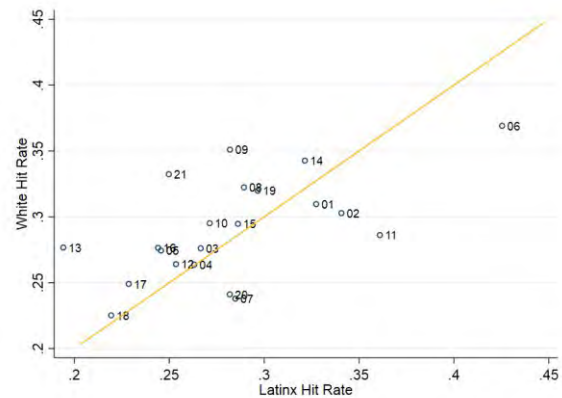**FIGURE 60.** White-Black Hit Rate by LAPD Station

FIGURE 61. White-Latinx Hit Rate by LAPD Station


Neighborhood Hit Rates, by Type of Stop

Separating hit rates by the type of stop also yields relatively similar conclusions. There are more neighborhoods with a Black-White disparity in hit rates for traffic stops (where White hit rates are higher in 57% of neighborhoods).

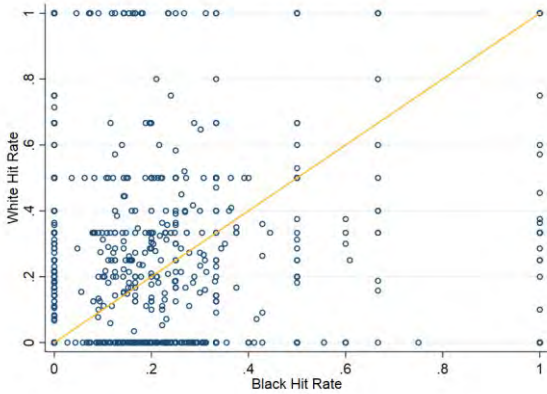## FIGURE 62. White-Black Hit Rate: Non-Service Calls, Non-Traffic Stops
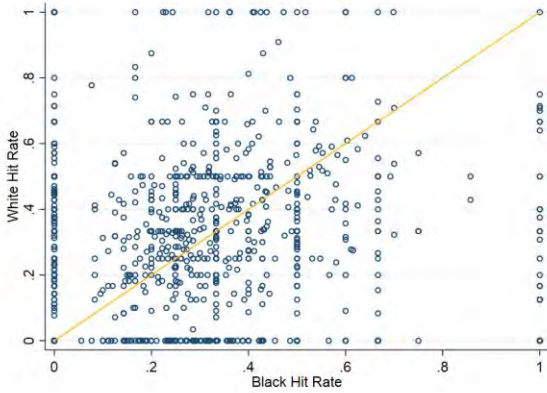
45% of observations fall below the 45 degree line.

FIGURE 63. White-Latinx Hit Rate: Non-Service Calls, Non-Traffic Stops
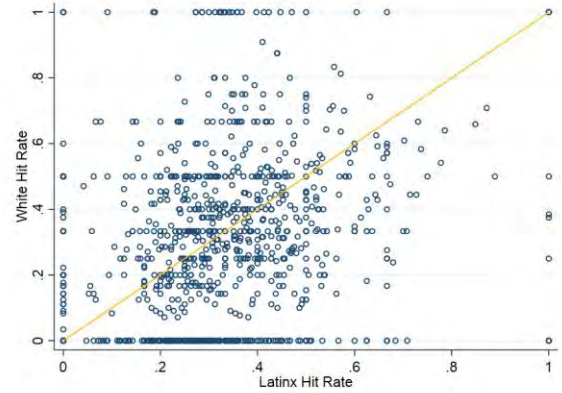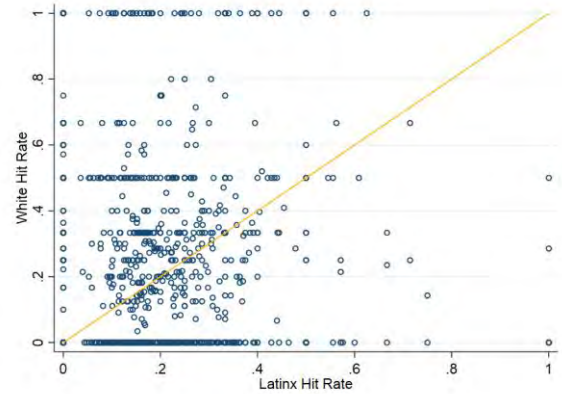

55% of observations fall below the 45 degree line.

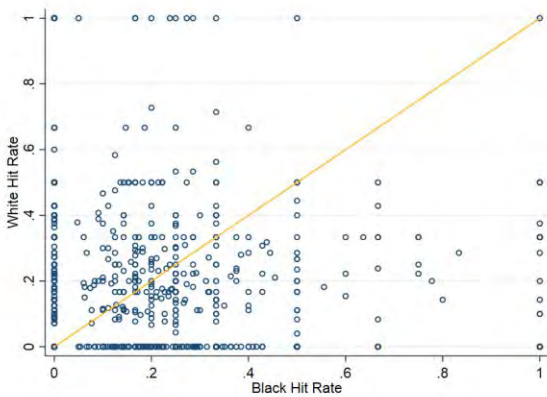## FIGURE 64. White-Black Hit Rate: Non-Service Calls, Traffic Stops

43% of observations fall below the 45 degree line.

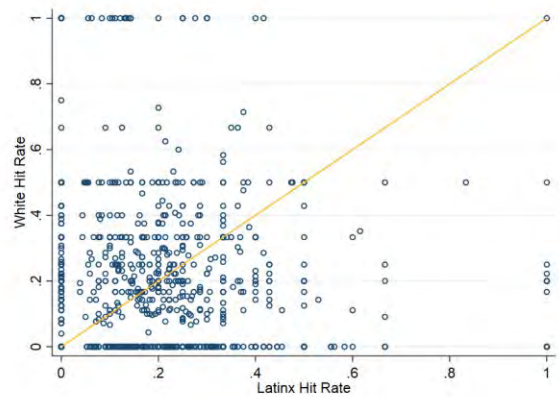## FIGURE 65. White-Latinx Hit Rate: Non-Service Calls, Traffic Stops

51% of observations fall below the 45 degree line.

FIGURE 66. White-Black Hit Rate: Service Calls

48% of observations fall below the 45 degree line.

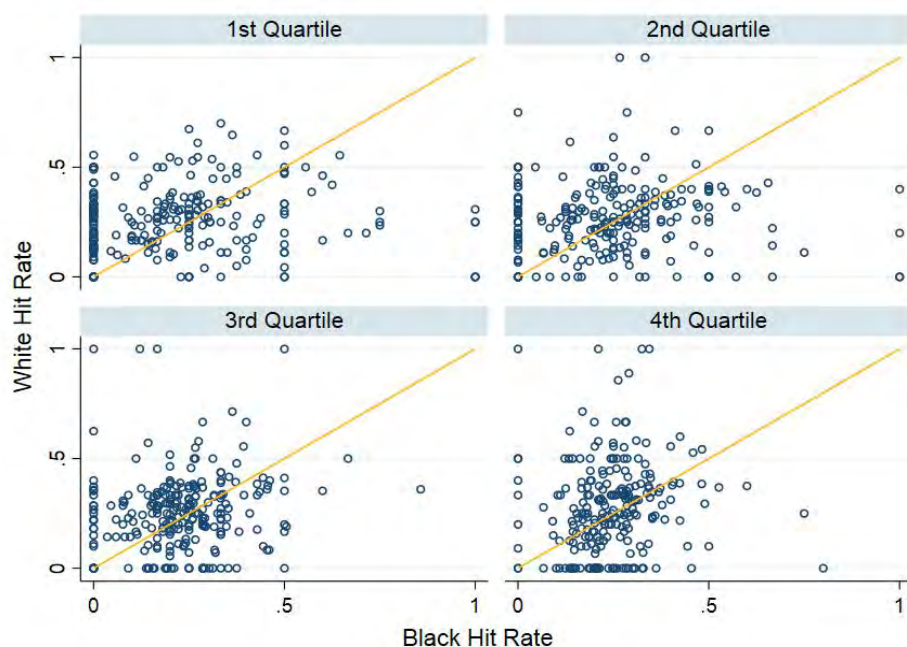**FIGURE 67.** White-Latinx Hit Rate: Service Calls

53% of observations fall below the 45 degree line

Neighborhood Hit Rates, by Violent Crime Rate

Dividing neighborhoods by crime rate also does not reveal any consistent pattern in hit rates, which appear to generally be equal regardless of the level of violence. There are slightly more violent neighborhoods with higher hit rates for White people than Black and Latinx people.

Overall, it appears that knowing the fraction of searches that yield contraband for Black or Latinx people provides one with little information about the hit rate for White people in the same neighborhood. This was not the case for stops or searches, where places with higher stop (or search) rates for one group generally had higher stop (or search) rates for the other.

FIGURE 68. White-Black Hit Rates by Violent Crime Quartile

33%, 44%, 43% and 48% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

## FIGURE 69. White-Latinx Hit Rates by Violent Crime Quartile
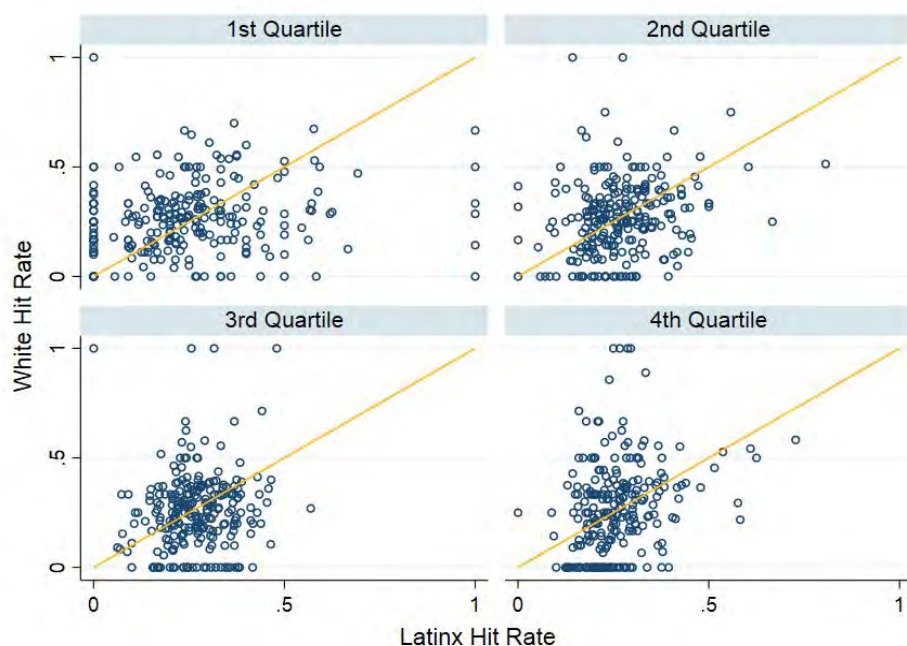
44%, 55%, 54% and 52% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

## Neighborhood and Station-Level UOF Rates, by Identity Group

Force is a rare event, but one that is both dangerous for officers and costly to the department in terms of perceptions of police legitimacy and integrity. This is particularly true when force is perceived to be used more frequently against one identity group than another. It is therefore critical to understand how widespread instances of disparate force are across Los Angeles. One immediate conclusion from Figures 70 and 71 is that places with the highest rates of force used against one identity group tend to be places with lower rates of force used against another. This may be a function of the relatively short time period over which 2018 RIPA data is collected, but when force is generally unequal across groups in the same place, it is likely to be viewed by the public as particularly problematic. The potentially negative relationship between force used against White people and force used against Black or Latinx people is not evident when aggregated to the station level (The values for each station can be found in Appendix Table A4). However, to the extent that the general public is more likely to be aware of local incidents, the local relationship may be more important for perceptions of the LAPD.

FIGURE 70. White-Black Use of Force Rate
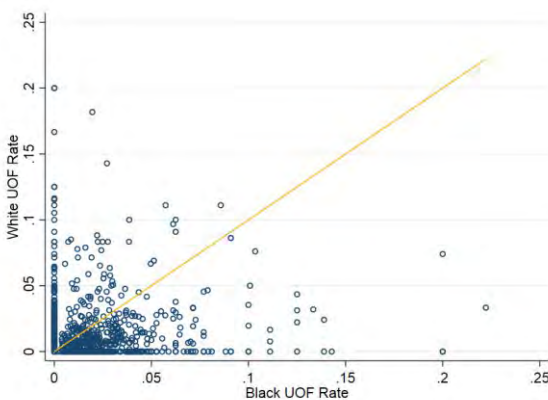
62% of observations fall below the 45 degree line.

FIGURE 71. White-Latinx Use of Force Rate
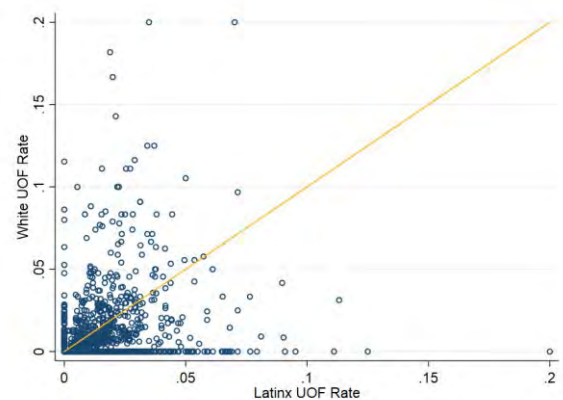
51% of observations fall below the 45 degree line.

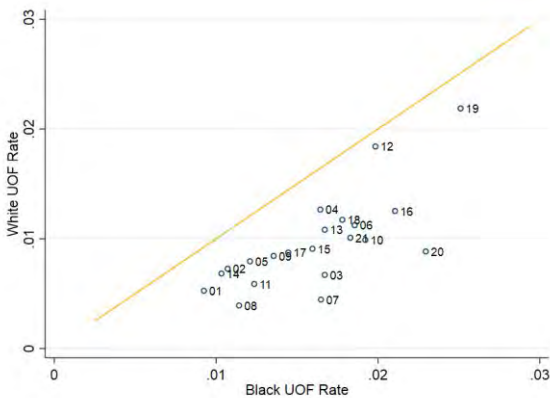**FIGURE 72.** White-Black Use of Force Rate by LAPD Station

FIGURE 73. White-Latinx Use of Force Rate by LAPD Station
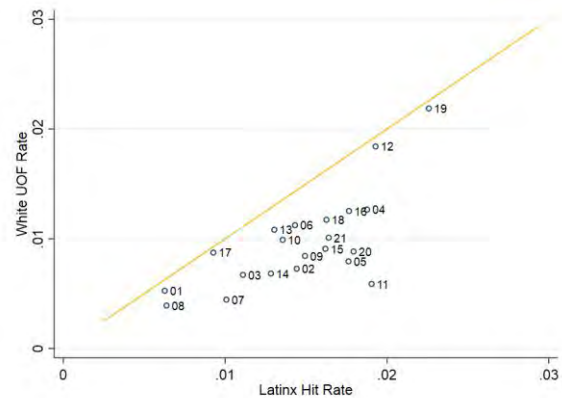
Neighborhood UOF Rates, by Type of Stop

Dividing rates of force by the type of stop suggests that this negative relationship is more prevalent in traffic stops. It is also the case that use of force rates are higher against Black and Latinx people in more neighborhoods for traffic stops relative to pedestrian stops.

FIGURE 74. White-Black Use of Force Rate: Non-Service Calls, Non-Traffic Stops
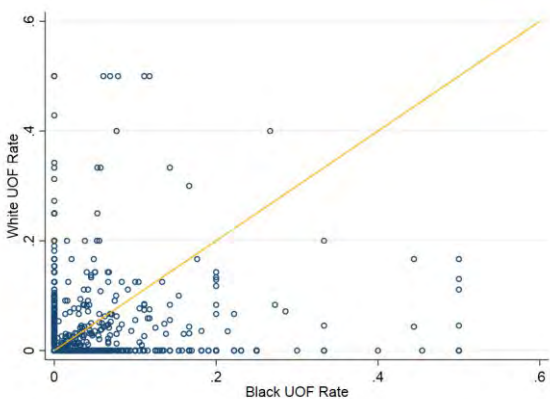
58% of observations fall below the 45 degree line.

FIGURE 75. White-Latinx Use of Force Rate: Non-Service Calls, Non-Traffic Stops
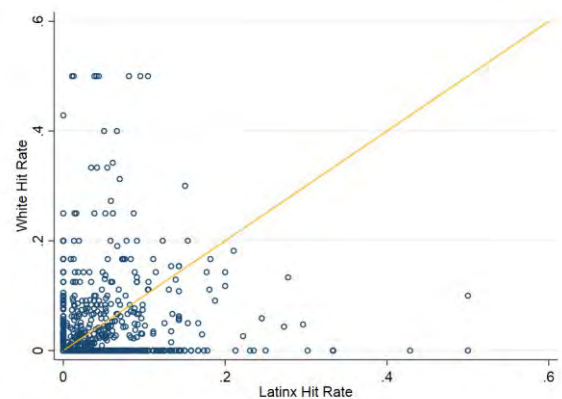
69% of observations fall below the 45 degree line.

FIGURE 76. White-Black Use of Force Rate: Non-Service Calls, Traffic Stops

68% of observations fall below the 45 degree line.

FIGURE 77. White-Latinx Use of Force Rate: Non-Service Calls, Traffic Stops

77% of observations fall below the 45 degree line.

FIGURE 78. White-Black Use of Force Rate: Service Calls

60% of observations fall below the 45 degree line.

FIGURE 79. White-Latinx Use of Force Rate: Service Calls

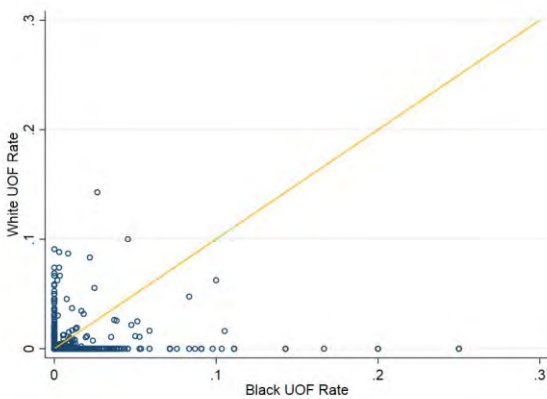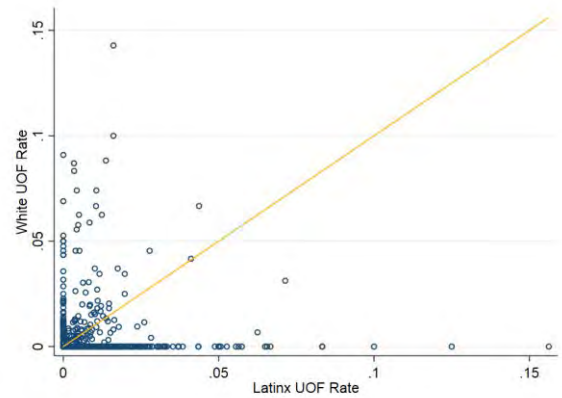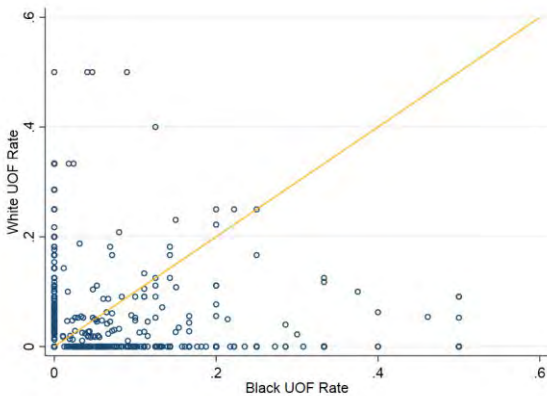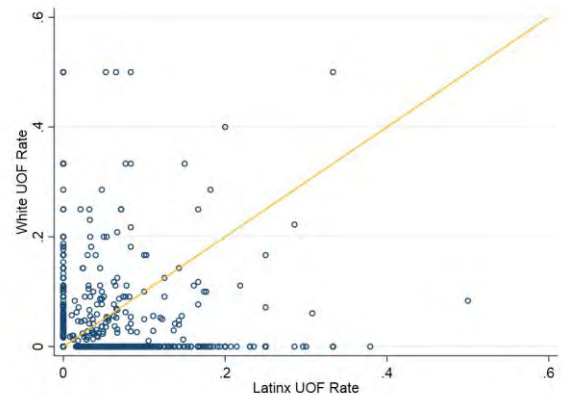

67% of observations fall below the 45 degree line.

Neighborhood UOF Rates, by Violent Crime Rate

Similar negative relationships between the rate of force used against different groups in the same neighborhood are evident in the least and most violent places. In addition, the number of neighborhoods with higher rates of force against Black people increases as we look at neighborhoods with higher and higher levels of violence. When we examine Latinx-White differences in UOF, we observe more neighborhoods with higher levels of force used against people in both groups. However, there are still persistently more places with higher rates of force used against Latinx people at all levels of violence; 56% of places with low levels of violence have more force used against Latinx people, compared to 70% of places in the 2nd, 3rd, and 4th quartiles of violence.

FIGURE 80. White-Black Use of Force Rates by Violent Crime Quartile
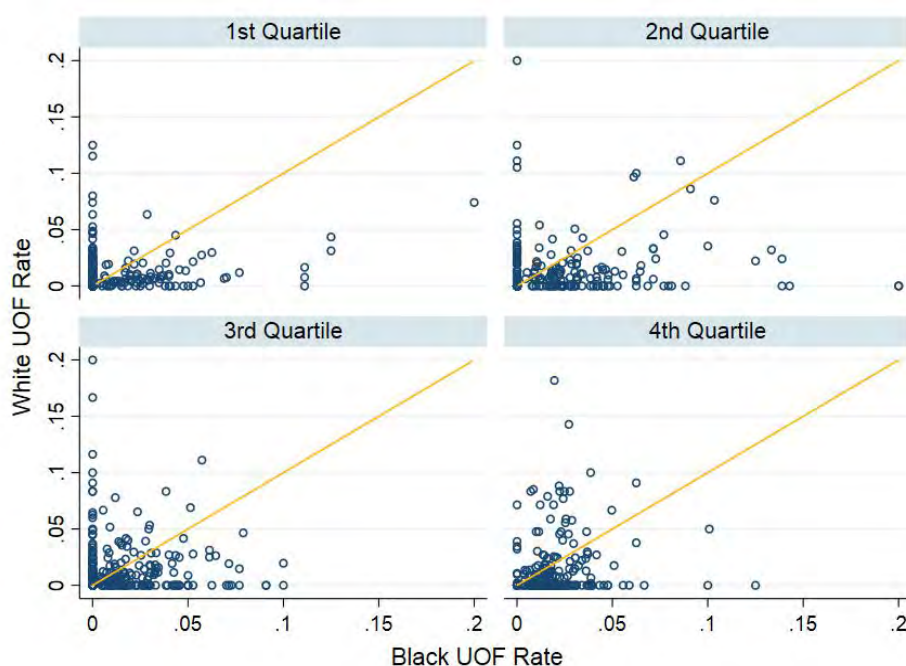
46%, 63%, 59% and 76% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

FIGURE 81. White-Latinx Use of Force Rates by Violent Crime Quartile
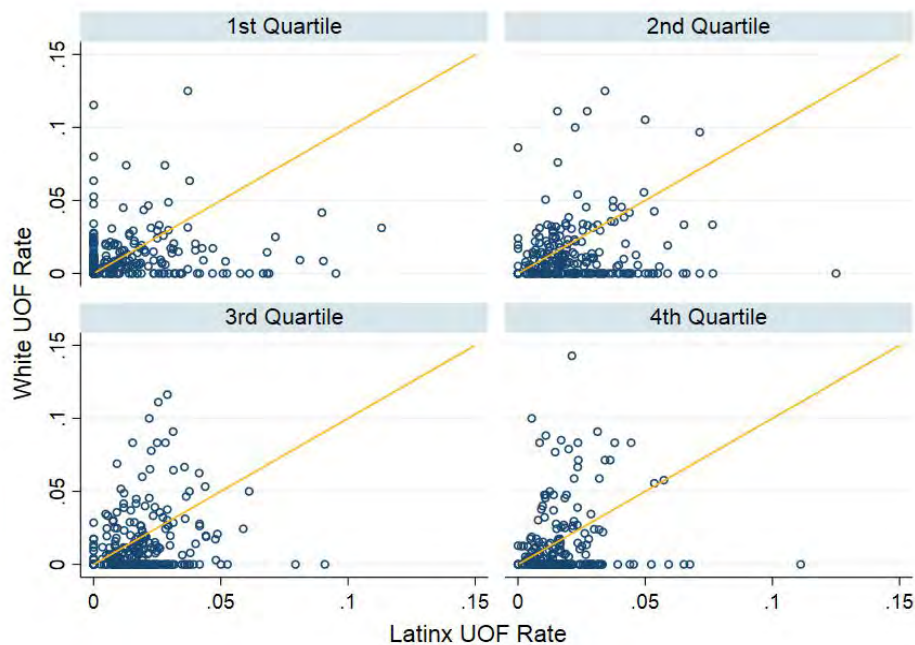
56%, 71%, 69% and 71% of observations fall below the 45 degree line in the first, second, third and fourth quartile.

Further Investigation of Hit Rates

We observe the most variation across neighborhoods in the relative frequency with which searches of Black, Latinx and White people result in the discovery of contraband. A natural next question is if places with little disparity, or certain types of disparities, are located in similar places. We explore this by mapping where hit rates are higher for White, Black, or Latinx people searched within a place. As more RIPA data is gathered, it will be possible to to statistically distinguish places where hypothetical searches of different people are "almost" equally likely to yield contraband from places where the hit rates are very different. For the purposes of this report, "equal" hit rates across groups are exactly identical.

These maps suggest that hit rates for Black people tend to be lower than the hit rates of White people in northern L.A. (an area which extends further west than the northern low-income area identified in figure 1 of this report). This is true for stops beginning as calls for service, traffic stops, and officer-initiated street stops. There is also some evidence of hit rates for Latinx people being lower in these places, although the clustering of low hit rates for Latinx people in the northern part of the city is less evident than it is for Black people.

Central Los Angeles is an area where searches of Latinx people are consistently less likely to reveal contraband than searches of White people.

Recall that the multivariate analysis suggested that previous contact with the justice system; particularly differences in parole and probation supervision, searches pursuant to arrest, and vehicle inventories, were the cause of approximately half of the disparities in Black-White searches and hit rates. These maps suggest that there may be a geographic component to this as well.

FIGURE 82. White-Black Hit Rate: Non-Traffic Stops, Non-Service Calls

Black Rate < White Rate
Black Rate = White Rate
Black Rate > White Rate
No data
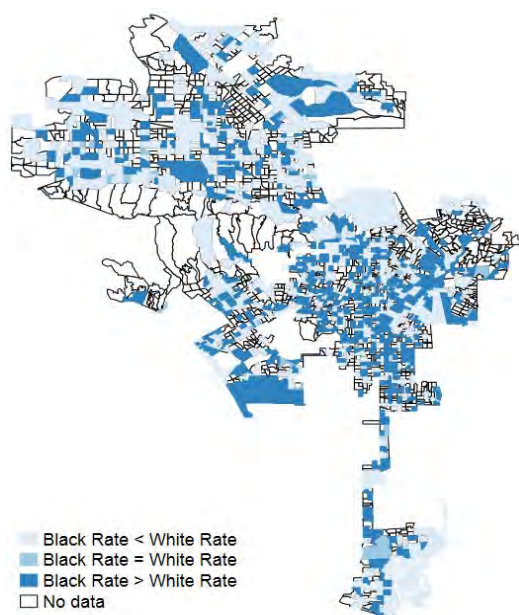
FIGURE 83. White-Latinx Hit Rate: Non-Traffic Stops, Non-Service Calls

Latinx Rate < White Rate
Latinx Rate = White Rate
Latinx Rate > White Rate
No data
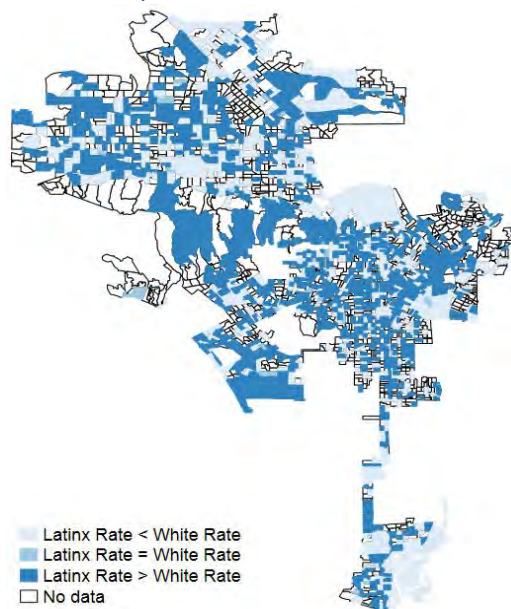
FIGURE 84. White-Black Hit Rate: Traffic Stops

Black Rate < White Rate
Black Rate = White Rate
Black Rate > White Rate
No data
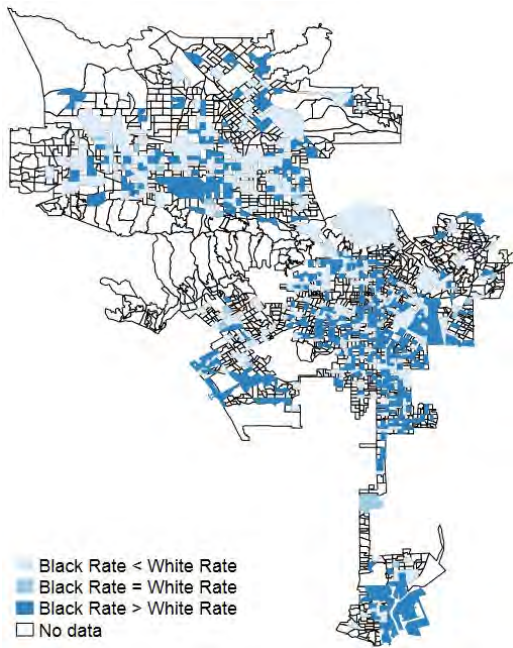
FIGURE 85. White-Latinx Hit Rate: Traffic Stops

Latinx Rate < White Rate
Latinx Rate = White Rate
Latinx Rate > White Rate
No data
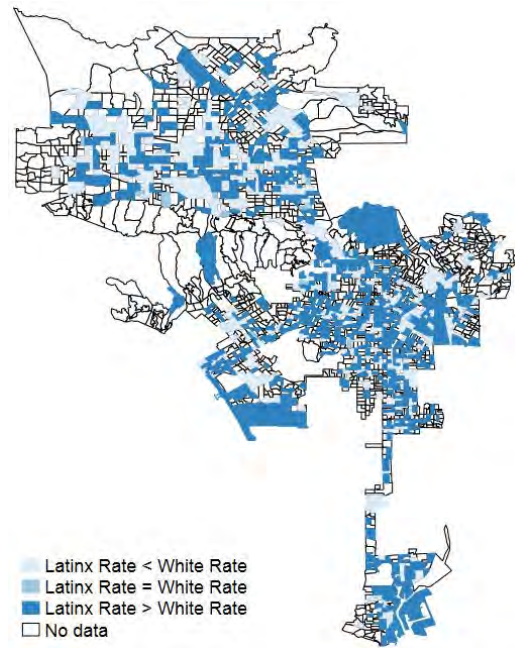
FIGURE 86. White-Black Hit Rate: Service Calls

Black Rate < White Rate
Black Rate = White Rate
Black Rate > White Rate
No data

FIGURE 87. White-Latinx Hit Rate: Service Calls

Latinx Rate < White Rate
Latinx Rate = White Rate
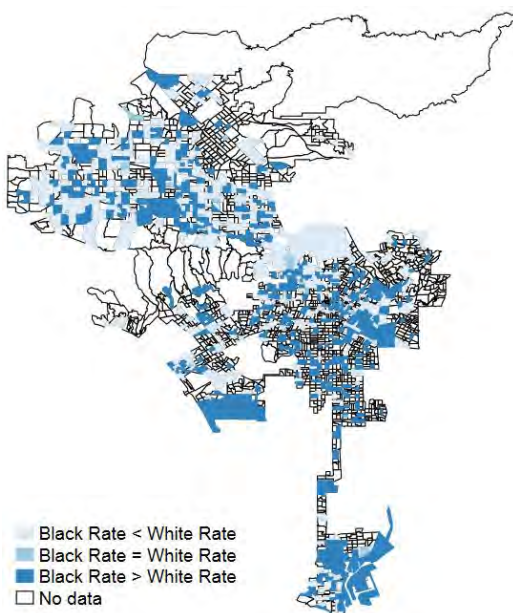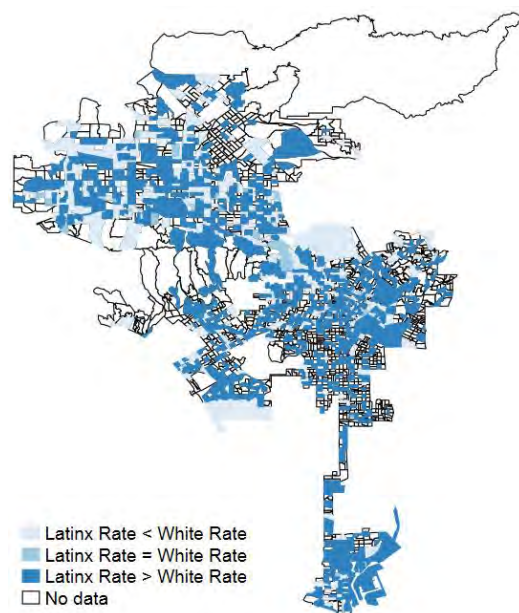Latinx Rate > White Rate
No data

TEAMS DATA AND RIPA STOPS AT THE STATION LEVEL

The following graphs present stop outcomes by officer conduct. For each officer who made a stop, conduct is measured as the cumulative number of times that officer has been flagged by the LAPD TEAMS algorithm, divided by the years of experience of that officer (experience is top coded at 10, which is the number of years for which we have TEAMS data). The following graphs plot the stop, search and hit rates for all people stopped within a station by officer conduct reports (i.e. TEAMS quartile). Each dot represents the rate, by race/ethnicity, in each of the 21 LAPD stations.

Overall, we find that, for most stations, the officers who have more TEAMS incidents also tend to stop, and search, more Black people than White people. This is visible in the observation that the position of more stations appears to shift to the right in higher TEAMS quartiles, indicating an increasingly higher rate of Black involvement relative to White involvement in RIPA stops. This degree of rightward movement is less evident when comparing Latinx and White stops. We conclude that while TEAMS appears to be effective at identifying officers who exhibit a relatively higher propensity to engage with Black citizens than White citizens, TEAMS appears to be less correlated with any disparate outcomes for Latinx citizens.

The TEAMS system does not track, to our knowledge, the identity of the person coming into contact with LAPD officers. In addition, RIPA is not intended to be used as a department-level oversight tool. It appears that officers who stop or search civilians from different groups at different rates, regardless of the reasons for this disparity, are more likely to be already identified by the LAPD's existing oversight infrastructure.

FIGURE 88. White-Black Stops Per Population by TEAMS Quartile
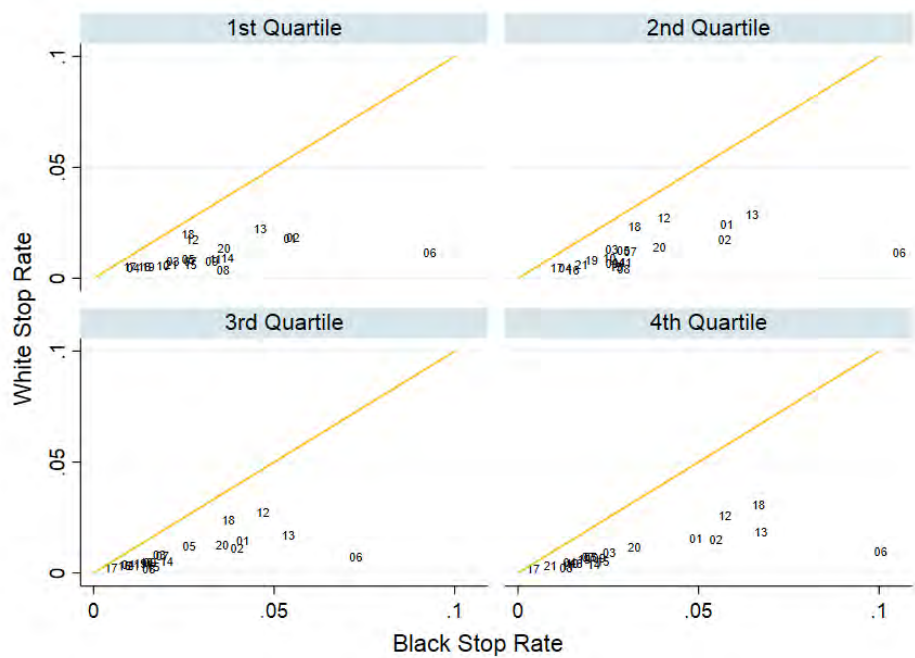
FIGURE 89. White-Latinx Stops Per Population by TEAMS Quartile
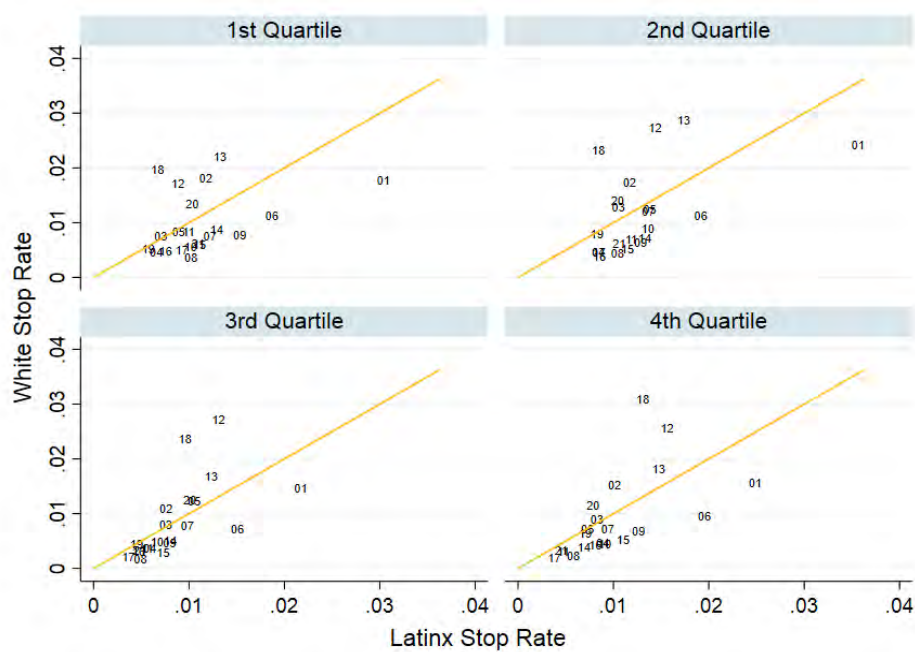
FIGURE 90. White-Black Stops Per Suspect by TEAMS Quartile
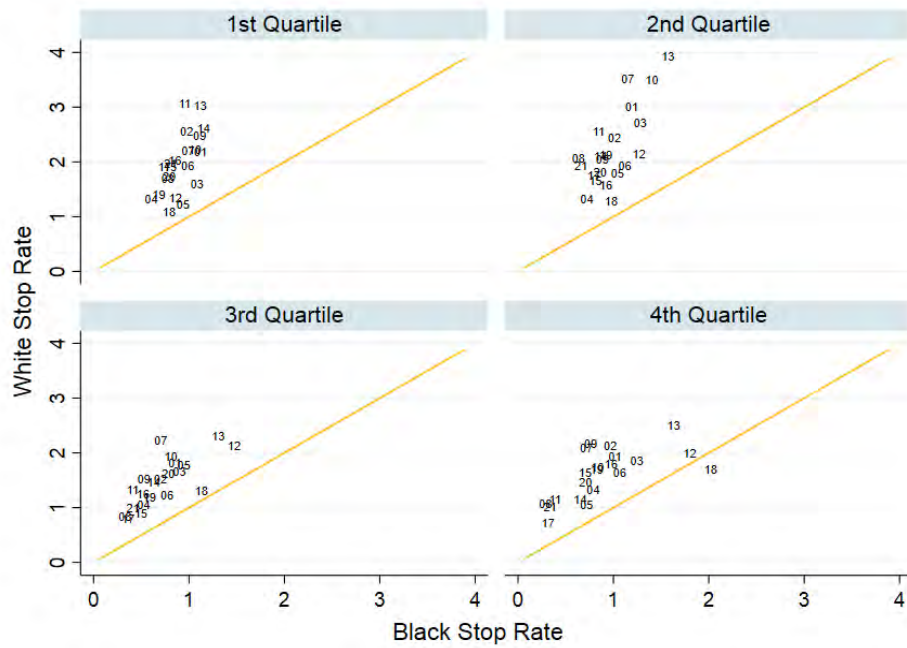
FIGURE 91. White-Latinx Stops Per Suspect by TEAMS Quartile
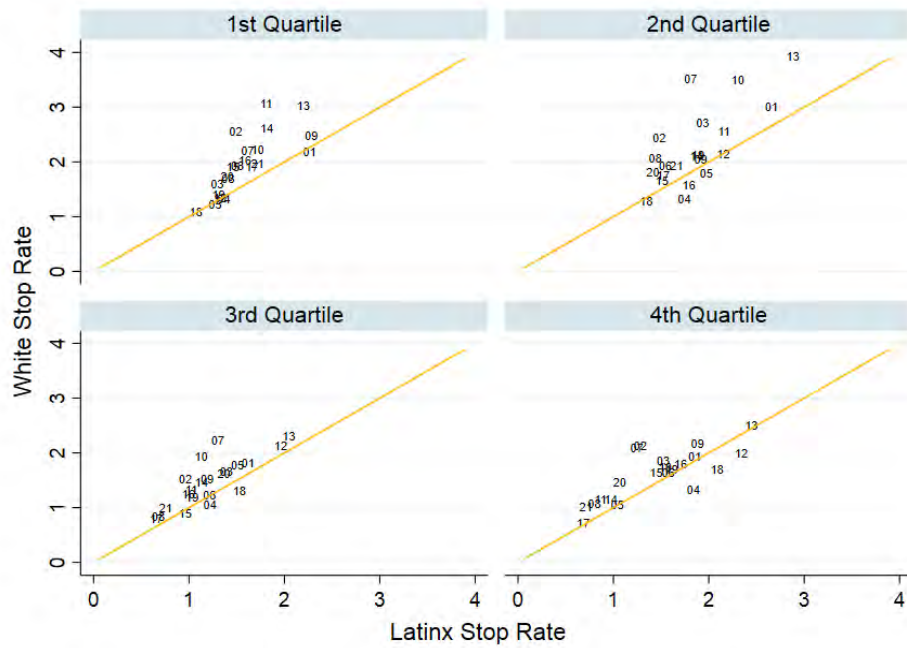
FIGURE 92. White-Black Stops Per Victim by TEAMS Quartile
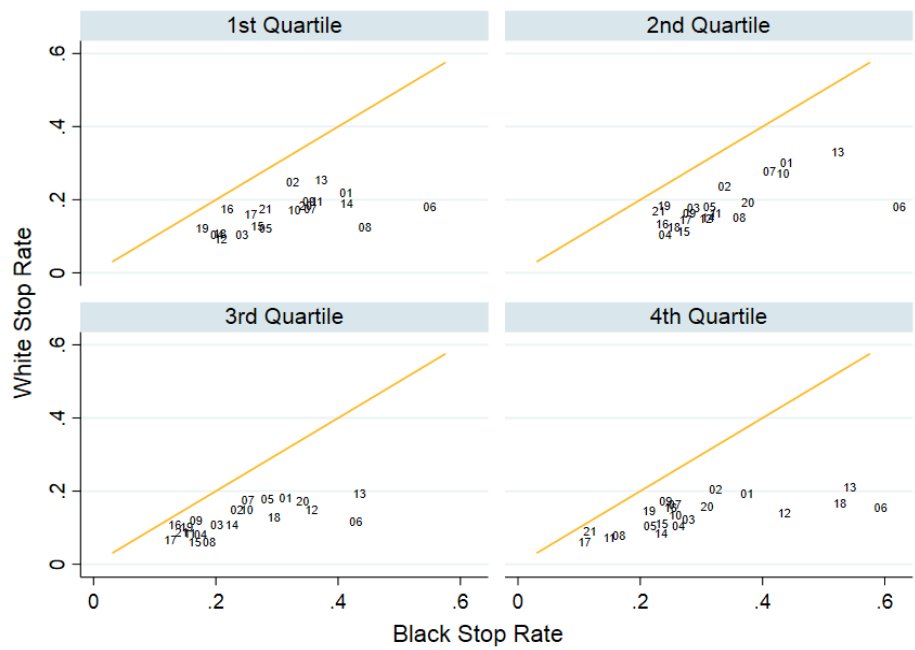
FIGURE 93. White-Latinx Stops Per Victim by TEAMS Quartile
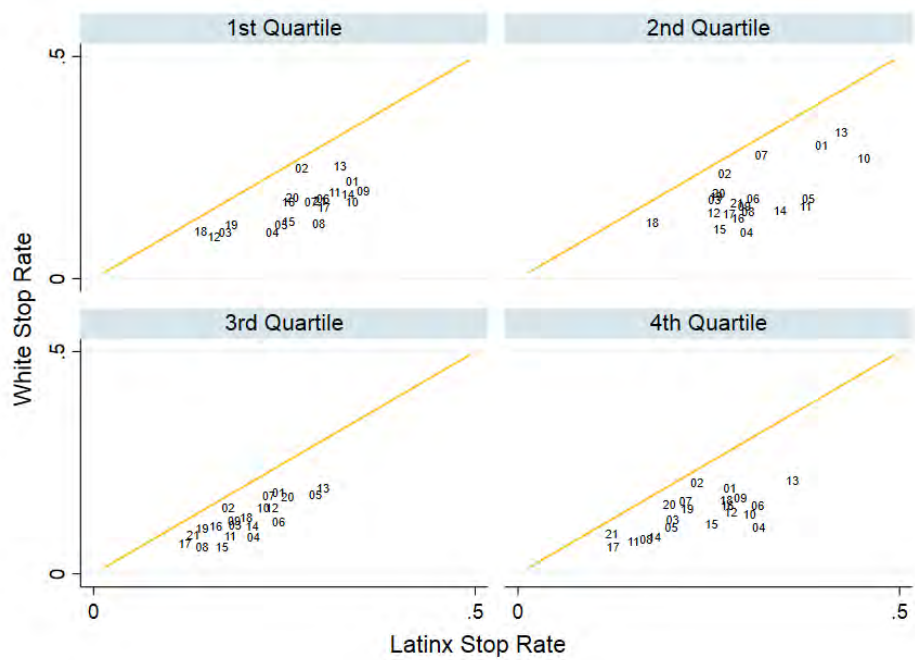
FIGURE 94. White-Black Stops Per Violent Victimization by TEAMS Quartile
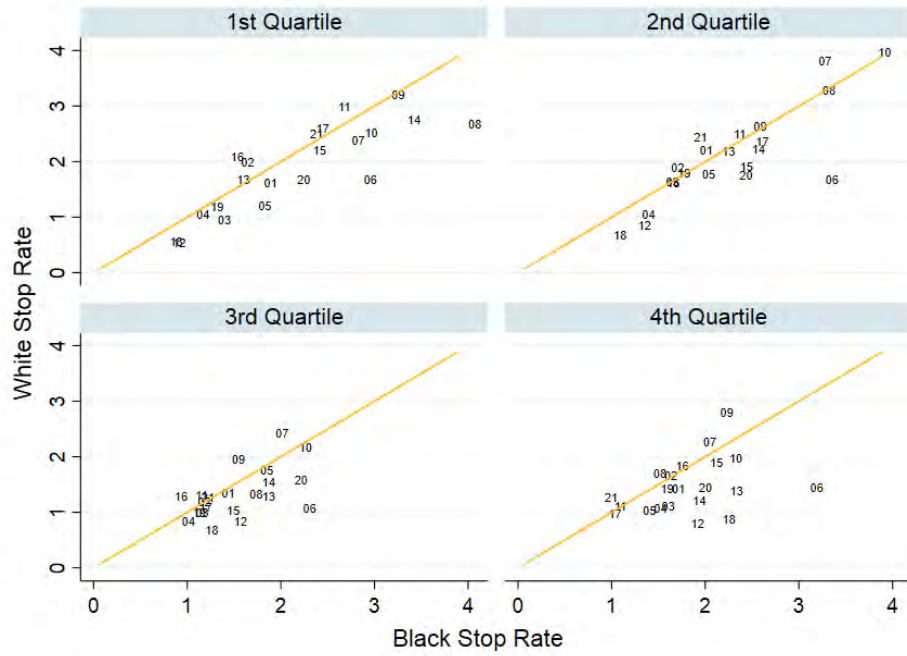
FIGURE 95. White-Latinx Stops Per Violent Victimization by TEAMS Quartile
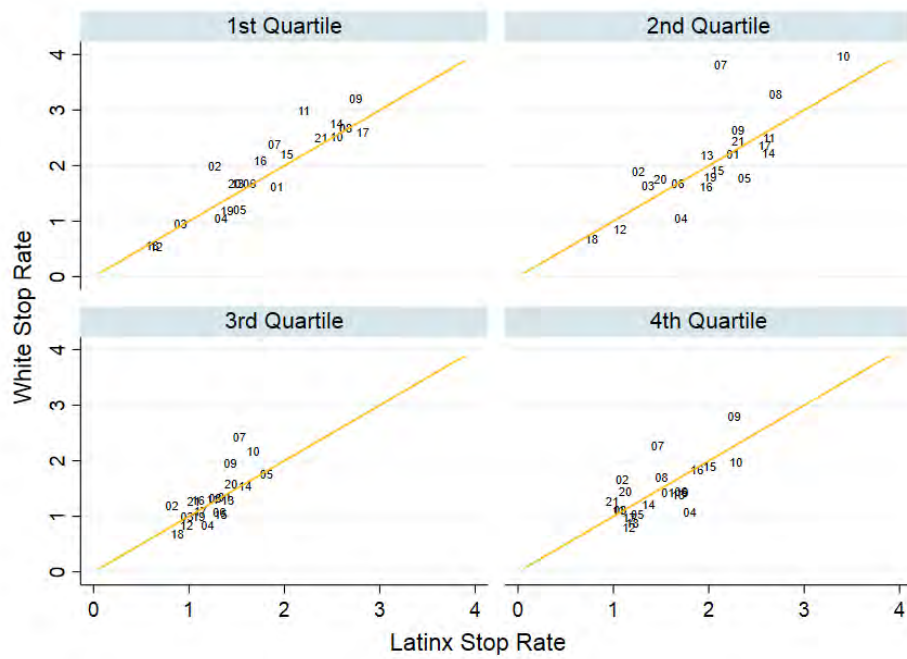
FIGURE 96. White-Black Searches Per Stop by TEAMS Quartile
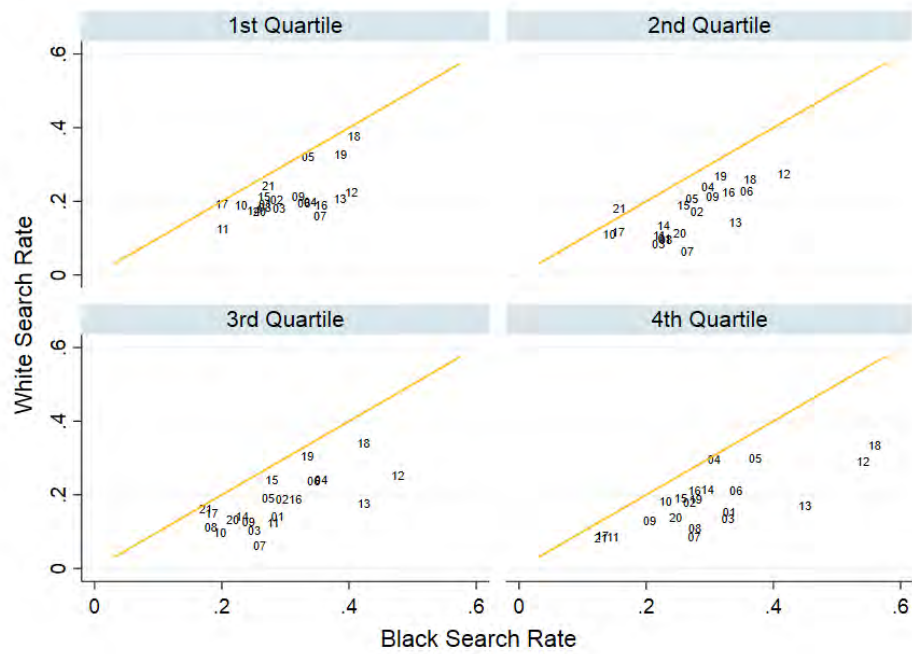
FIGURE 97. White-Latinx Searches Per Stop by TEAMS Quartile
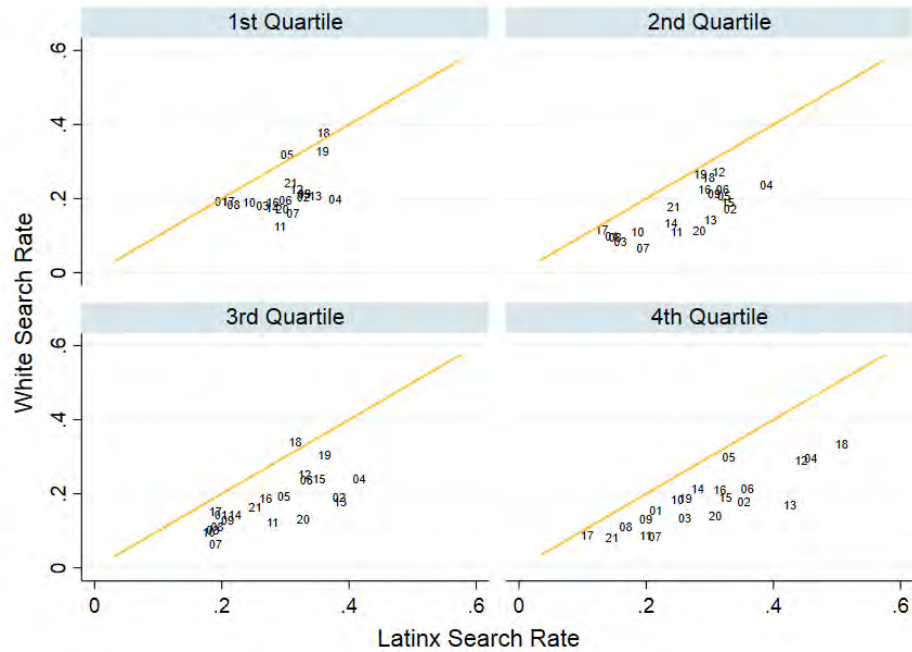
FIGURE 98. White-Black Searches Per Suspect by TEAMS Quartile
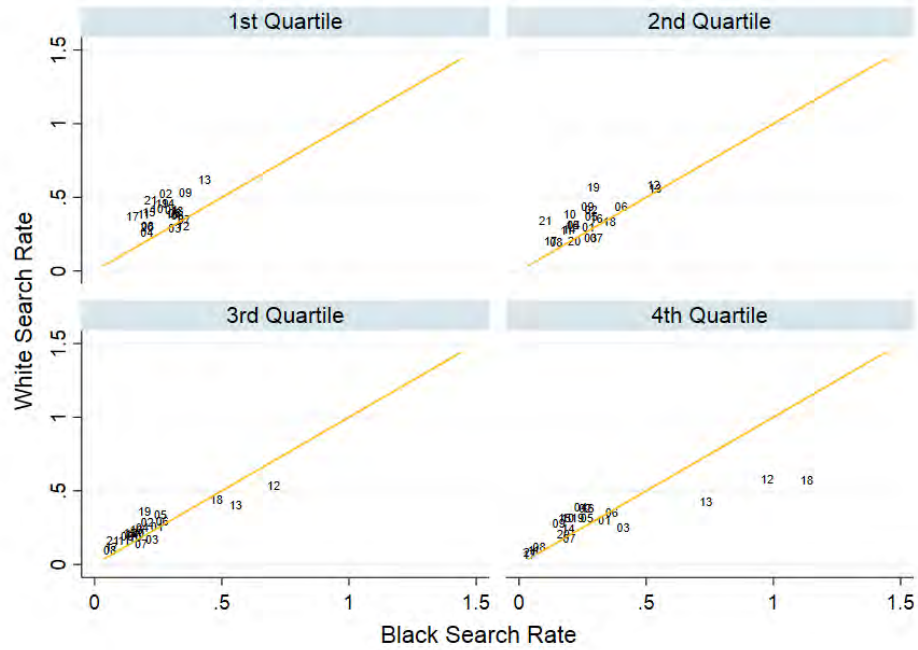
FIGURE 99. White-Latinx Searches Per Suspect by TEAMS Quartile
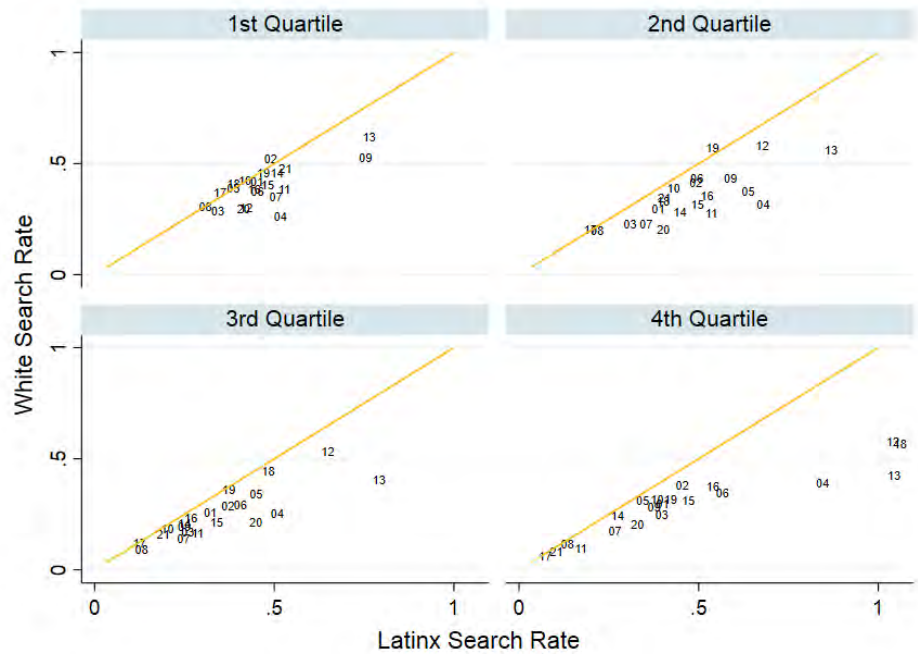
FIGURE 100. White-Black Searches Per Victim by TEAMS Quartile
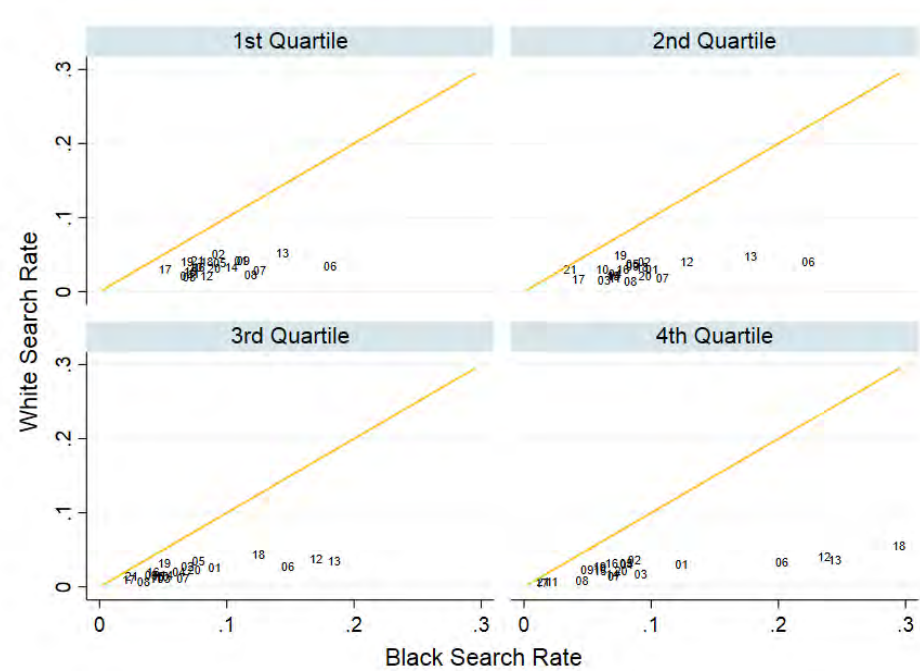
FIGURE 101. White-Latinx Searches Per Victim by TEAMS Quartile
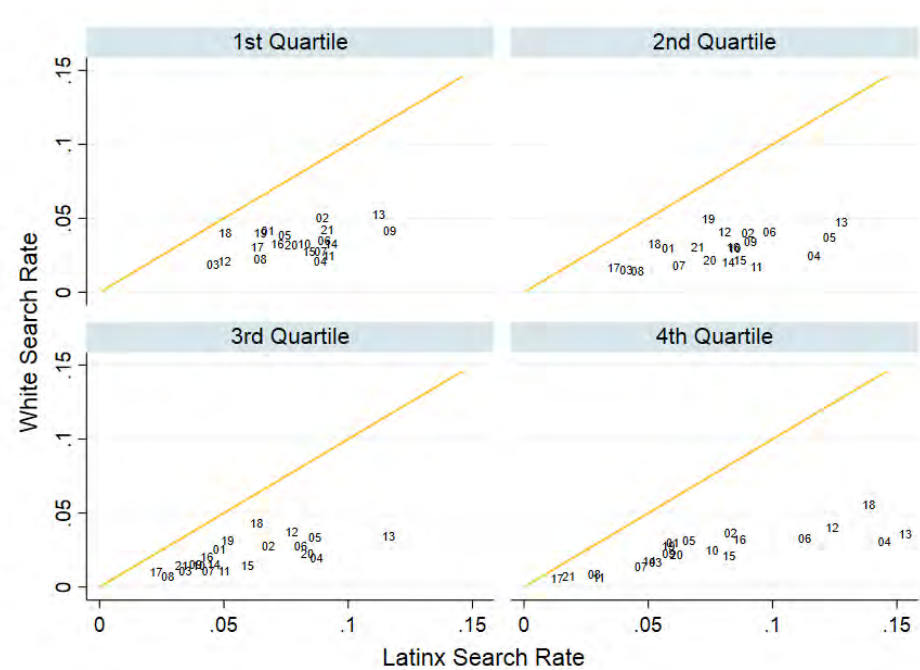
FIGURE 102. White-Black Searches Per Violent Victim by TEAMS Quartile
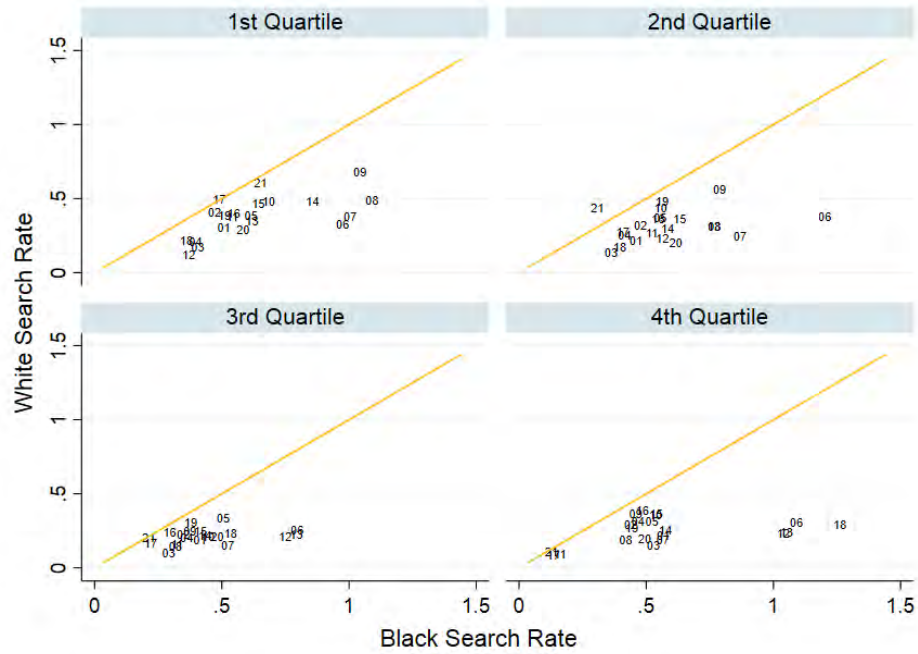
FIGURE 103. White-Latinx Searches Per Violent Victim by TEAMS Quartile
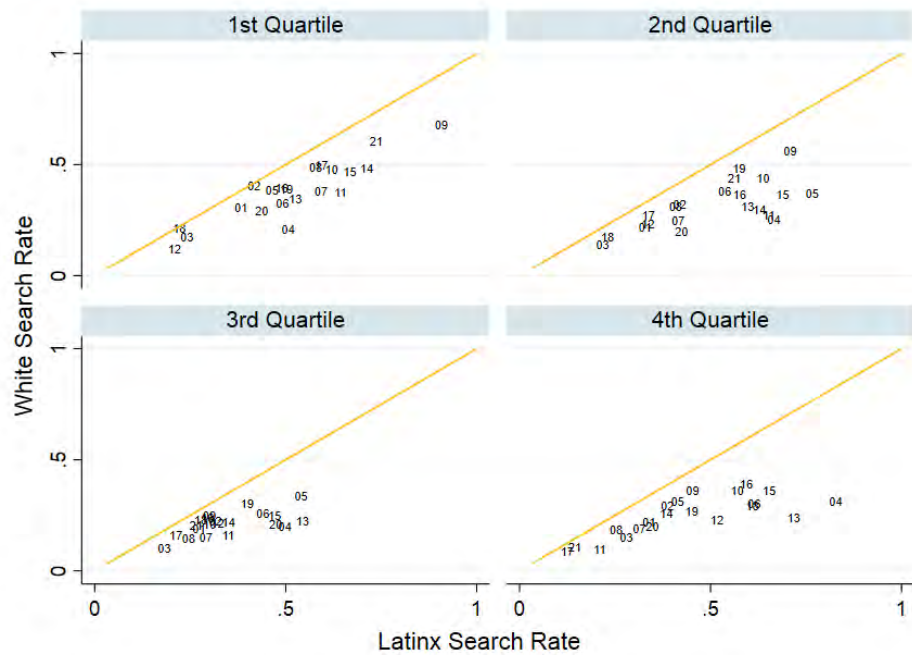
FIGURE 104. White-Black Hit Rate by TEAMS Quartile
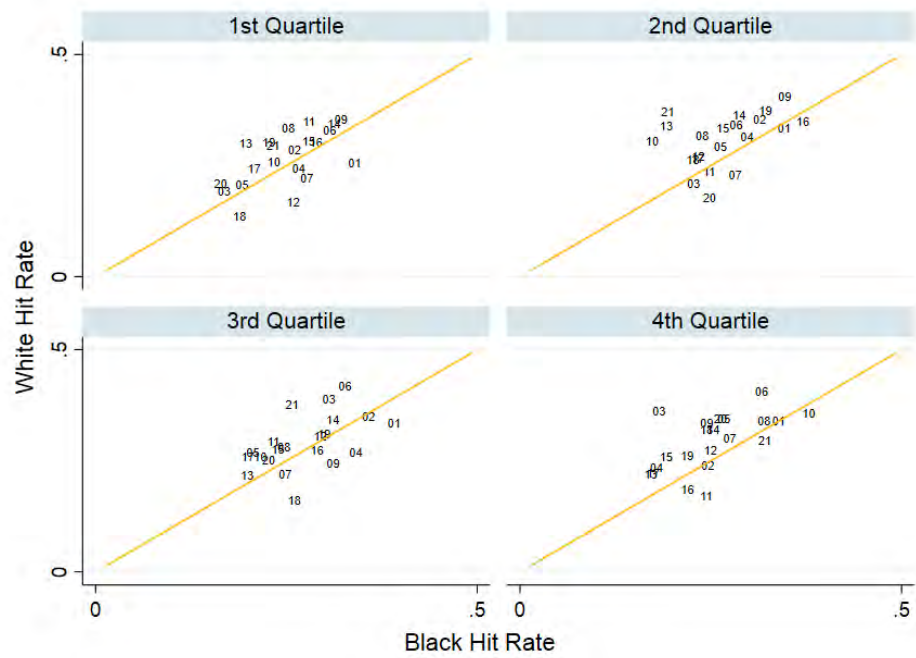
FIGURE 105. White-Latinx Hit Rate by TEAMS Quartile
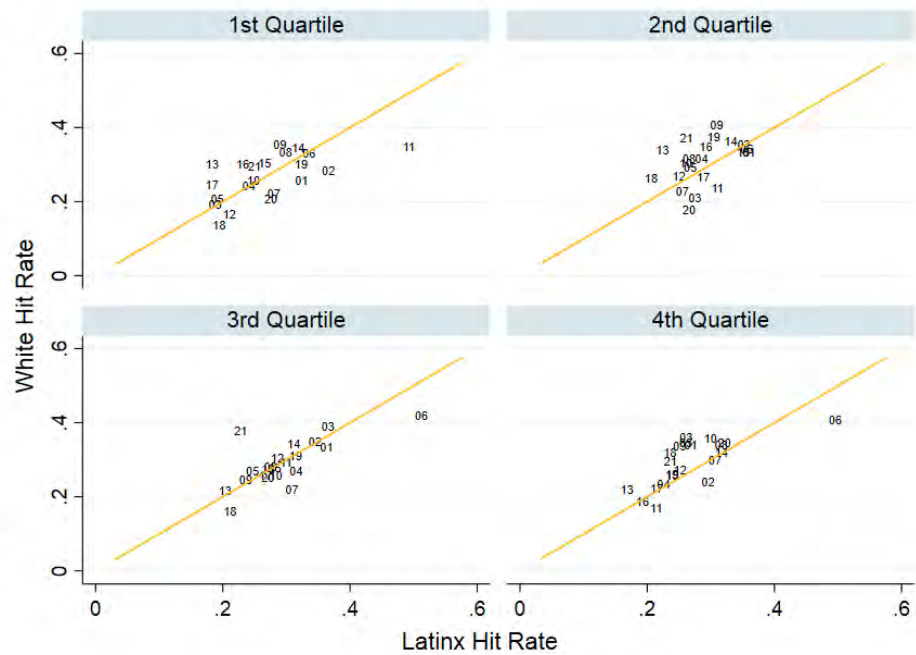
FIGURE 106. White-Black Use of Force Rate by TEAMS Quartile
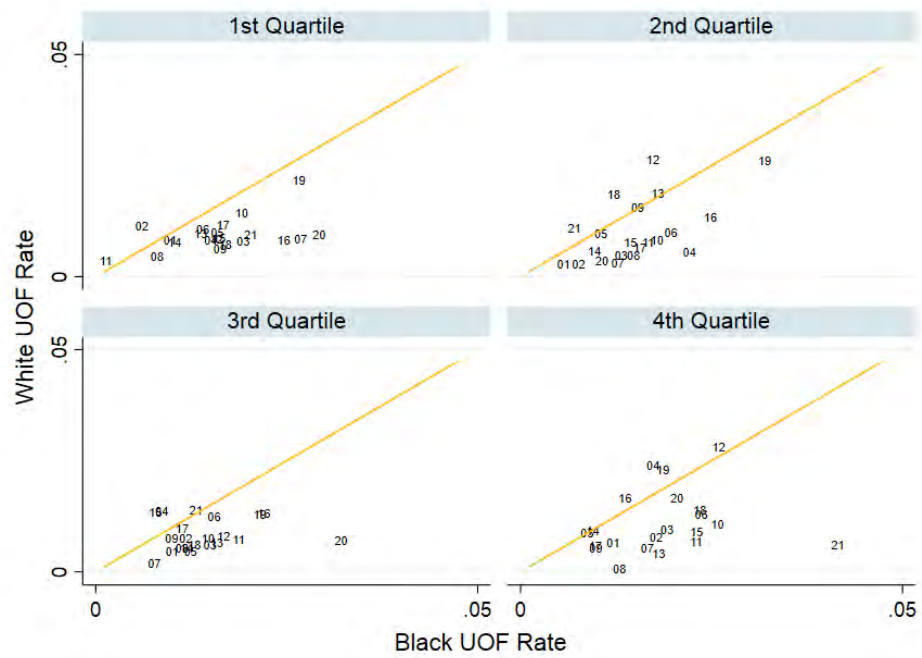
FIGURE 107. White-Latinx Use of Force Rate by TEAMS Quartile
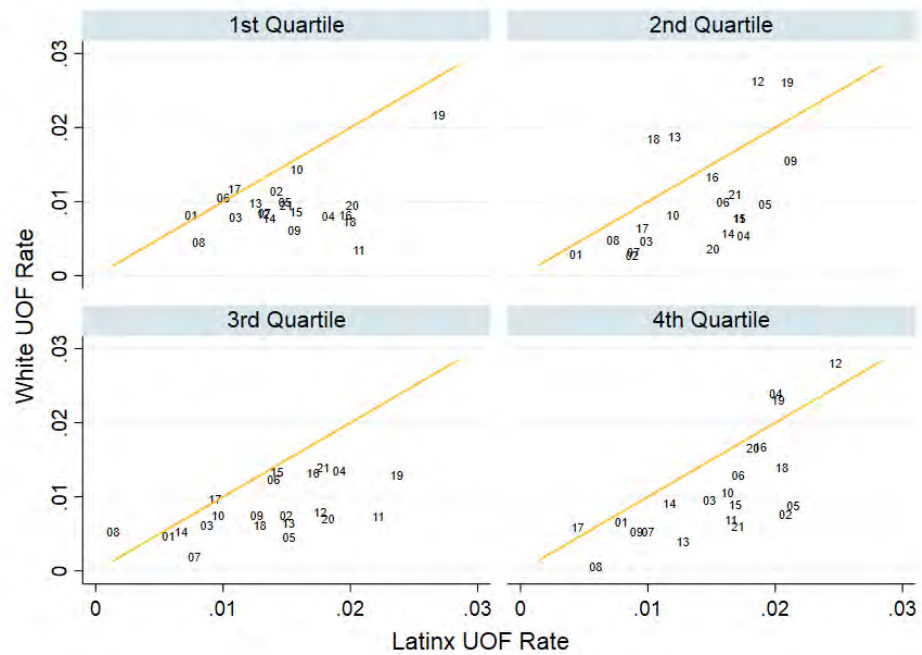
Appendix A: Detailed Tables

Table A1. Stop Rates by Station, Race/Ethnicity & Benchmark

Station	Per Population			Per 100 Violent Victims		
	White	**Black**	**Latinx**	**White**	**Black**	**Latinx**
1	7.20%	20.30%	11.30%	6.60%	7.10%	7.10%
2	6.10%	20.80%	4.10%	6.70%	6.20%	4.50%
3	3.70%	9.20%	3.40%	4.70%	5.80%	4.30%
4	1.80%	4.80%	3.00%	4.00%	5.10%	6.10%
5	4.00%	10.20%	4.10%	5.80%	7.10%	7.00%
6	3.90%	37.20%	7.30%	5.90%	11.80%	6.40%
7	3.40%	9.70%	4.50%	10.90%	10.20%	7.00%
8	1.20%	9.40%	3.10%	9.00%	10.70%	8.10%
9	2.50%	9.70%	4.90%	10.60%	9.60%	8.80%
10	2.40%	7.40%	4.00%	10.60%	11.50%	9.90%
11	2.20%	9.20%	3.20%	7.90%	7.30%	7.10%
12	9.70%	17.20%	5.20%	3.00%	5.80%	3.90%
13	8.60%	23.20%	5.80%	6.50%	8.10%	6.60%
14	2.40%	10.60%	4.10%	7.70%	9.80%	8.10%
15	1.90%	9.40%	4.10%	7.00%	8.50%	7.50%
16	1.60%	5.40%	2.90%	6.80%	5.90%	6.70%
17	1.30%	3.00%	2.50%	7.00%	7.30%	7.70%
18	9.70%	16.30%	3.80%	2.80%	5.50%	3.50%
19	2.40%	6.70%	2.60%	5.40%	5.80%	6.20%
20	5.10%	14.40%	3.90%	6.40%	8.90%	5.60%
21	1.90%	5.90%	3.10%	7.50%	6.60%	6.70%

Table A1. Stop Rates by Station, Race/Ethnicity & Benchmark *continued*

Station	Per 100 Suspects			Per Suspect (Matched Description)		
	White	Black	Latinx	White	Black	Latinx
1	8.90%	4.20%	8.40%	28.10%	23.40%	26.10%
2	8.60%	3.70%	5.20%	57.90%	31.40%	40.50%
3	7.80%	4.50%	6.20%	25.20%	23.70%	27.90%
4	5.00%	2.70%	6.20%	39.10%	24.50%	36.10%
5	5.80%	3.70%	5.80%	41.60%	33.20%	35.50%
6	6.70%	4.00%	5.90%	46.70%	31.80%	34.10%
7	10.00%	3.60%	6.00%	40.20%	27.30%	32.30%
8	5.60%	2.00%	4.30%	30.00%	22.40%	24.20%
9	8.20%	3.30%	7.30%	54.60%	29.50%	46.00%
10	9.40%	4.10%	6.70%	51.50%	31.90%	37.10%
11	8.10%	2.60%	5.90%	36.00%	26.10%	36.70%
12	7.60%	5.40%	7.80%	40.20%	24.60%	38.00%
13	11.70%	5.60%	9.60%	39.50%	23.10%	33.60%
14	7.30%	3.30%	5.80%	55.50%	30.70%	37.30%
15	6.10%	2.80%	5.40%	45.10%	28.80%	40.70%
16	6.60%	3.30%	6.10%	42.00%	25.90%	30.60%
17	5.20%	2.20%	4.50%	45.50%	21.90%	30.80%
18	5.40%	4.90%	6.00%	38.60%	25.60%	35.30%
19	6.40%	3.00%	5.90%	56.10%	37.20%	44.20%
20	6.60%	3.20%	5.30%	36.20%	20.80%	33.40%
21	5.90%	2.20%	4.90%	65.20%	31.50%	51.50%

Table A2. Search Rates by Station, Race/Ethnicity & Benchmark

	Per Population			Per 100 Violent Victims			Per 100 Suspects		
Station	White	Black	Latinx	White	Black	Latinx	White	Black	Latinx
1	14.20%	27.70%	18.60%	0.90%	2.00%	1.30%	1.30%	1.20%	1.60%
2	18.50%	28.20%	34.60%	1.20%	1.70%	1.50%	1.60%	1.00%	1.80%
3	11.90%	27.30%	21.30%	0.60%	1.60%	0.90%	0.90%	1.20%	1.30%
4	24.30%	32.20%	41.30%	1.00%	1.60%	2.50%	1.20%	0.90%	2.60%
5	24.20%	30.90%	31.30%	1.40%	2.20%	2.20%	1.40%	1.10%	1.80%
6	21.60%	34.40%	32.90%	1.30%	4.10%	2.10%	1.40%	1.40%	1.90%
7	8.90%	29.10%	23.00%	1.00%	3.00%	1.60%	0.90%	1.00%	1.40%
8	12.60%	24.40%	18.30%	1.10%	2.60%	1.50%	0.70%	0.50%	0.80%
9	17.50%	27.70%	27.10%	1.80%	2.70%	2.40%	1.40%	0.90%	2.00%
10	14.00%	19.40%	21.50%	1.50%	2.20%	2.10%	1.30%	0.80%	1.40%
11	11.40%	21.20%	26.00%	0.90%	1.60%	1.90%	0.90%	0.60%	1.50%
12	26.20%	47.30%	35.80%	0.80%	2.70%	1.40%	2.00%	2.60%	2.80%
13	17.20%	40.10%	36.20%	1.10%	3.20%	2.40%	2.00%	2.30%	3.50%
14	16.20%	25.00%	25.50%	1.20%	2.50%	2.10%	1.20%	0.80%	1.50%
15	20.40%	26.40%	33.30%	1.40%	2.20%	2.50%	1.20%	0.70%	1.80%
16	20.30%	31.90%	29.20%	1.40%	1.90%	2.00%	1.30%	1.00%	1.80%
17	14.50%	17.20%	16.50%	1.00%	1.30%	1.30%	0.70%	0.40%	0.80%
18	32.60%	46.50%	38.60%	0.90%	2.60%	1.30%	1.70%	2.30%	2.30%
19	26.60%	32.60%	30.90%	1.40%	1.90%	1.90%	1.70%	1.00%	1.80%
20	13.90%	24.50%	30.40%	0.90%	2.20%	1.70%	0.90%	0.80%	1.60%
21	18.10%	19.90%	25.40%	1.30%	1.30%	1.70%	1.10%	0.40%	1.20%

Table A3. Hit Rates by Station & Race/Ethnicity

Station	White	Black	Latinx
1	31.00%	35.20%	32.70%
2	30.30%	29.10%	34.10%
3	27.60%	21.20%	26.70%
4	26.40%	26.60%	26.30%
5	27.40%	23.10%	24.60%
6	36.90%	30.70%	42.50%
7	23.80%	27.40%	28.50%
8	32.20%	25.90%	28.90%
9	35.10%	31.50%	28.20%
10	29.50%	25.00%	27.10%
11	28.60%	25.60%	36.10%
12	26.40%	26.00%	25.40%
13	27.70%	18.80%	19.40%
14	34.30%	29.30%	32.10%
15	29.50%	24.70%	28.60%
16	27.60%	29.50%	24.40%
17	24.90%	21.10%	22.90%
18	22.50%	23.80%	21.90%
19	32.00%	26.80%	29.70%
20	24.10%	22.50%	28.20%
21	33.20%	23.70%	25.00%

Table A4. Force Rates by Station & Race/Ethnicity

Station	White	Black	Latinx
1	0.50%	0.90%	0.60%
2	0.70%	1.10%	1.40%
3	0.70%	1.70%	1.10%
4	1.30%	1.60%	1.90%
5	0.80%	1.20%	1.80%
6	1.10%	1.90%	1.40%
7	0.40%	1.60%	1.00%
8	0.40%	1.10%	0.60%
9	0.80%	1.40%	1.50%
10	1.00%	1.90%	1.40%
11	0.60%	1.20%	1.90%
12	1.80%	2.00%	1.90%
13	1.10%	1.70%	1.30%
14	0.70%	1.00%	1.30%
15	0.90%	1.60%	1.60%
16	1.30%	2.10%	1.80%
17	0.90%	1.40%	0.90%
18	1.20%	1.80%	1.60%
19	2.20%	2.50%	2.30%
20	0.90%	2.30%	1.80%
21	1.00%	1.80%	1.60%

TABLE A5. Predicted Mean Outcomes at Census Tract Level

	Total Disparity	Adjusted for Violent Crime and Victimization		
		All	Discretionary	Non-Discretionary
Stops Per Residents of Same Race or Ethnicity				
Black	2.2	2.1		
(Margin of Error)	(0.8)	(1.1)		
Latinx	1.0	1.2		
(Margin of Error)	(0.9)	(1.0)		
White	1.9	1.8		
(Margin of Error)	(1.2)	(1.5)		
Percent Stopped that are Searched				
Black	29.5%	31.2%	13.9%	15.4%
(Margin of Error)	(0.9)	(1.0)	(0.7)	(0.7)
Latinx	30.0%	27.6%	12.2%	13.3%
(Margin of Error)	(0.9)	(1.1)	(0.6)	(0.7)
White	22.8%	23.6%	10.5%	11.4%
(Margin of Error)	(0.9)	(1.1)	(0.7)	(0.6)
Percent Searched that Reveal Contraband				
Black	23.5%	24.0%	17.0%	20.6%
(Margin of Error)	(1.1)	(1.3)	(1.4)	(1.5)
Latinx	26.4%	25.7%	17.9%	21.6%
(Margin of Error)	(0.8)	(1.3)	(1.4)	(1.5)
White	26.3%	26.5%	18.3%	23.4%
(Margin of Error)	(1.1)	(1.3)	(1.5)	(1.6)
Percent of Stops where Force is Used				
Black	1.8%	1.8%		
(Margin of Error)	(0.2)	(0.2)		
Latinx	1.8%	1.8%		
(Margin of Error)	(0.2)	(0.2)		
White	1.4%	1.4%		
(Margin of Error)	(0.2)	(0.2)		

Note: Predicted values are obtained by running a linear probability model and then using these estimates to calculate the mean predictions for all observations, holding all else constant. For example: the average predicted number of Black people stopped per 100 Black residents is calculated by treating all stops as if the race or ethnicity of the stopped individual was Black, obtaining a prediction for each Census tract, and then taking the average of all predictions. The margin of error is calculated at the 95% confidence level.

TABLE A6. Predicted Mean Outcomes at LAPD Station Level

	Total Disparity	Adjusted for Violent Crime and Victimization		
		All	Discretionary	Non-Discretionary
Stops Per 100 Residents of Same Race/Ethnicity				
Black	12.4	12.4		
(Margin of Error)	(3.5)	(2.9)		
Latinx	4.3	4.4		
(Margin of Error)	(0.8)	(1.7)		
White	4.0	3.9		
(Margin of Error)	(1.2)	(1.4)		
Percent Stopped that are Searched				
Black	29.2%	30.8%	13.8%	14.9%
(Margin of Error)	(3.5)	(3.1)	(2.4)	(1.4)
Latinx	28.5%	25.5%	11.1%	11.7%
(Margin of Error)	(3.0)	(3.3)	(2.2)	(1.3)
White	18.3%	19.6%	8.5%	9.4%
(Margin of Error)	(2.6)	(3.3)	(2.3)	(1.4)
Percent Searched that Reveal Contraband				
Black	26.1%	26.2%	18.1%	21.7%
(Margin of Error)	(1.7)	(2.6)	(2.0)	(2.3)
Latinx	28.2%	28.1%	19.5%	20.8%
(Margin of Error)	(2.3)	(3.1)	(2.2)	(2.2)
White	29.1%	29.2%	18.9%	24.1%
(Margin of Error)	(1.7)	(2.4)	(2.0)	(2.9)
Percent of Stops Where Force is Used				
Black	1.6%	1.6%		
(Margin of Error)	(0.2)	(0.3)		
Latinx	1.5%	1.4%		
(Margin of Error)	(0.2)	(0.3)		
White	1.0%	1.0%		
(Margin of Error)	(0.2)	(0.3)		

	Adjusted for Violent Crime & Victimization & Suspects		
	All	**Discretionary**	**Non-Discretionary**
Stops Per 100 Residents of Same Race or Ethnicity			
Black	7.5		
(Margin of Error)	(3.9)		
Latinx	7.0		
(Margin of Error)	(3.3)		
White	6.1		
(Margin of Error)	(3.1)		
Percent Stopped that are Searched			
Black	30.1%	13.7%	14.5%
(Margin of Error)	(4.1)	(2.8)	(2.2)
Latinx	26.0%	11.2%	12.0%
(Margin of Error)	(3.8)	(2.5)	(1.6)
White	20.0%	8.6%	9.6%
(Margin of Error)	(3.5)	(2.4)	(1.6)
Percent Searched that Reveal Contraband			
Black	25.9%	17.0%	22.3%
(Margin of Error)	(3.6)	(2.7)	(3.5)
Latinx	28.2%	20.1%	20.5%
(Margin of Error)	(3.7)	(2.8)	(2.9)
White	29.3%	19.4%	23.8%
(Margin of Error)	(3.0)	(2.4)	(3.5)
Percent of Stops Where Force is Used			
Black	1.6%		
(Margin of Error)	(0.4)		
Latinx	1.4%		
(Margin of Error)	(0.3)		
White	1.0%		
(Margin of Error)	(0.3)		

Note: Predicted values are obtained by running a linear probability model and then using these estimates to calculate the mean predictions for all observations, holding all else constant. For example: the average predicted number of Black people stopped per 100 Black residents is calculated by treating all stops as if the race or ethnicity of the stopped individual was Black, obtaining a prediction for each station, and then taking the average of all predictions. The margin of error is calculated at the 95% confidence level.

References

Freeman, Lance. "Displacement or succession? Residential mobility in gentrifying neighborhoods." *Urban Affairs Review* 40.4 (2005): 463-491.

Goel, Sharad, Justin M. Rao, and Ravi Shroff. "Precinct or prejudice? Understanding racial disparities in New York City's stop-and-frisk policy." The Annals of Applied Statistics 10.1 (2016): 365-394.

Morgan, Rachel E. and Barbara Oudekerk. "Criminal victimization, 2018." Bureau of Justice Statistics. NCJ 253043 (2019).

Steven Manson, Jonathan Schroeder, David Van Riper, and Steven Ruggles. IPUMS National Historical Geographic Information System: Version 14.0 [Database]. Minneapolis, MN: IPUMS. 2019. http://doi.org/10.18128/D050.V14.0

Vernon, Paul, Capt. "Analysis of LAPD arrests by descent: understanding perceptions of disproportionate arrests by race." Los Angeles Police Department (2020).