

Analysis of Black-White Differences in Traffic Stops and Searches in Fuquay Varina, 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	29,049
-2014	717
-Passengers	184
-Checkpoint stops	179
Total number of cases deleted	1,063
Stops remaining for analysis	27,986
Searches	282
Percent of stops leading to search (search rate)	1.01

Figure 1. Number of Traffic Stops per Year

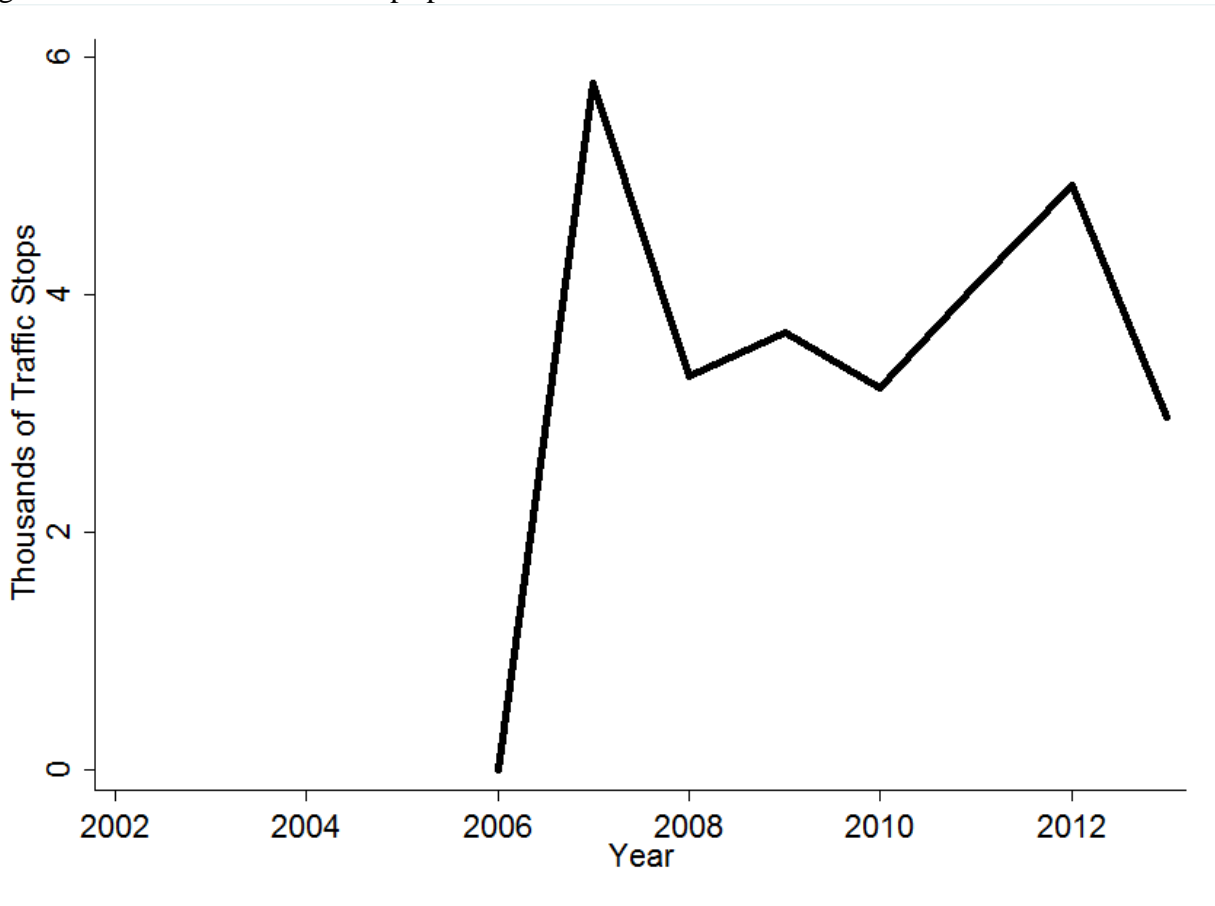


Figure 2. Racial Composition of Traffic Stops by Year

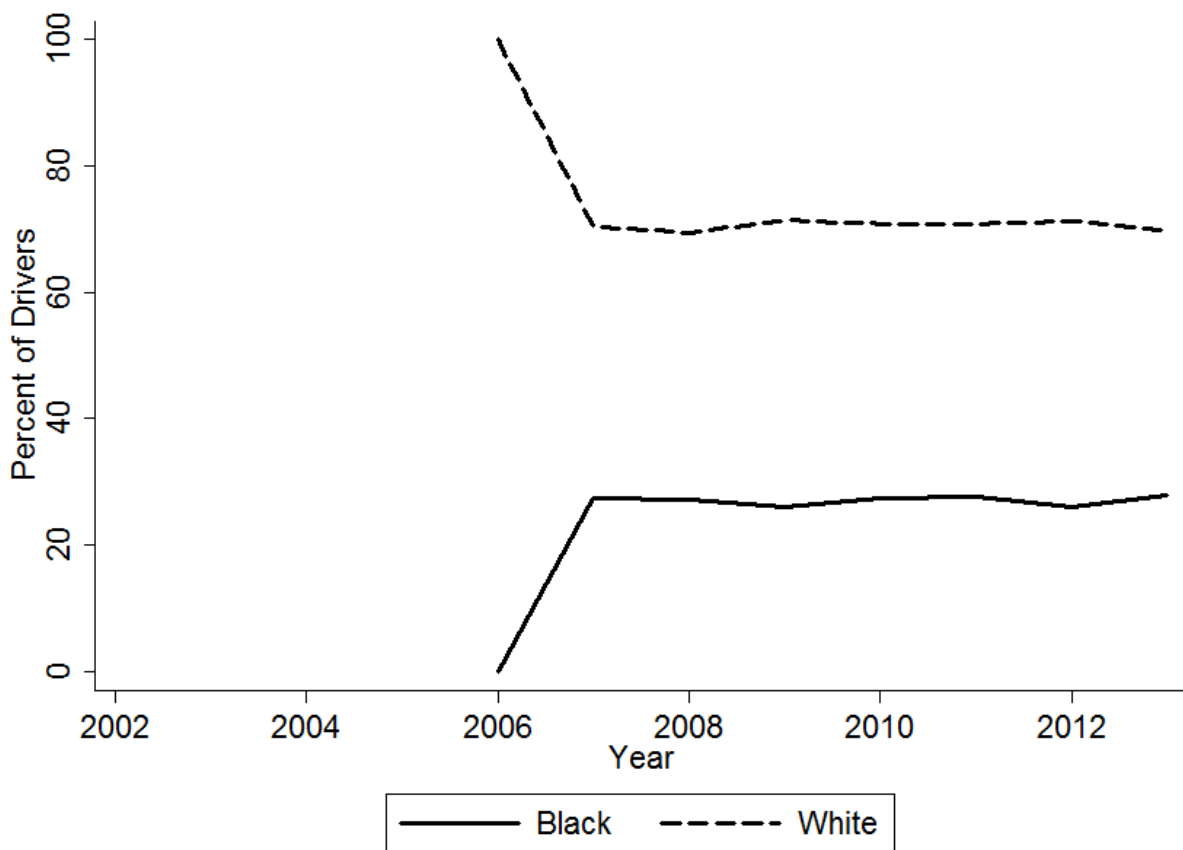


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

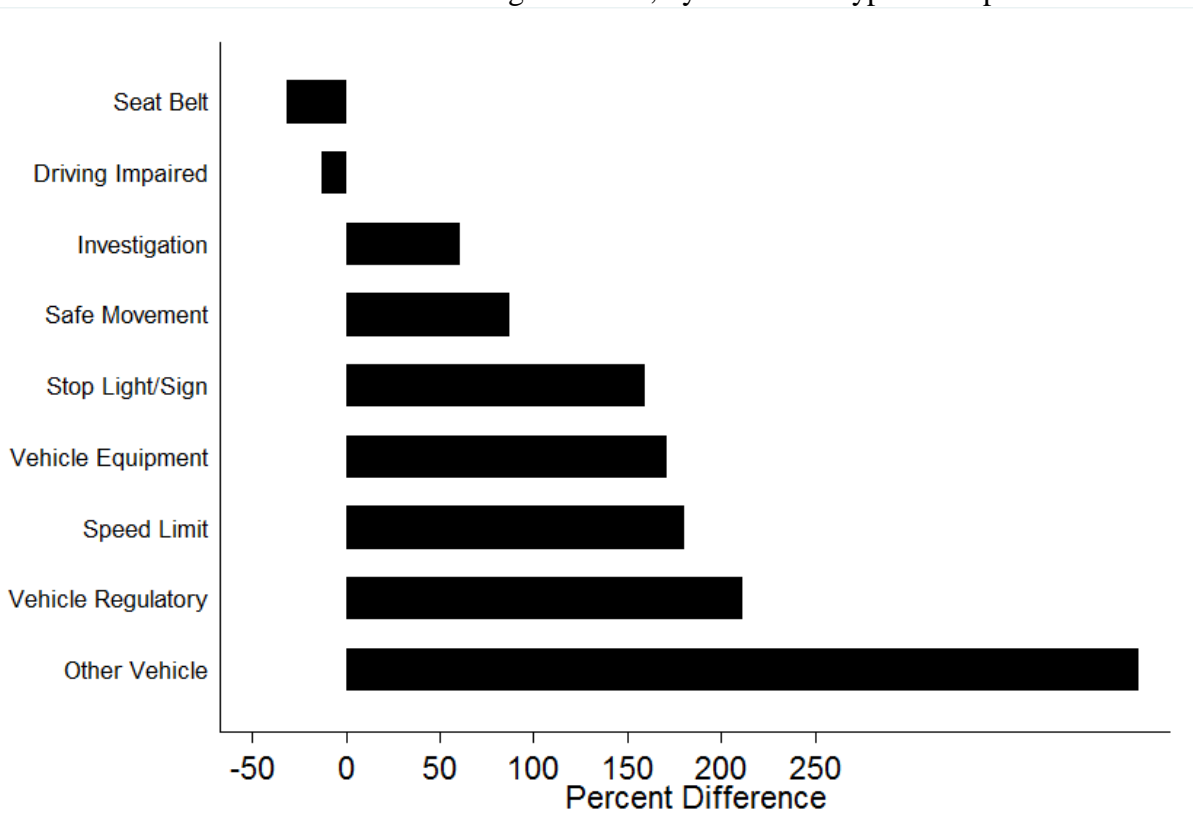
Purpose	Number	Percent	
		White	Black
Total Stops	27,986	70.62	27.00
Speed Limit	11,359	72.31	24.80
Stop Light/Sign	2,385	73.92	23.77
Driving Impaired	136	72.06	25.74
Safe Movement	1,100	67.91	30.18
Vehicle Equipment	3,911	62.42	35.13
Vehicle Regulatory	4,817	72.29	26.12
Seat Belt	2,731	75.43	23.65
Investigation	658	61.85	36.32
Other Vehicle	889	62.20	32.28

Note: Includes only drivers. Excludes 184 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

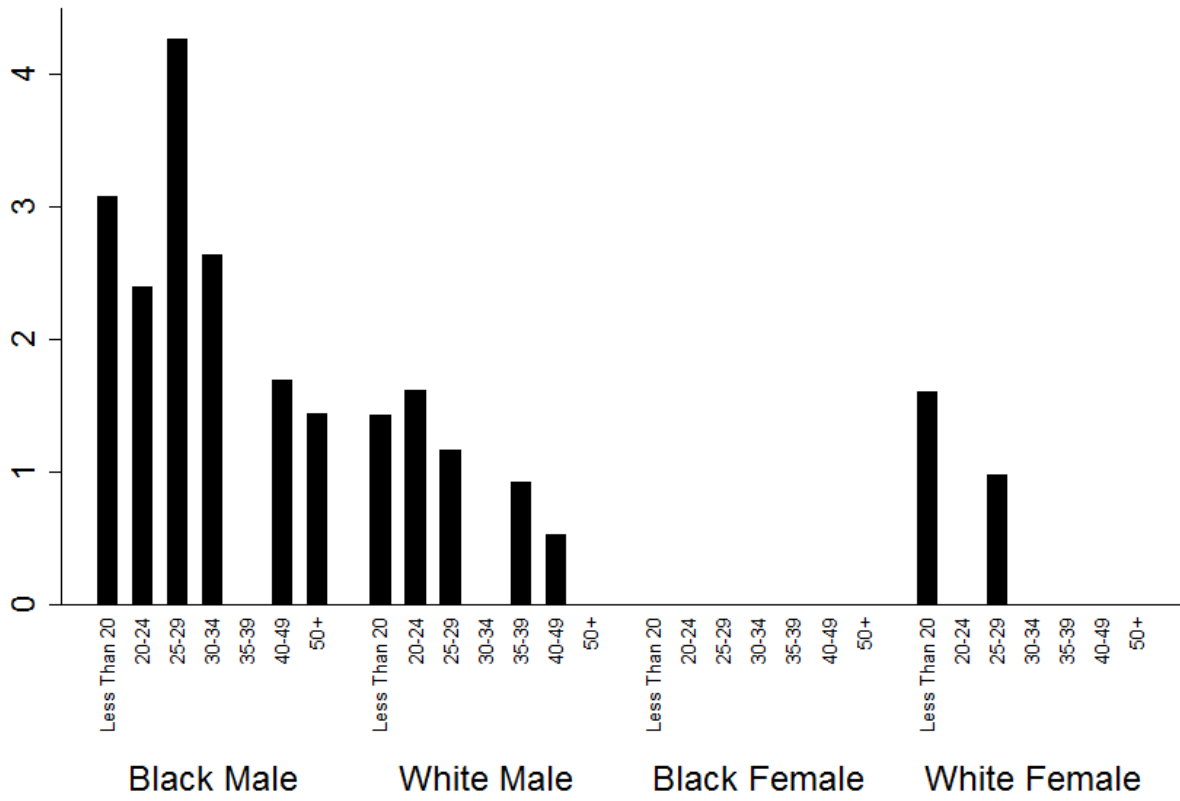
Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	27,986	-	70.62	27.00	-
Total Searches	282	1.01	0.73	1.73	2.37
Speed Limit	11,359	0.46	0.32	0.89	2.78
Stop Light/Sign	2,385	0.55	0.34	0.88	2.59
Driving Impaired	136	30.88	32.65	28.57	0.88
Safe Movement	1,100	1.00	0.80	1.51	1.89
Vehicle Equipment	3,911	1.28	0.78	2.11	2.71
Vehicle Regulatory	4,817	0.73	0.46	1.43	3.11
Seat Belt	2,731	0.62	0.68	0.46	0.68
Investigation	658	5.32	4.42	7.11	1.61
Other Vehicle	889	3.04	1.27	6.62	5.21

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



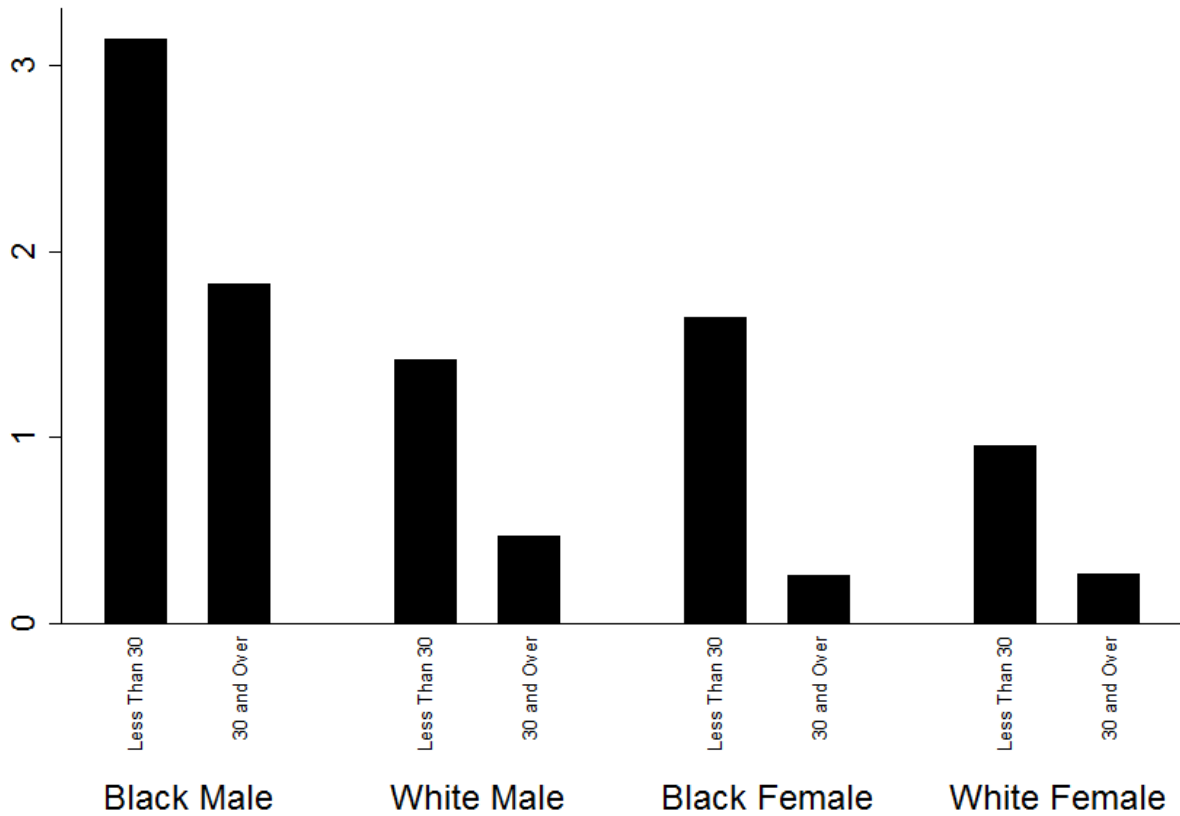
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by purpose of stop.

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



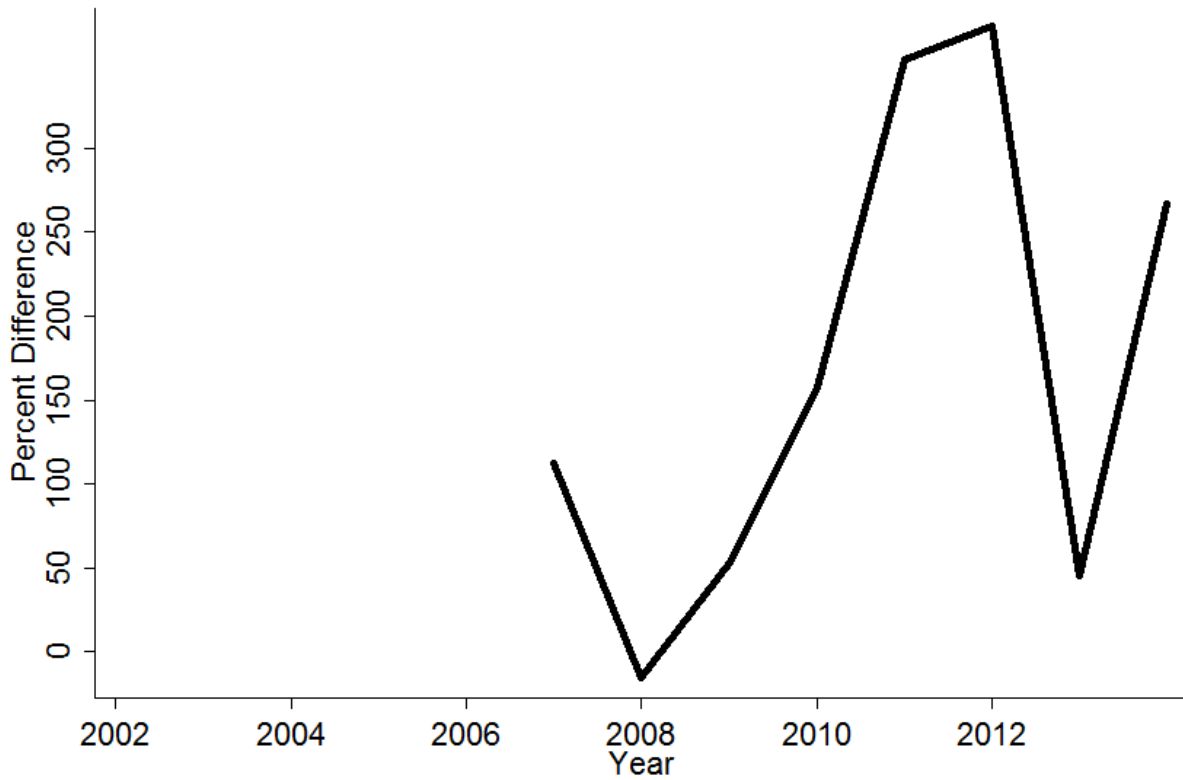
Based on 27,986 traffic stops from 2002 through 2013, and 282 searches. Overall rate of search: 1.01 percent. No data are presented for categories with fewer than 10 searches.

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



Based on 27,986 traffic stops from 2002 through 2013, and 282 searches. Overall rate of search: 1.01 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

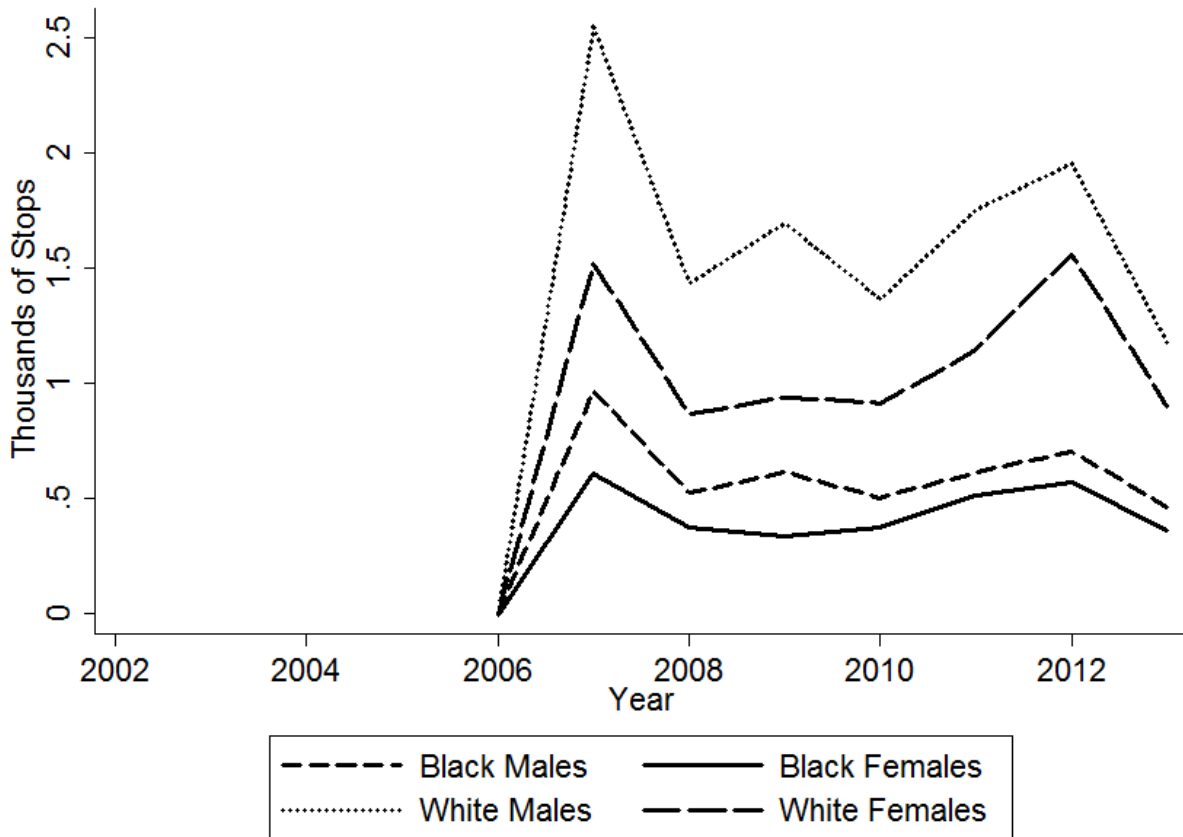
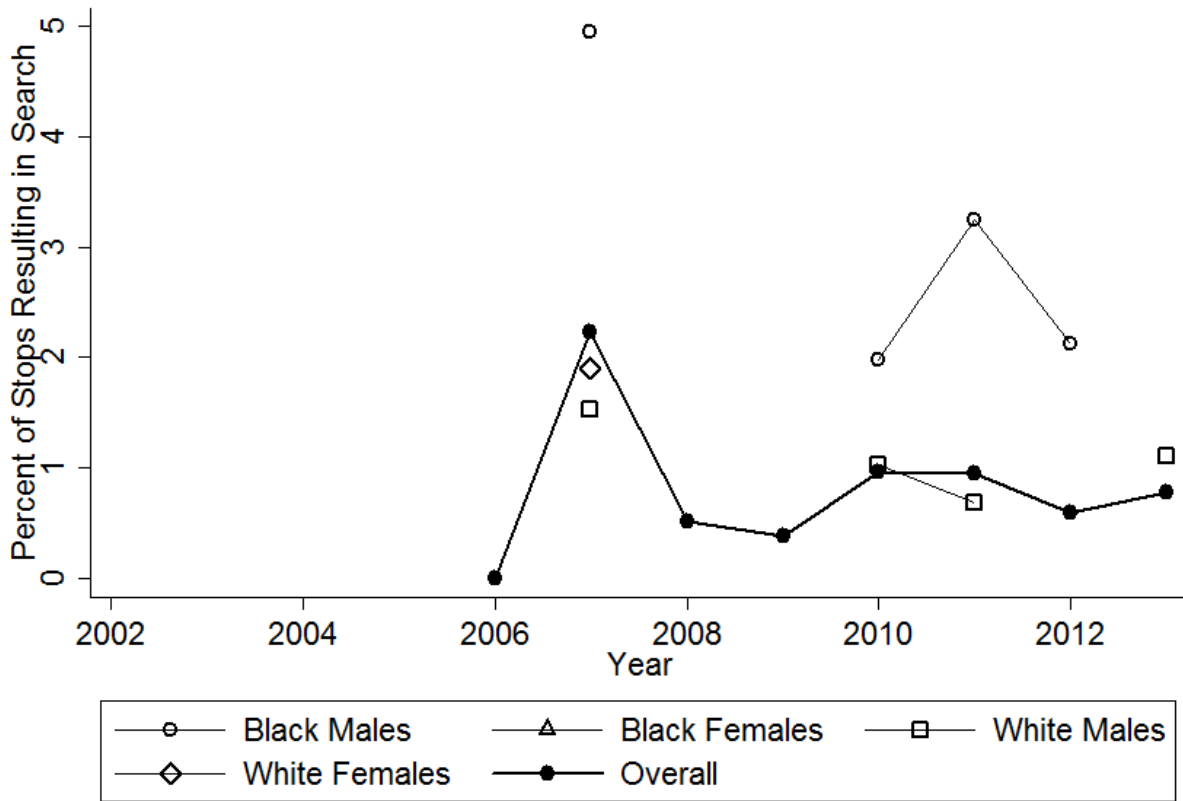


Figure 7. Percent Searched, by Race and Gender



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

Table 4. Type of Search by Race

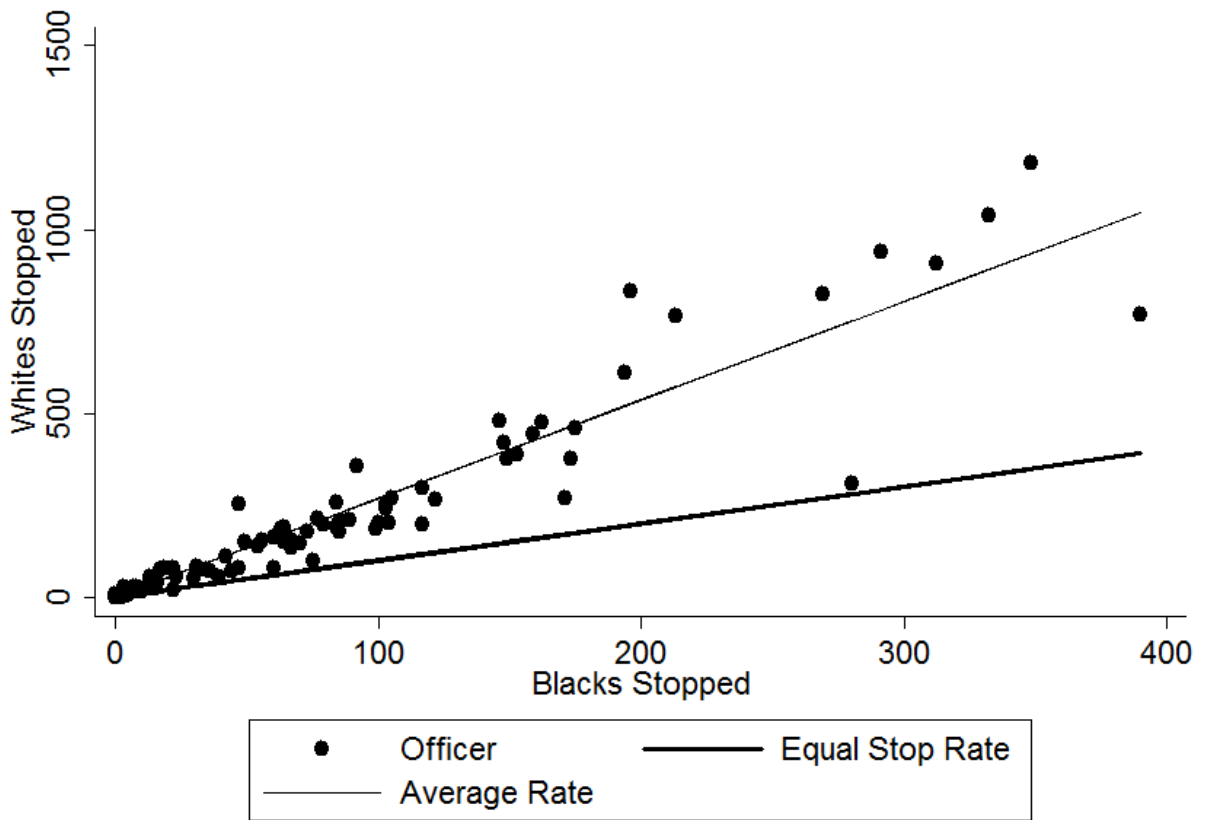
Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	27,986	-	70.62	27.00	-
Total Searches	282	1.01	0.73	1.73	2.37
Consent	84	0.30	0.23	0.48	2.09
Search Warrant	8	0.03	0.02	0.05	2.50
Probable Cause	67	0.24	0.18	0.42	2.33
Incident to Arrest	119	0.43	0.29	0.77	2.66
Protective Frisk	4	0.01	0.02	0.01	0.50

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

Table 5. Distribution of Officer IDs by Stop

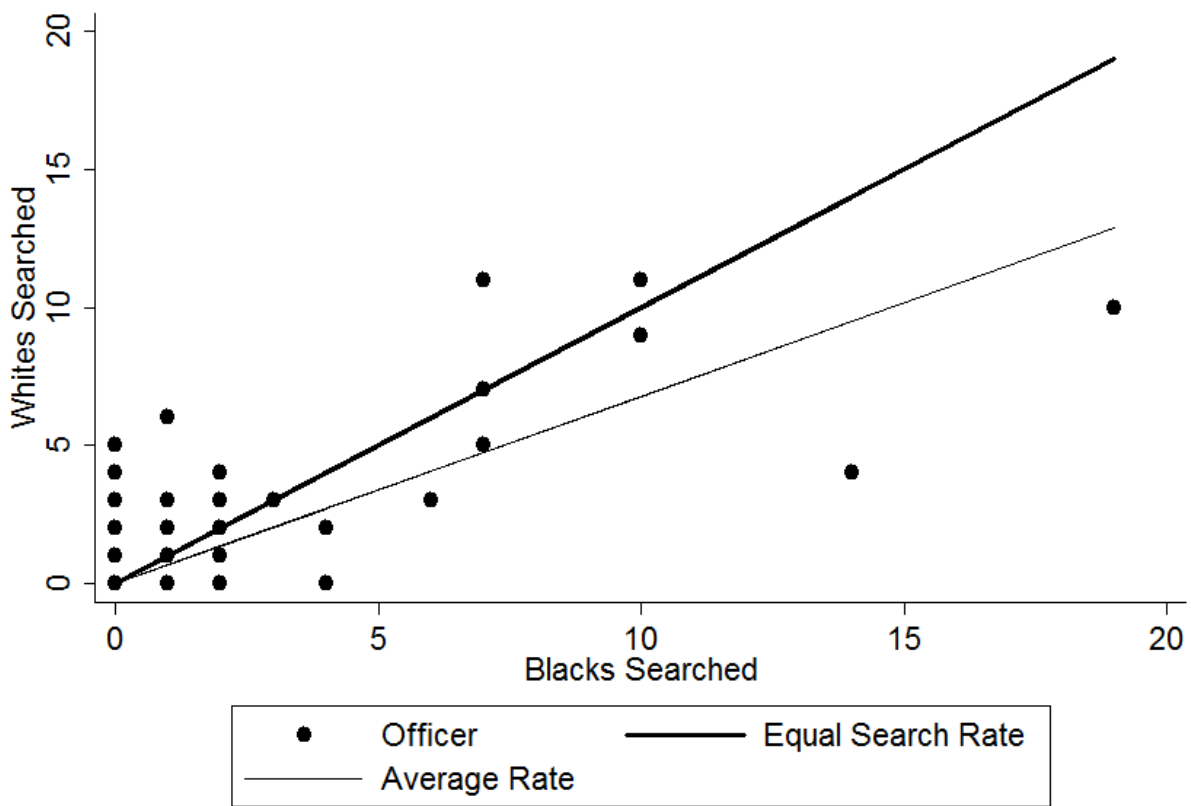
Number of Stops	Officers w/ this many Stops	Percent of Officers	Cumulative Percent	Percent of Stops	Cumulative Percent
1	25	18.94	18.94	0.09	0.09
2 – 10	21	15.91	34.85	0.35	0.44
11 - 100	25	18.94	53.79	3.71	4.15
101 – 1,000	53	40.15	93.94	60.72	64.87
1,001 +	8	6.06	100.00	35.13	100.00
Total	132	100.00	-	100.00	-

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



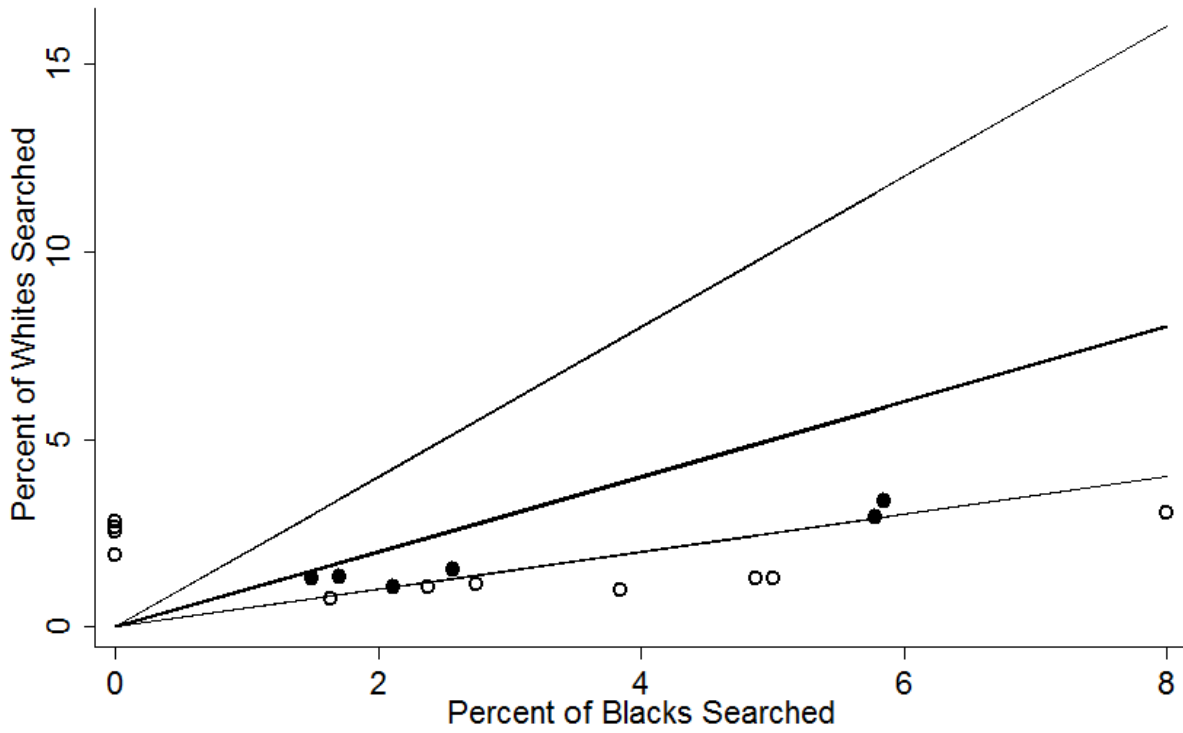
On average, officers stop 2.69 Whites for each Black stopped.

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



On average, officers search 0.68 Whites for each Black searched.

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



Includes 17 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 1.01. The hollow circles indicate high disparity officers. 4 officer searches Whites at more than twice the rate that they search Blacks. 7 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
Demographics					
Race	3.11*(0.46)	3.04*(0.45)	2.83*(0.44)	2.67*(0.41)	2.67*(0.43)
Hispanic	1.71*(0.41)	1.55(0.37)	1.06(0.27)	1.02(0.26)	1.01(0.26)
Age	-	0.97*(0.01)	0.96*(0.01)	0.96*(0.01)	0.97*(0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	0.97(0.36)	0.94(0.35)	0.97(0.36)
Impaired	-	-	78.64*(22.20)	85.21*(24.32)	66.67*(21.16)
Movement	-	-	1.30(0.54)	1.20(0.50)	1.19(0.50)
Equipment	-	-	1.71*(0.40)	1.55(0.36)	1.41(0.35)
Regulatory	-	-	1.60(0.39)	1.49(0.37)	1.55(0.39)
Seat Belt	-	-	0.92(0.29)	0.93(0.29)	1.11(0.37)
Investigation	-	-	6.17*(1.64)	5.41*(1.45)	5.19*(1.45)
Other	-	-	4.79*(1.29)	4.58*(1.24)	4.13*(1.17)
Officer Type					
Black Disparity [†]	-	-	-	2.40*(0.42)	2.64*(0.47)
White Disparity [†]	-	-	-	2.15*(0.66)	2.32*(0.72)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.01*(0.00)	0.02*(0.01)	0.02*(0.00)	0.01*(0.00)	0.02*(0.01)
N	16,318	16,318	16,318	16,318	15,987
Pseudo R²	0.03	0.04	0.14	0.15	0.16

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
Demographics					
Race	1.52(0.39)	1.50(0.39)	1.35(0.37)	1.26(0.35)	1.31(0.39)
Hispanic	1.00(0.53)	0.89(0.47)	0.68(0.37)	0.64(0.36)	0.67(0.40)
Age	-	0.93*(0.01)	0.94*(0.01)	0.94*(0.01)	0.94*(0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.27(1.00)	1.23(0.97)	1.34(1.09)
Impaired	-	-	269.63*(137.14)	296.91*(153.06)	245.23*(143.11)
Movement	-	-	6.78*(4.18)	6.22*(3.85)	4.94*(3.46)
Equipment	-	-	4.94*(2.20)	4.21*(1.89)	4.87*(2.36)
Regulatory	-	-	1.87(1.01)	1.74(0.95)	1.87(1.06)
Seat Belt	-	-	3.41*(2.10)	3.41*(2.10)	2.59(1.83)
Investigation	-	-	32.14*(15.02)	26.61*(12.69)	25.76*(13.13)
Other	-	-	8.26*(5.10)	7.40*(4.59)	5.97*(4.20)
Officer Type					
Black Disparity [†]	-	-	-	3.49*(1.01)	3.42*(1.06)
White Disparity [†]	-	-	-	1.66(1.02)	1.17(0.88)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.01*(0.00)	0.05*(0.02)	0.01*(0.01)	0.01*(0.01)	0.00*(0.00)
N	11,002	11,002	11,002	11,002	8,998
Pseudo R²	0.00	0.05	0.22	0.24	0.27

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	184	51.09	48.91
Speed Limit	31	74.19	25.81
Stop Light/Sign	14	35.71	64.29
Driving Impaired	15	73.33	26.67
Safe Movement	7	28.57	71.43
Vehicle Equipment	31	19.35	80.65
Vehicle Regulatory	16	62.50	37.50
Seat Belt	13	76.92	23.08
Investigation	30	36.67	63.33
Other Vehicle	20	60.00	40.00

Figure A1. Stops by Day of the Week

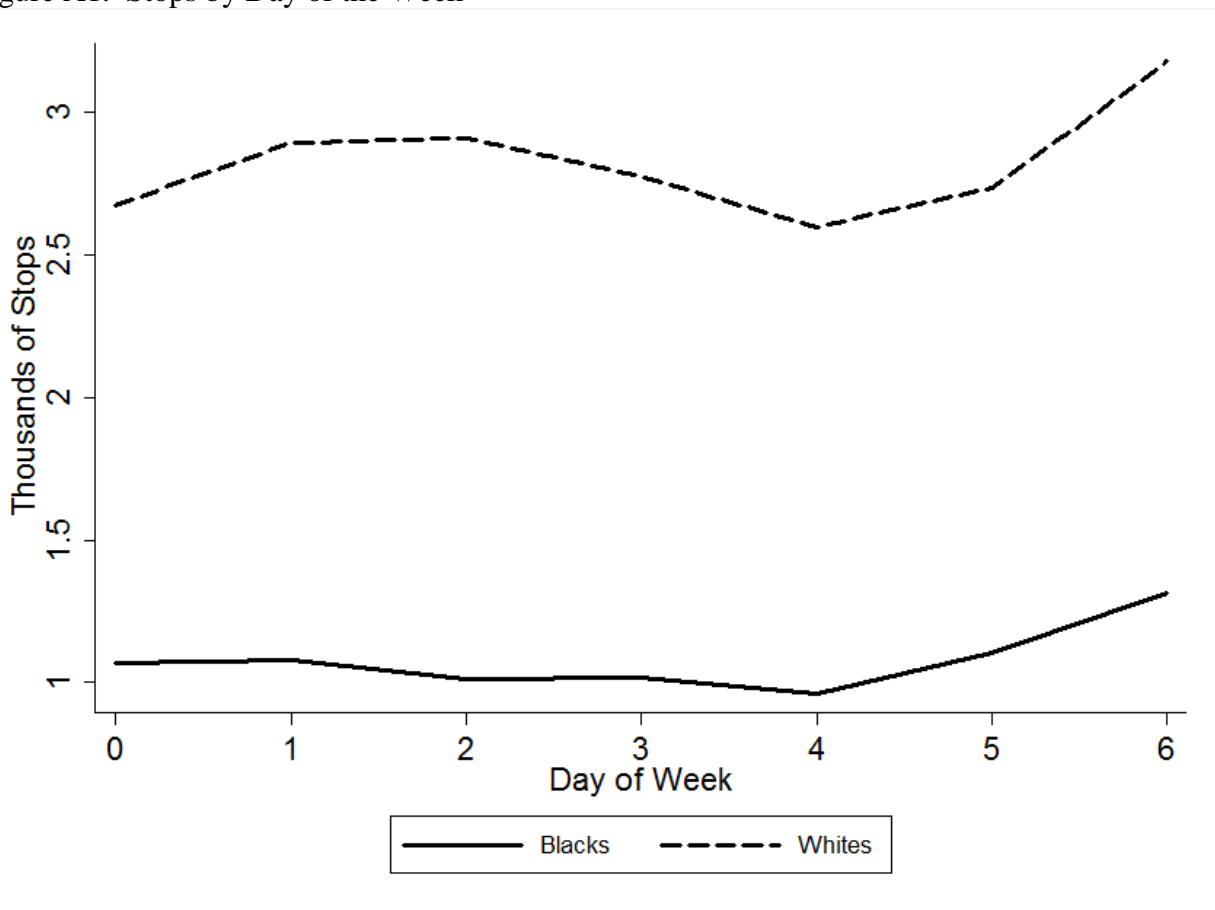


Figure A2. Searches by Day of the Week

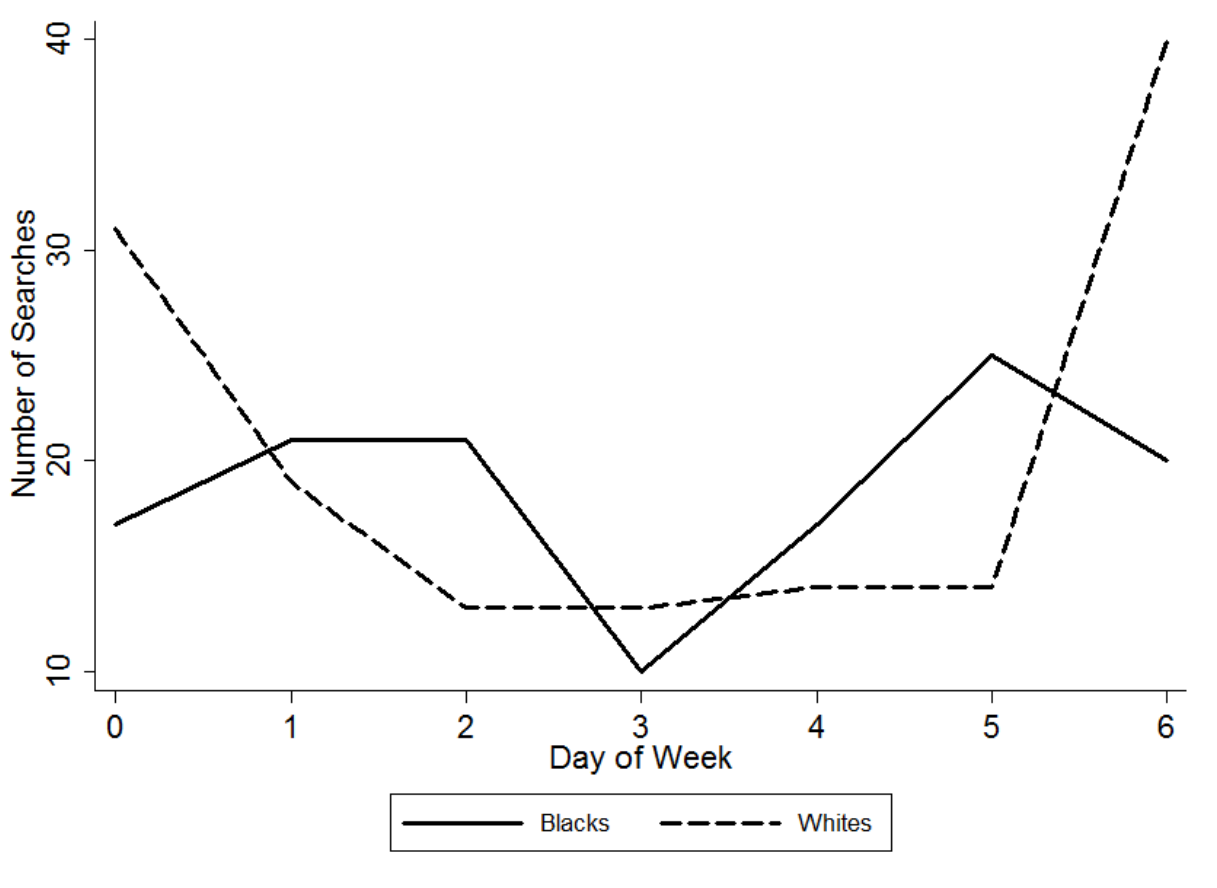
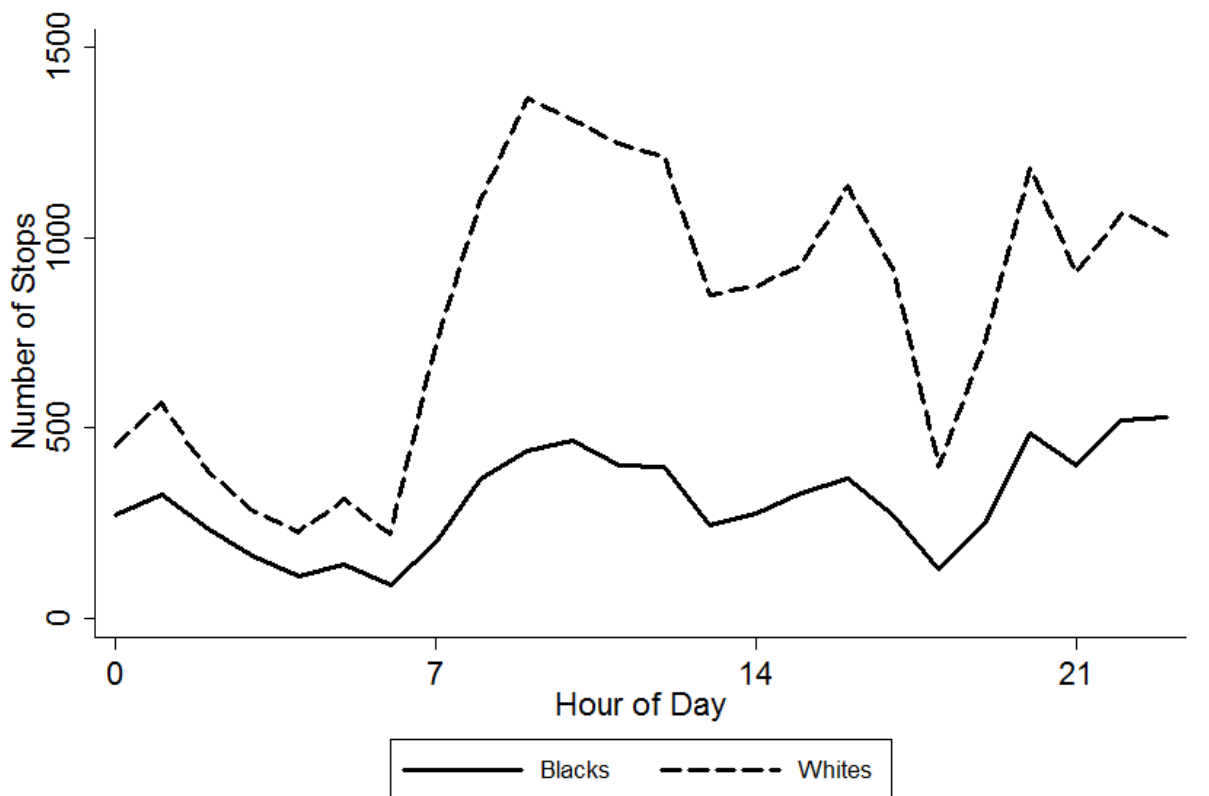
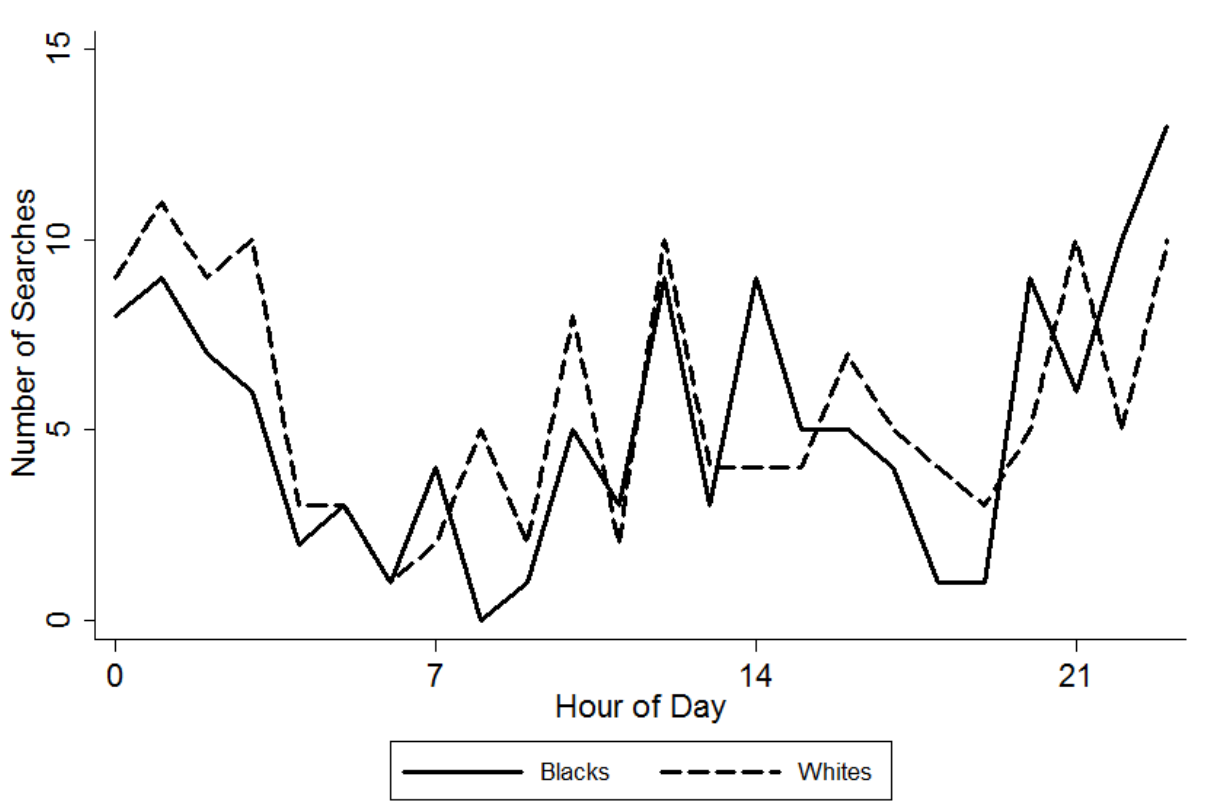


Figure A3. Stops by Hour of the Day



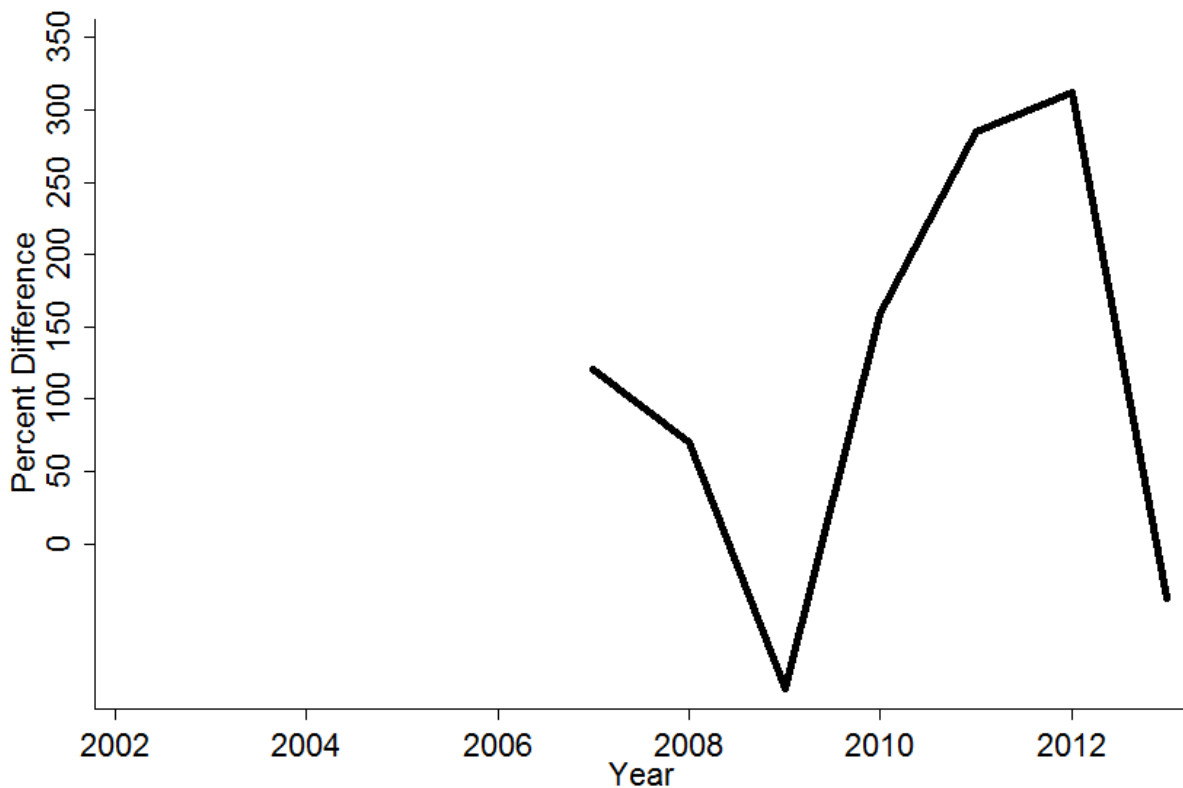
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

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	92	32.62	38.89	26.72
No	190	67.38	61.11	73.28
Total		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	19,621	0.30	26.98	4.18	68.03	0.51	100.00
Black	No	7,424	0.59	32.97	4.53	61.14	0.77	100.00
Total	No	27,704	0.38	28.50	4.27	66.27	0.58	100.00
White	Yes	144	1.39	4.86	3.47	38.89	51.39	100.00
Black	Yes	131	0.00	11.45	1.53	38.17	48.85	100.00
Total	Yes	282	0.71	8.16	2.48	38.30	50.35	100.00