

# **Analysis of Black-White Differences in Traffic Stops and Searches in Holly Springs, NC, 2002-2013**

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[report prepared by Katherine Elliott]

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	33,467
-2014	1,709
-Passengers	804
-Checkpoint stops	393
Total number of cases deleted	2,832
Stops remaining for analysis	30,635
Searches	1,600
Percent of stops leading to search (search rate)	5.22

Figure 1. Number of Traffic Stops per Year

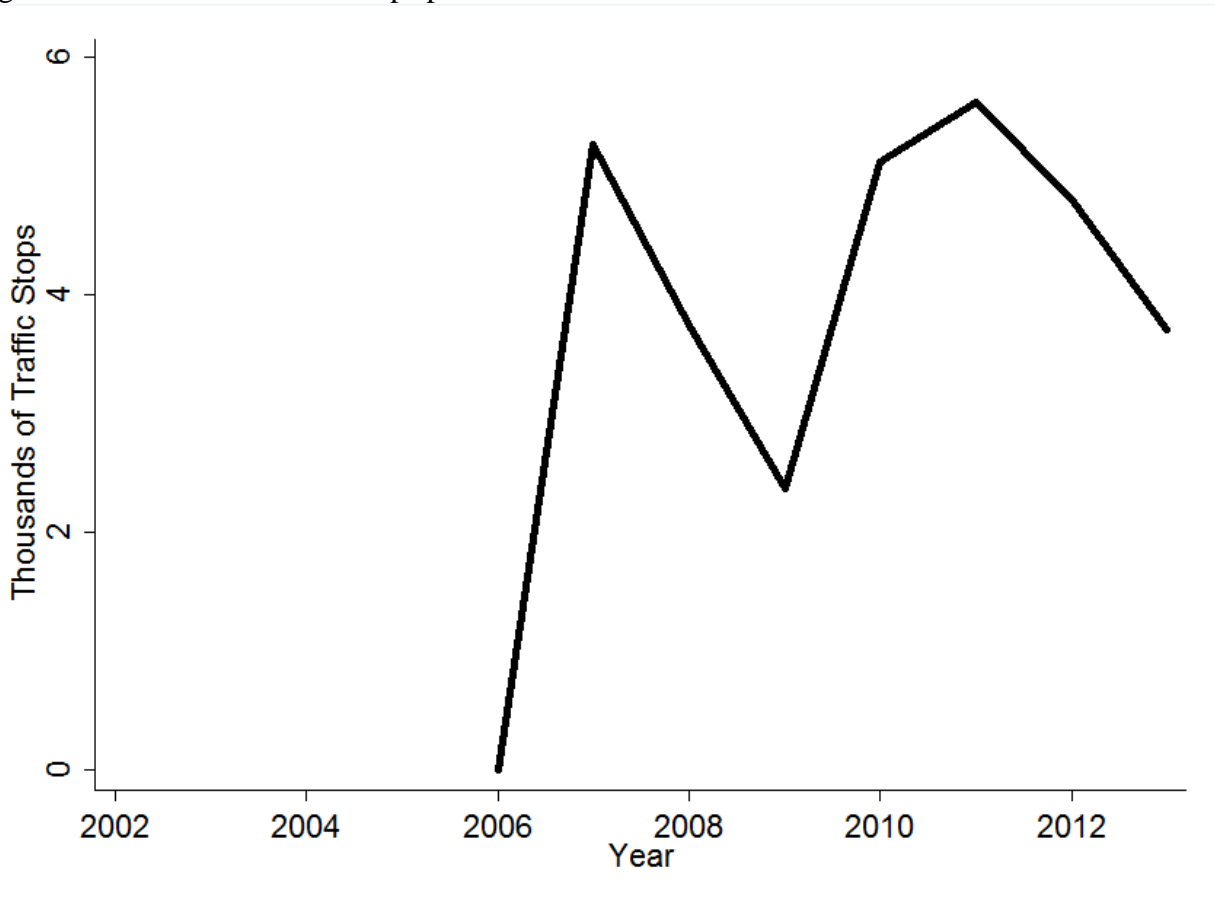


Figure 2. Racial Composition of Traffic Stops by Year

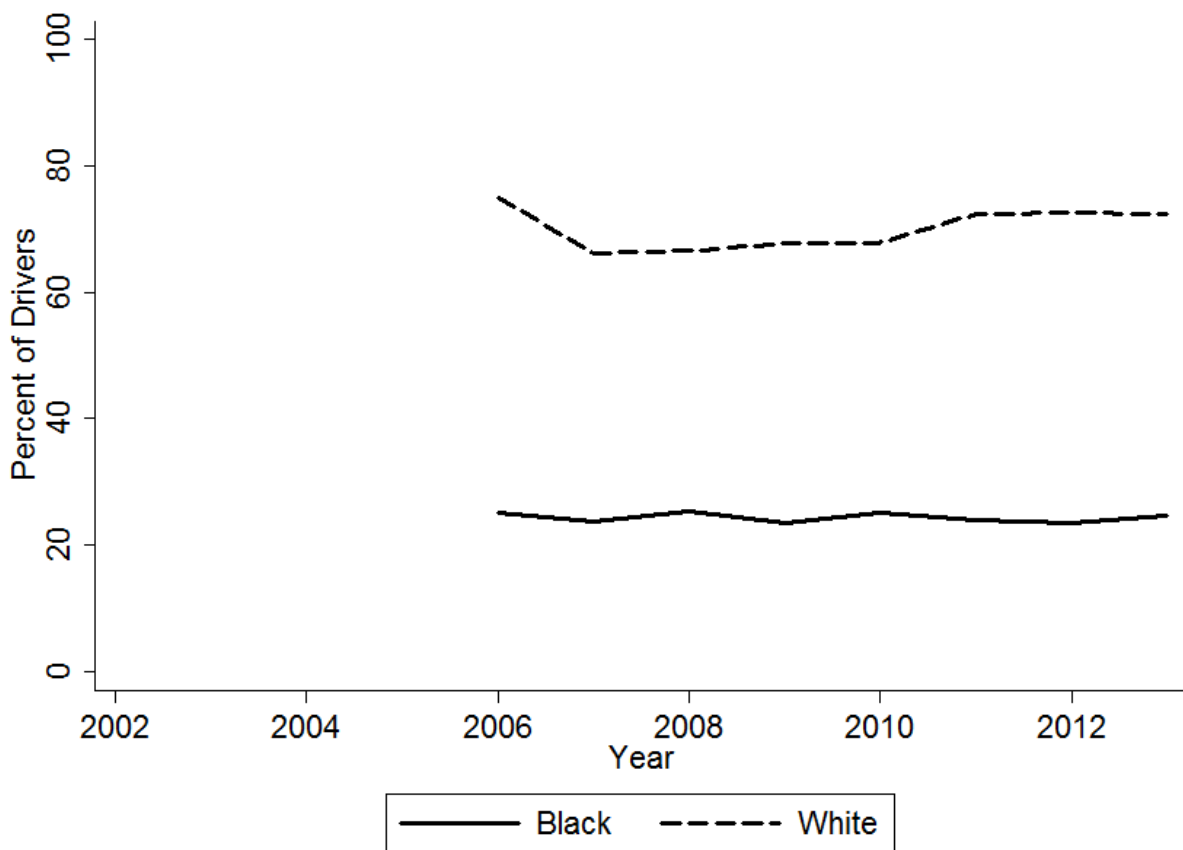


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	30,635	69.55	24.25
Speed Limit	14,233	74.38	19.48
Stop Light/Sign	1,569	75.84	16.89
Driving Impaired	196	68.88	28.06
Safe Movement	1,860	63.06	28.60
Vehicle Equipment	4,058	60.37	33.32
Vehicle Regulatory	5,547	66.52	28.84
Seat Belt	1,308	72.17	21.56
Investigation	965	62.80	30.26
Other Vehicle	899	59.55	31.03

Note: Includes only drivers. Excludes 804 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	30,635	-	69.55	24.25	-
Total Searches	1,600	5.22	4.50	7.42	1.65
Speed Limit	14,233	2.35	1.88	3.89	2.07
Stop Light/Sign	1,569	2.80	2.35	5.28	2.25
Driving Impaired	196	41.84	41.48	40.00	0.96
Safe Movement	1,860	7.90	7.67	8.65	1.13
Vehicle Equipment	4,058	7.07	6.69	7.91	1.18
Vehicle Regulatory	5,547	6.92	5.80	9.75	1.68
Seat Belt	1,308	4.43	4.34	5.67	1.31
Investigation	965	18.96	20.63	17.81	0.86
Other Vehicle	899	8.90	7.89	10.75	1.36

Figure 3. Difference in Likelihood of Being Searched, by Race and Type of Stop

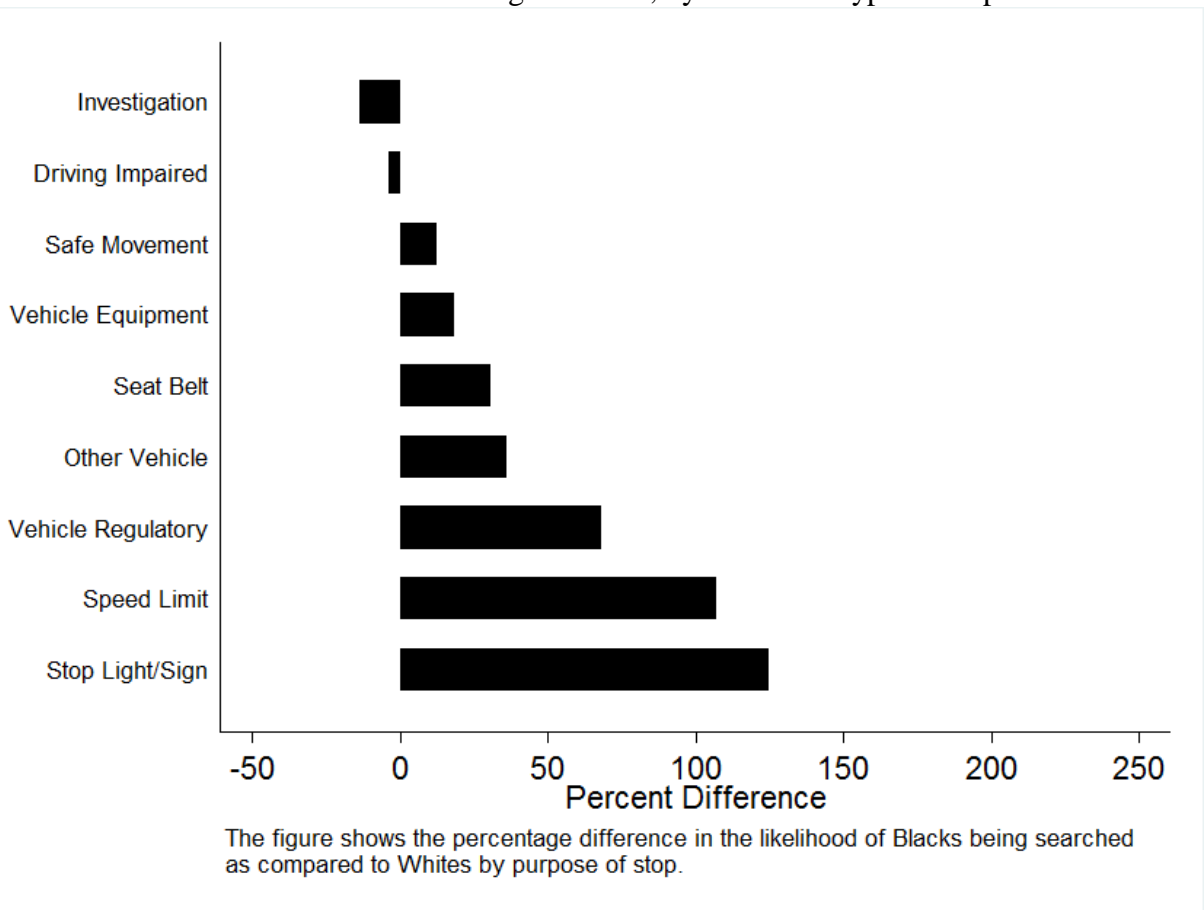
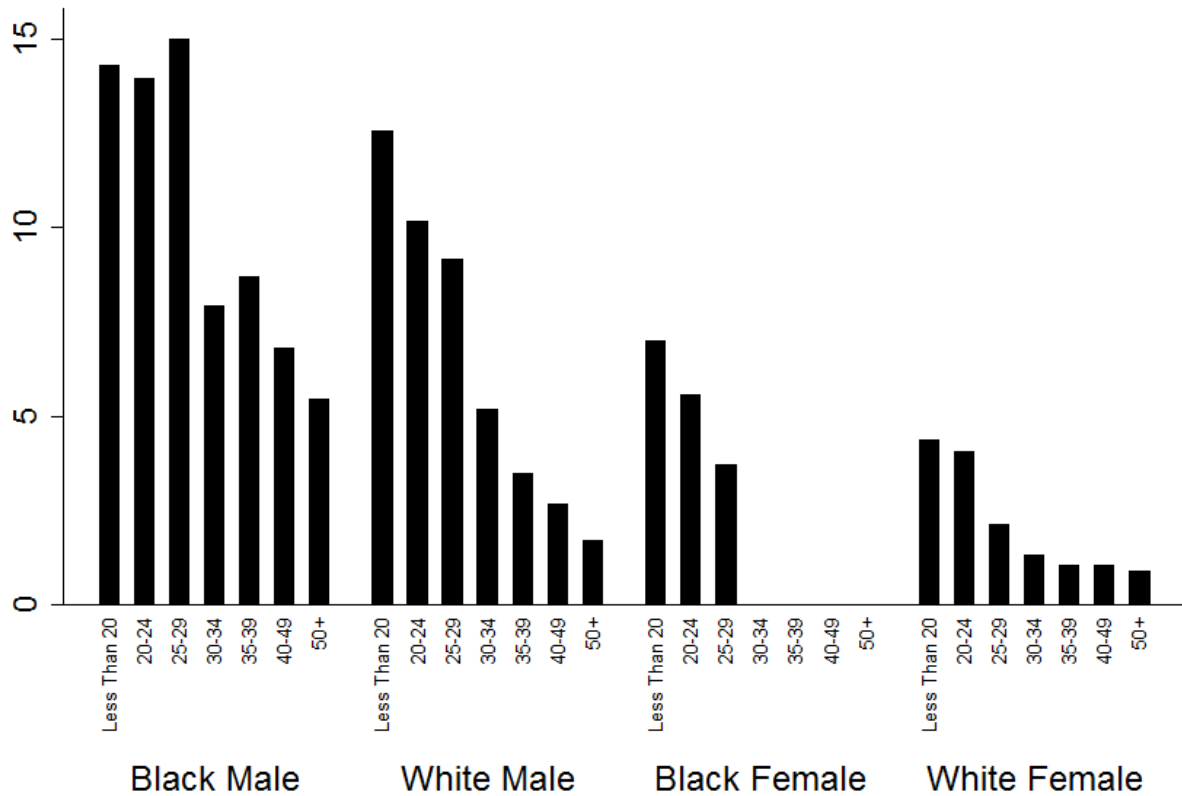
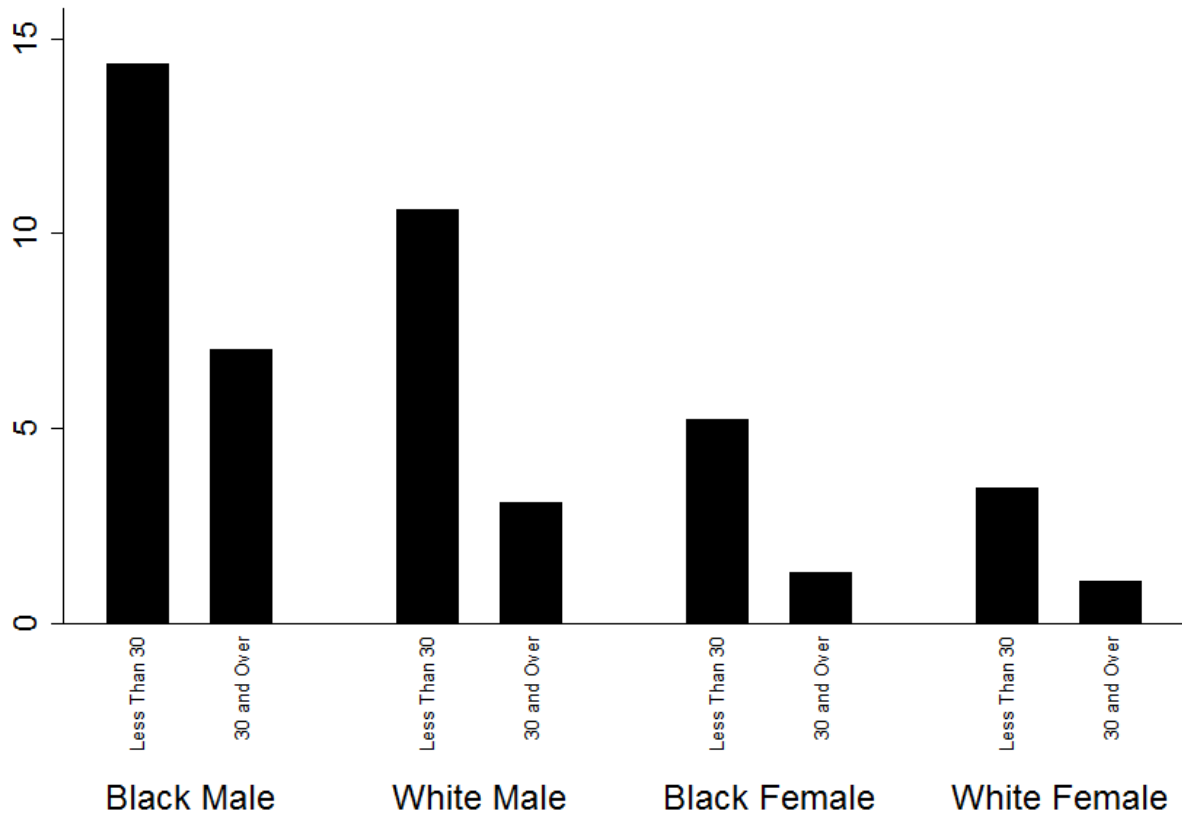


Figure 4a. Percentage Searched by Race, Gender, and Age



Based on 30,635 traffic stops from 2002 through 2013, and 1,600 searches. Overall rate of search: 5.22 percent. No data are presented for categories with fewer than 10 searches.

Figure 4b. Percentage Searched by Race, Gender, and Age



Based on 30,635 traffic stops from 2002 through 2013, and 1,600 searches. Overall rate of search: 5.22 percent.

Figure 5. Racial Differences in the Likelihood of Search



The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites.

Figure 6. Number of Stops, by Race and Gender

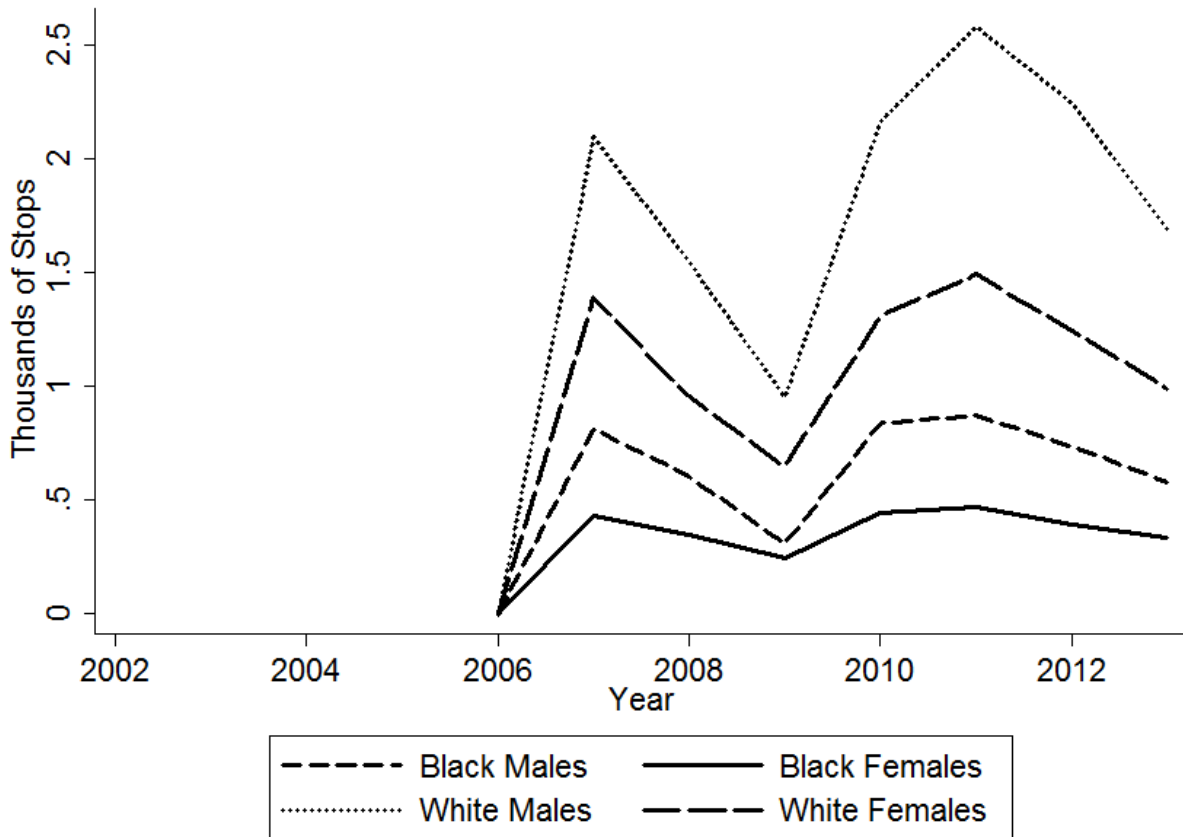
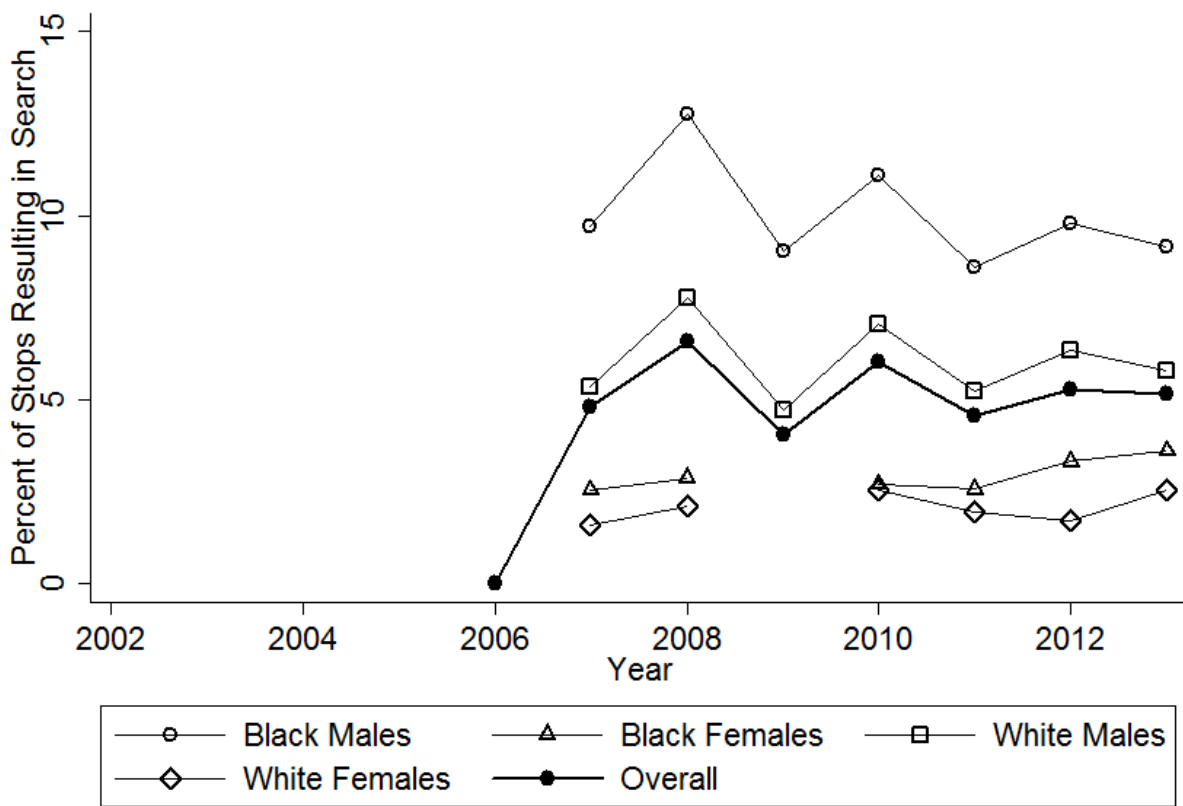




Figure 7. Percent Searched, by Race and Gender



Note: No rate is calculated if based on fewer than 10 searches.

Table 4. Type of Search by Race

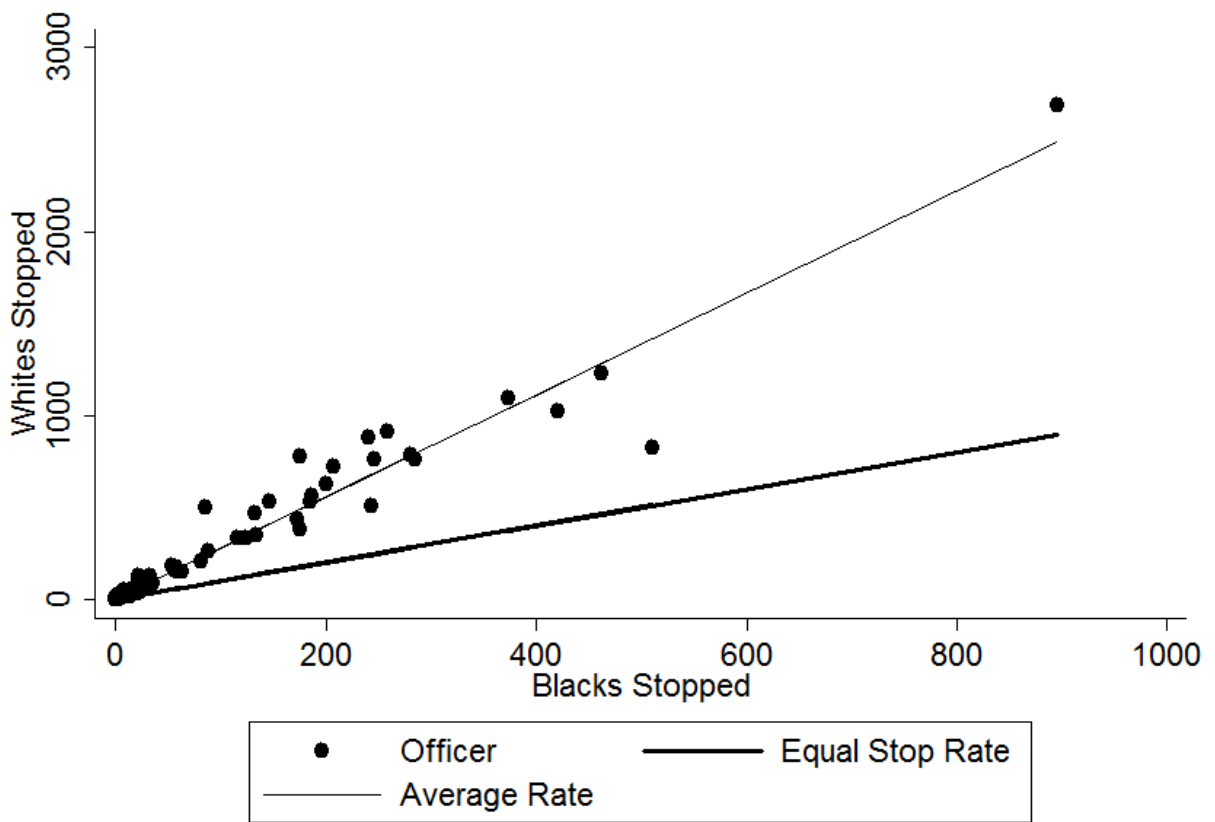
Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	30,635	-	69.55	24.25	-
Total Searches	1,600	5.22	4.50	7.42	1.65
Consent	1,034	3.38	2.99	4.55	1.52
Search Warrant	0	-	-	-	-
Probable Cause	322	1.05	0.84	1.83	2.18
Incident to Arrest	225	0.73	0.61	0.98	1.61
Protective Frisk	19	0.06	0.06	0.05	0.83

Note: See the appendix for this same table separately for Men and Women.

Table 5. Distribution of Officer IDs by Stop

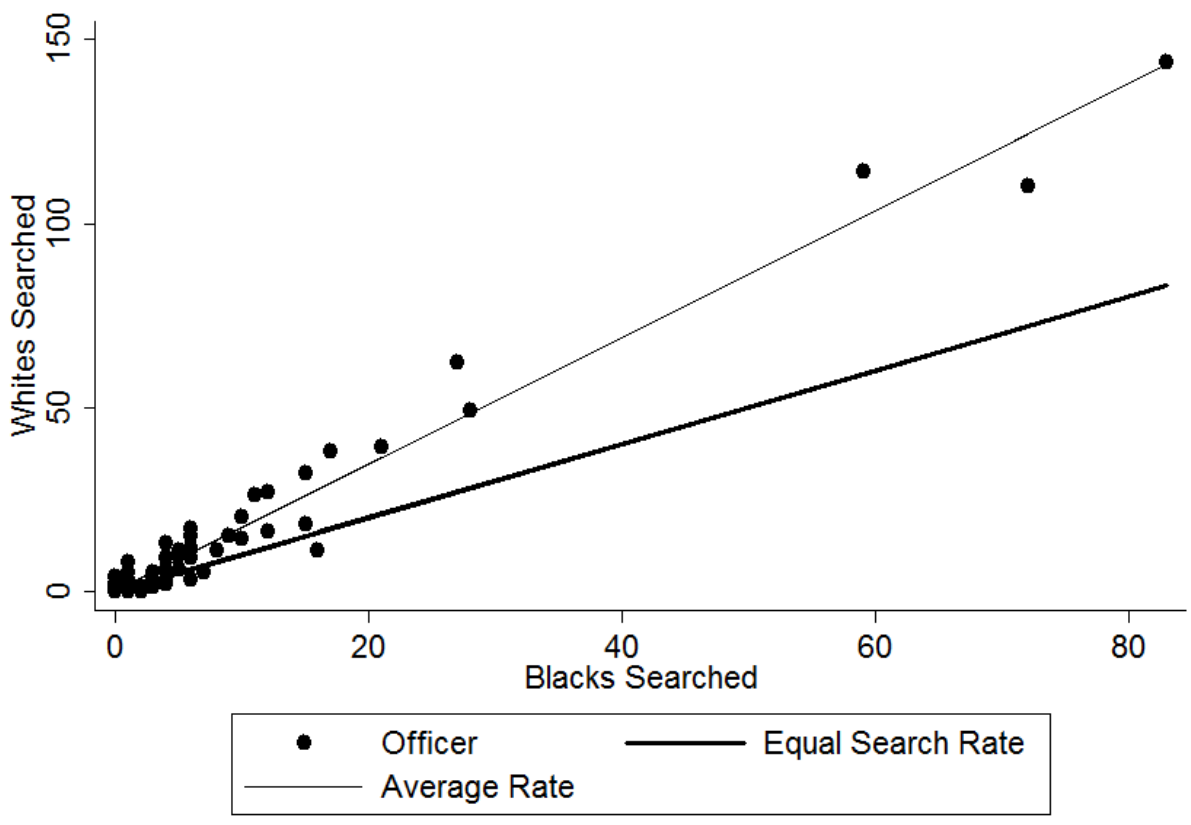
Number of Stops	Officers w/ this many Stops	Percent of Officers	Cumulative Percent	Percent of Stops	Cumulative Percent
1	59	33.15	33.15	0.19	0.19
2 – 10	37	20.79	53.93	0.45	0.64
11 - 100	43	24.16	78.09	4.82	5.46
101 – 1,000	28	15.73	93.82	39.54	45.00
1,001 +	11	6.18	100.00	55.00	100.00
Total	178	100.00	-	100.00	-

Figure 8. Number of Black and White Motorists Stopped, by Officer



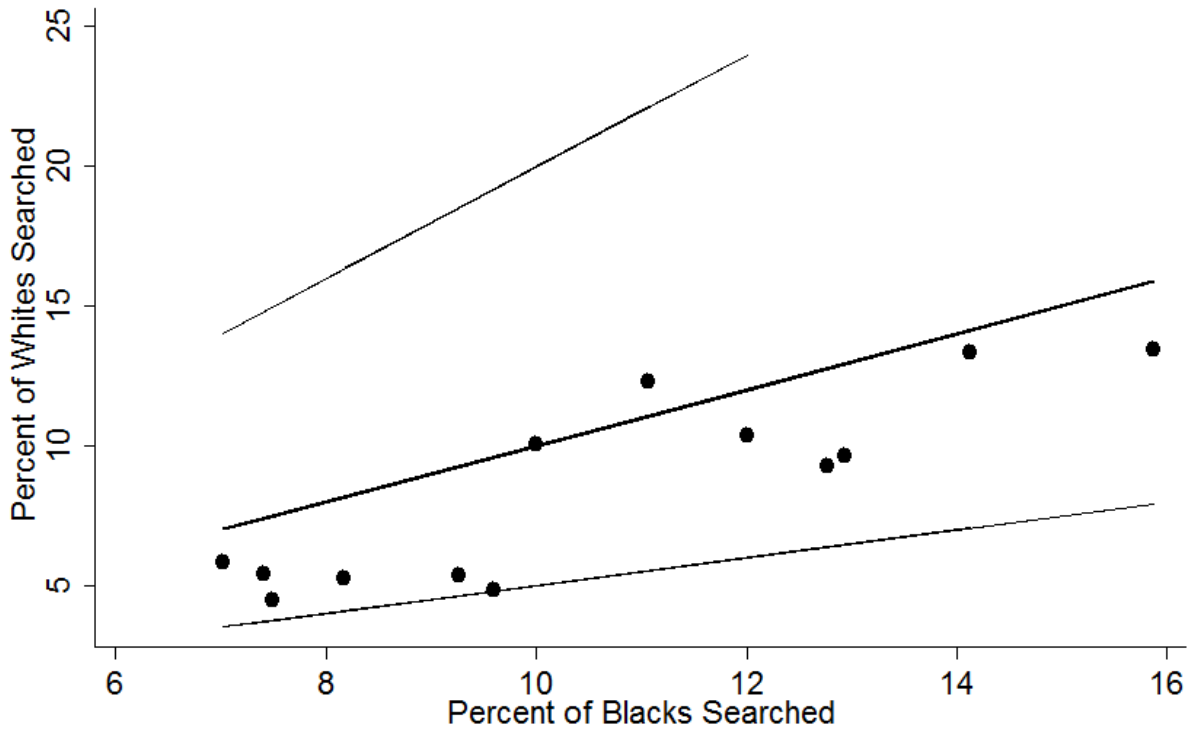
On average, officers stop 2.78 Whites for each Black stopped.

Figure 9. Number of Black and White Motorists Searched, by Officer



On average, officers search 1.73 Whites for each Black searched.

Figure 10. Percent of White and Black Drivers Searched, by Officer



Includes 13 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 5.22. The hollow circles indicate high disparity officers.  
0 officer searches Whites at more than twice the rate that they search Blacks.  
0 officers search Blacks at more than twice the rate that they search Whites.

Table 6. Predicting the Occurrence of a Search, Male Drivers

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Demographics</b>					
Race	1.77*(0.11)	1.79*(0.11)	1.57*(0.10)	1.57*(0.10)	1.56*(0.10)
Hispanic	1.29*(0.15)	1.18(0.14)	0.96(0.12)	0.96(0.12)	1.00(0.12)
Age	-	0.95*(0.00)	0.96*(0.00)	0.95*(0.00)	0.95*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.42(0.25)	1.42(0.25)	1.48*(0.27)
Impaired	-	-	36.37*(7.42)	36.37*(7.42)	32.44*(6.81)
Movement	-	-	3.00*(0.36)	3.00*(0.36)	2.91*(0.35)
Equipment	-	-	2.87*(0.27)	2.87*(0.27)	2.81*(0.27)
Regulatory	-	-	3.06*(0.27)	3.06*(0.27)	2.88*(0.26)
Seat Belt	-	-	1.69*(0.28)	1.69*(0.28)	1.62*(0.27)
Investigation	-	-	7.35*(0.85)	7.35*(0.85)	6.82*(0.80)
Other	-	-	2.99*(0.47)	2.99*(0.47)	2.77*(0.43)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	Omitted	Omitted
White Disparity <sup>†</sup>	-	-	-	Omitted	Omitted
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.06*(0.00)	0.30*(0.03)	0.14*(0.01)	0.14*(0.01)	0.16*(0.03)
<b>N</b>	18,028	18,028	18,028	18,028	17,996
<b>Pseudo R<sup>2</sup></b>	0.01	0.05	0.11	0.11	0.12

Note: Entries are odds-ratios, with standard errors in parenthesis.

Note: The number of observations is smaller for Model 5 because the “hour of stop” variable is missing in some cases.

\*  $p < 0.05$

† See Figure 12 for an explanation of the identification of high disparity officers.

Table 7. Predicting the Occurrence of a Search, Female Drivers

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Demographics</b>					
Race	1.49*(0.22)	1.49*(0.22)	1.33(0.20)	1.33(0.20)	1.29(0.19)
Hispanic	1.52(0.48)	1.46(0.46)	1.02(0.33)	1.02(0.33)	0.99(0.33)
Age	-	0.94*(0.01)	0.95*(0.01)	0.95*(0.01)	0.95*(0.01)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	0.62(0.32)	0.62(0.32)	0.67(0.35)
Impaired	-	-	36.30*(11.23)	36.30*(11.23)	28.53*(9.41)
Movement	-	-	3.18*(0.84)	3.18*(0.84)	2.90*(0.78)
Equipment	-	-	1.53(0.37)	1.53(0.37)	1.39(0.35)
Regulatory	-	-	2.46*(0.48)	2.46*(0.48)	2.29*(0.45)
Seat Belt	-	-	2.72*(1.00)	2.75*(1.00)	2.68*(1.00)
Investigation	-	-	10.00*(2.51)	10.00*(2.51)	7.88*(2.05)
Other	-	-	5.01*(1.54)	5.00*(1.54)	4.58*(1.42)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	Omitted	Omitted
White Disparity <sup>†</sup>	-	-	-	Omitted	Omitted
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.02*(0.00)	0.12*(0.02)	0.06*(0.01)	0.06*(0.01)	0.10*(0.04)
<b>N</b>	10,708	10,708	10,708	10,708	10,625
<b>Pseudo R<sup>2</sup></b>	0.00	0.00	0.12	0.12	0.15

Note: Entries are odds-ratios, with standard errors in parenthesis.

Note: The number of observations is smaller for Model 5 because the “hour of stop” variable is missing in some cases.

\*  $p < 0.05$

† See Figure 12 for an explanation of the identification of high disparity officers.

Appendix

Table A1. Racial Composition of Traffic Stops by Purpose, Passengers

Purpose	Number	Percent	
		White	Black
Total Stops	804	54.73	40.92
Speed Limit	133	55.64	33.83
Stop Light/Sign	23	39.13	56.52
Driving Impaired	19	31.58	68.42
Safe Movement	56	71.43	23.21
Vehicle Equipment	149	55.70	41.61
Vehicle Regulatory	194	52.28	44.85
Seat Belt	25	60.00	36.00
Investigation	127	66.14	30.71
Other Vehicle	52	36.54	57.69

Figure A1. Stops by Day of the Week

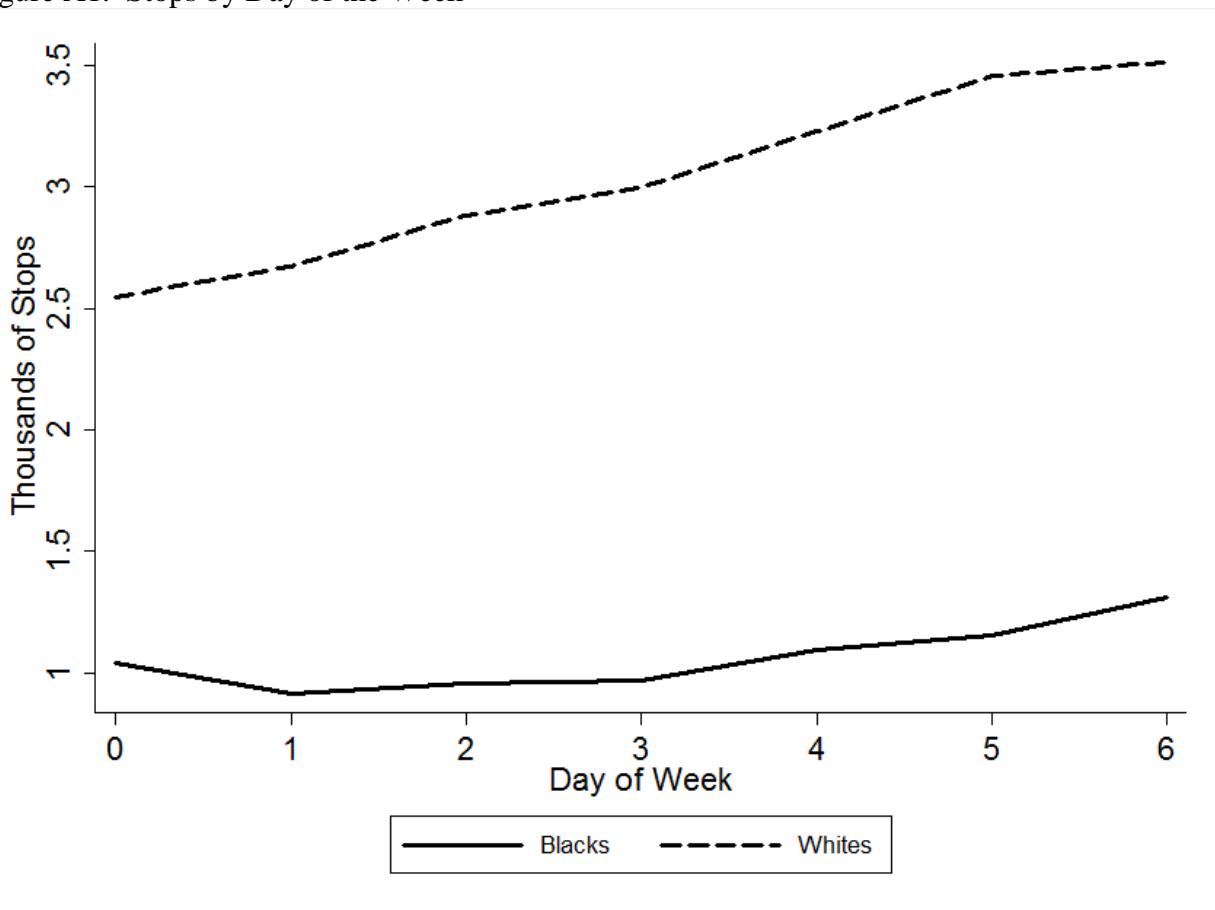




Figure A2. Searches by Day of the Week

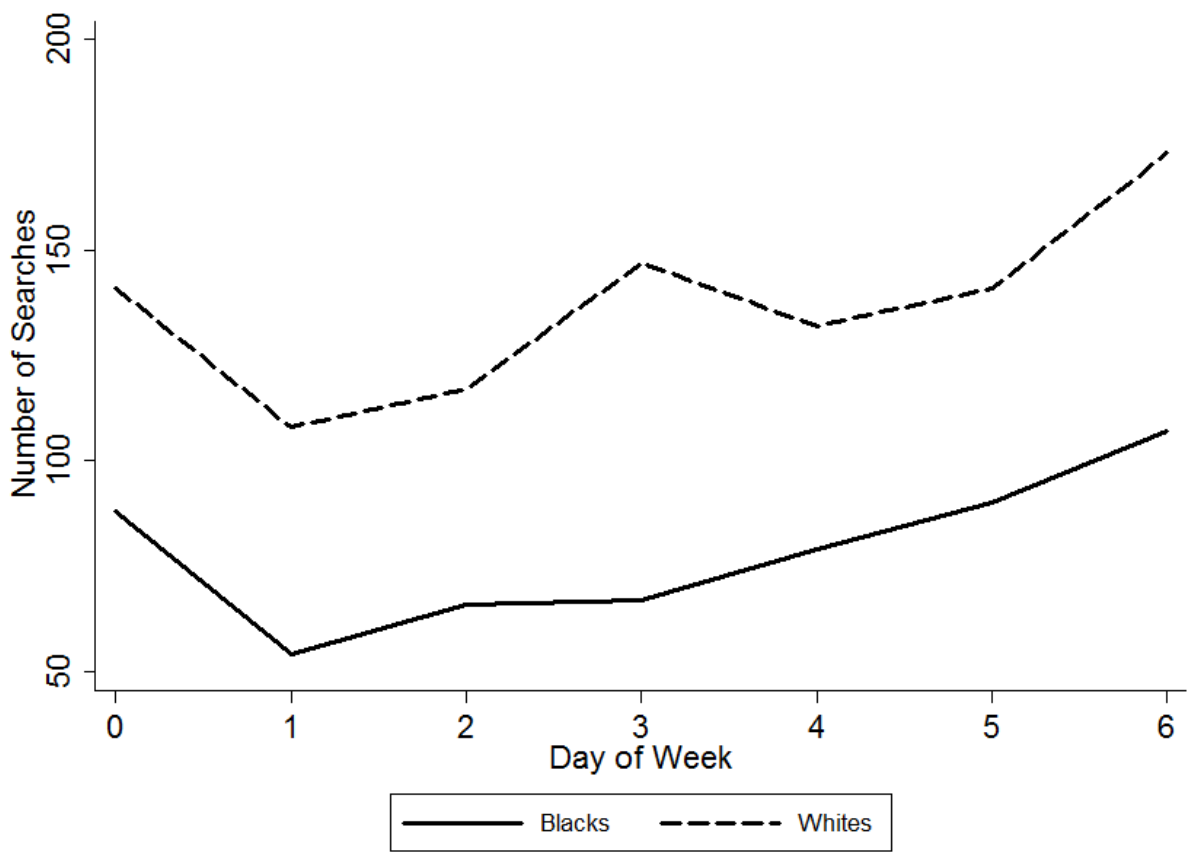
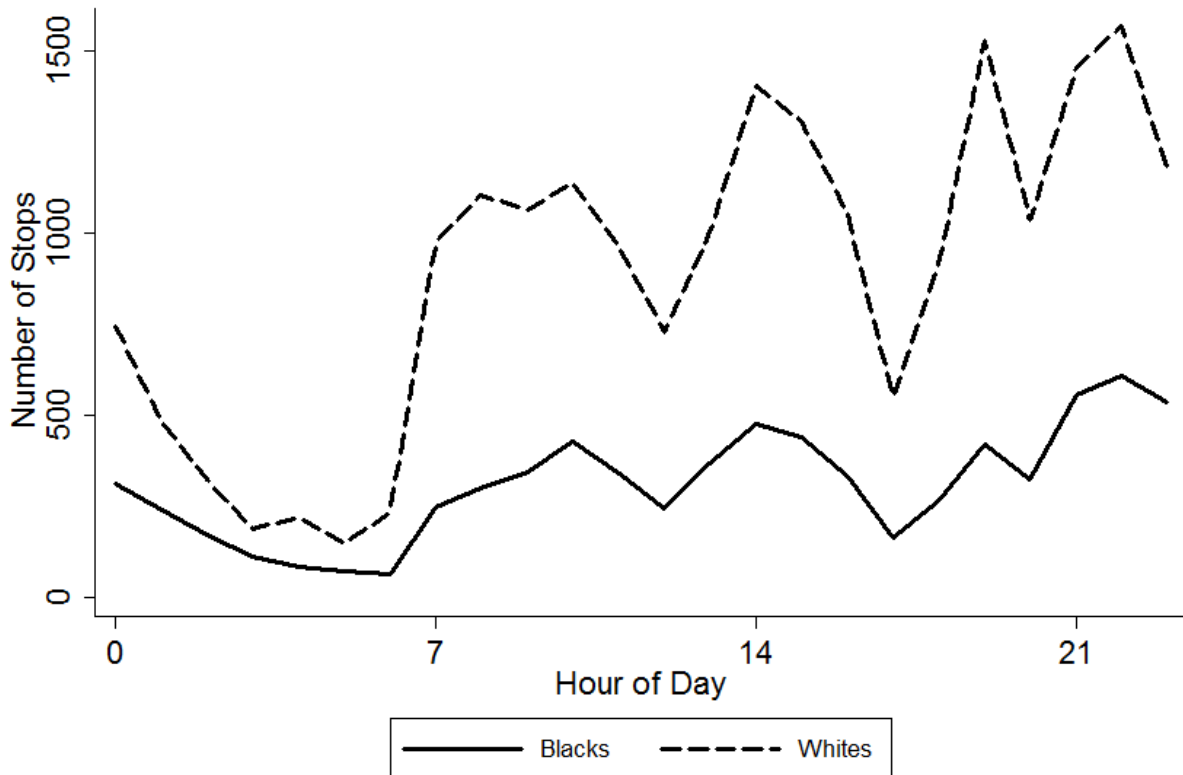
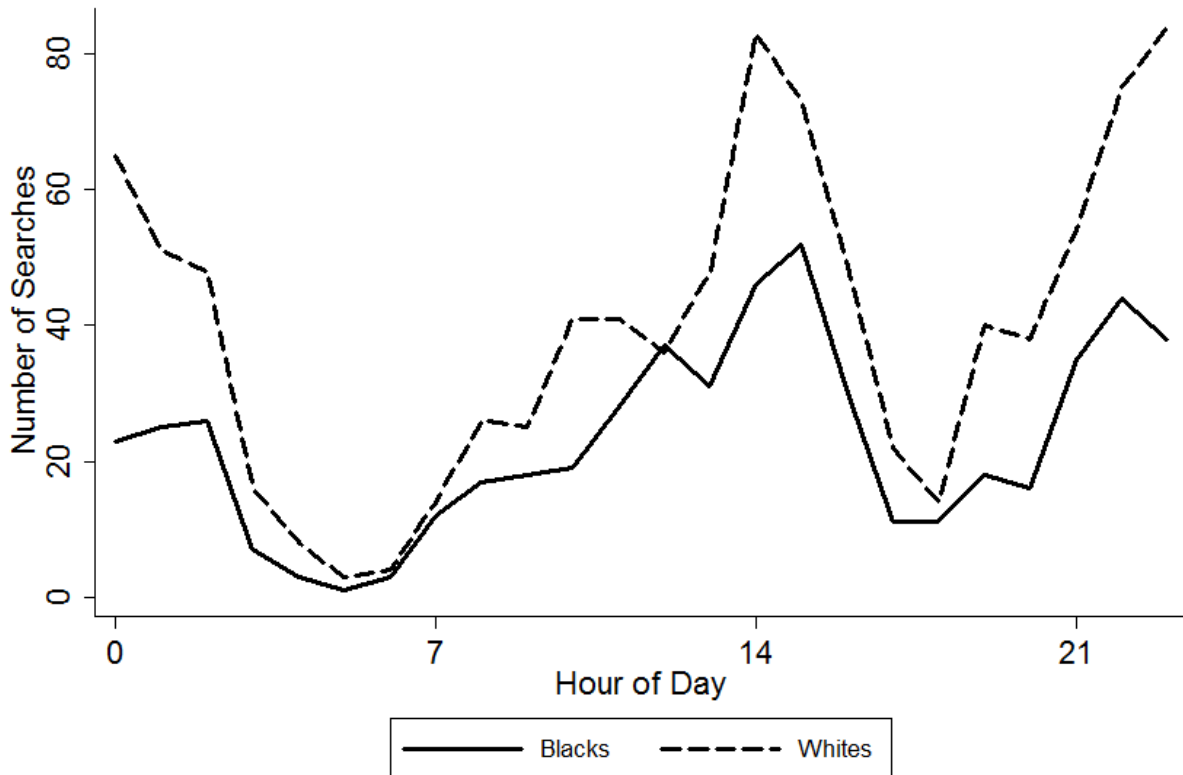


Figure A3. Stops by Hour of the Day



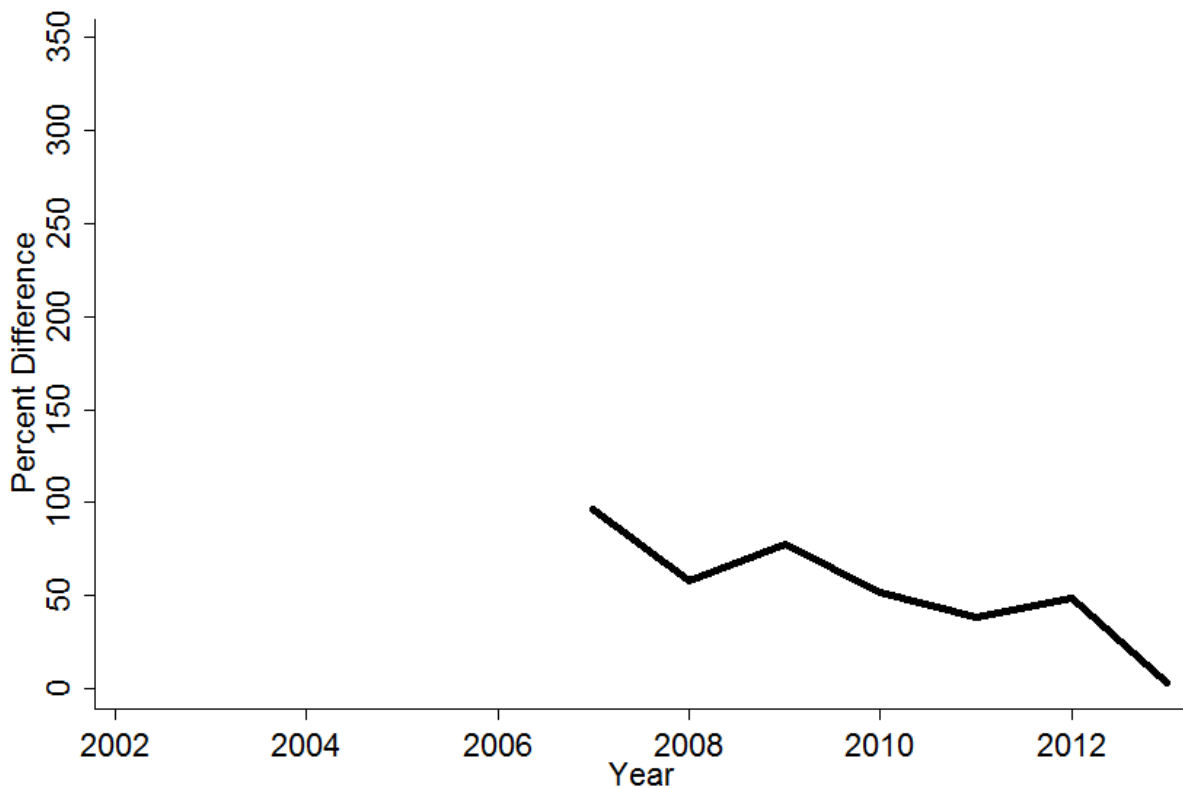
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

Figure A4. Searches by Hour of the Day



The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

Figure A5. Racial Differences in the Likelihood of Search: Consent Searches Only



The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites; consent searches only.

Table A2. Likelihood of Finding Contraband Given a Search, by Race

Contraband	Number	% Total	% White	% Black
Yes	499	31.19	33.37	28.68
No	1,101	68.81	66.63	71.32
Total	1,600	100.00	100.00	100.00

Table A3. Differential Outcomes by Whether or not a Search Occurs

Race	Search Occur	N	No Action	Verbal Warning	Written Warning	Citation Issued	Arrest	Total
White	No	20,347	1.04	57.95	0.91	39.86	0.24	100.00
Black	No	6,879	1.53	65.04	0.68	32.43	0.32	100.00
Total	No	29,035	1.14	59.04	0.81	38.75	0.25	100.00
White	Yes	959	1.15	31.07	0.42	47.45	19.92	100.00
Black	Yes	551	0.91	29.58	0.91	46.46	22.14	100.00
Total	Yes	1,600	1.00	29.50	0.63	47.50	21.38	100.00