

Analysis of Black-White Differences in Traffic Stops and Searches in Lenoir, 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	33,491
-2014	2,342
-Passengers	1,540
-Checkpoint stops	211
Total number of cases deleted	4,029
Stops remaining for analysis	29,462
Searches	2,131
Percent of stops leading to search (search rate)	7.23

Figure 1. Number of Traffic Stops per Year

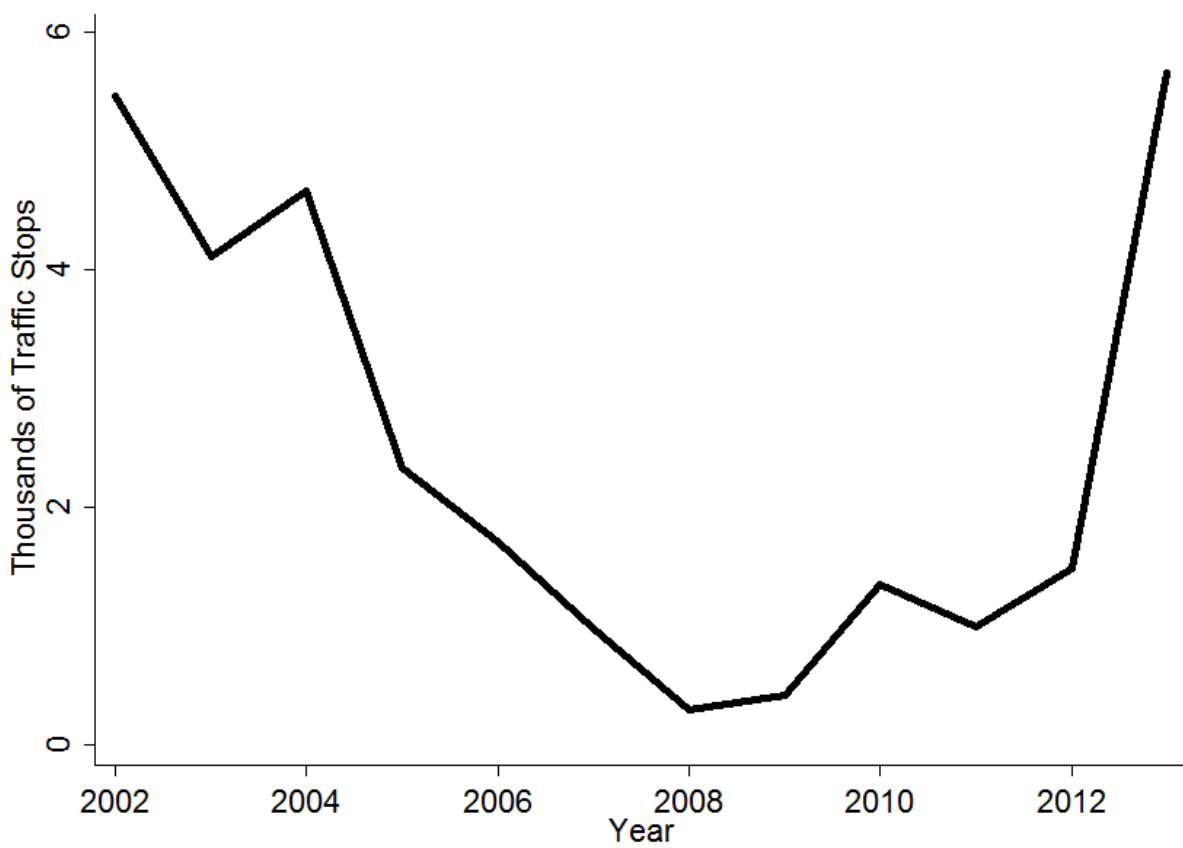


Figure 2. Racial Composition of Traffic Stops by Year

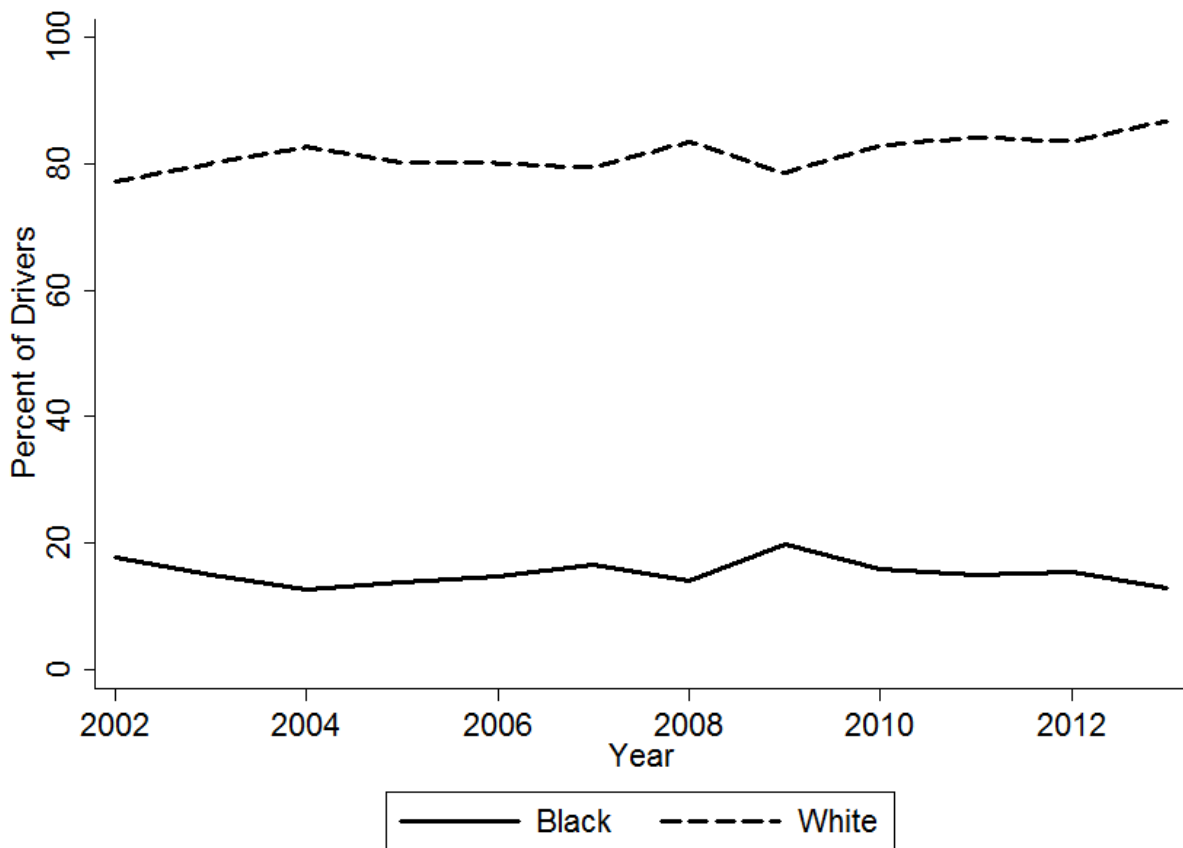


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	29,462	81.74	14.76
Speed Limit	9,608	84.69	12.54
Stop Light/Sign	2,485	78.55	17.95
Driving Impaired	669	78.33	13.15
Safe Movement	2,144	80.97	13.48
Vehicle Equipment	4,423	79.88	15.74
Vehicle Regulatory	4,910	83.30	14.64
Seat Belt	2,201	85.69	11.90
Investigation	1,969	71.36	23.51
Other Vehicle	1,053	77.87	17.19

Note: Includes only drivers. Excludes 1,540 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	29,462	-	81.74	14.76	-
Total Searches	2,131	7.23	6.42	9.98	1.55
Speed Limit	9,608	3.12	2.74	4.98	1.82
Stop Light/Sign	2,485	4.83	4.46	6.05	1.36
Driving Impaired	669	34.53	34.35	25.00	0.73
Safe Movement	2,144	9.05	7.89	13.15	1.67
Vehicle Equipment	4,423	8.55	7.90	9.48	1.20
Vehicle Regulatory	4,910	6.09	5.48	8.34	1.52
Seat Belt	2,201	3.54	3.23	5.73	1.77
Investigation	1,969	21.18	19.57	25.27	1.29
Other Vehicle	1,053	10.83	9.63	16.02	1.66

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

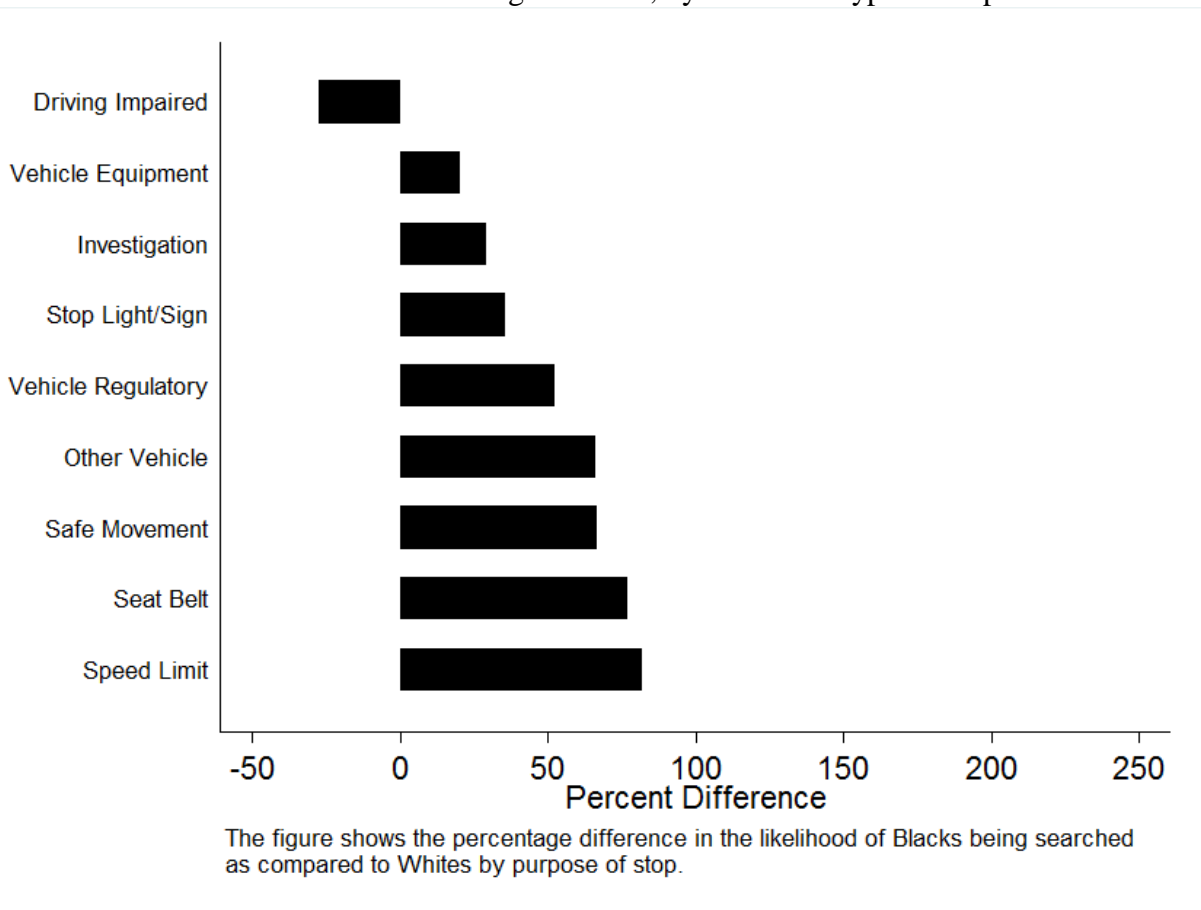
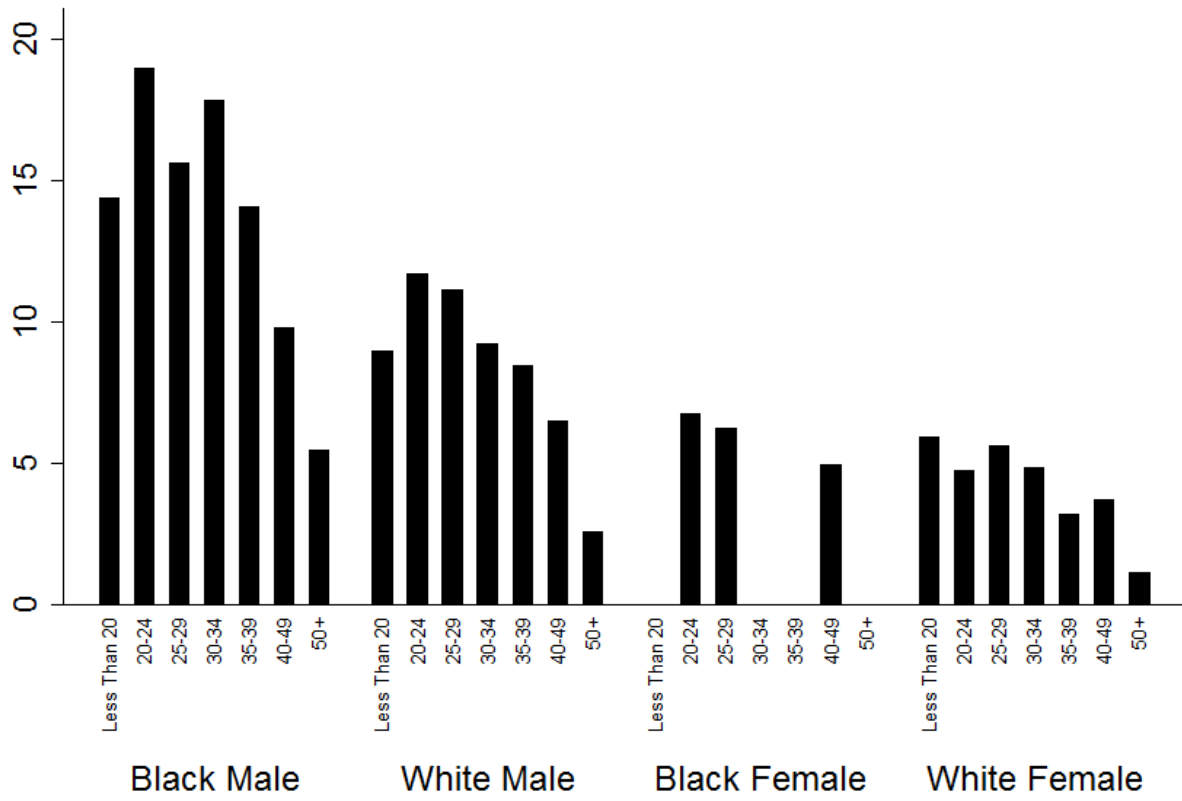
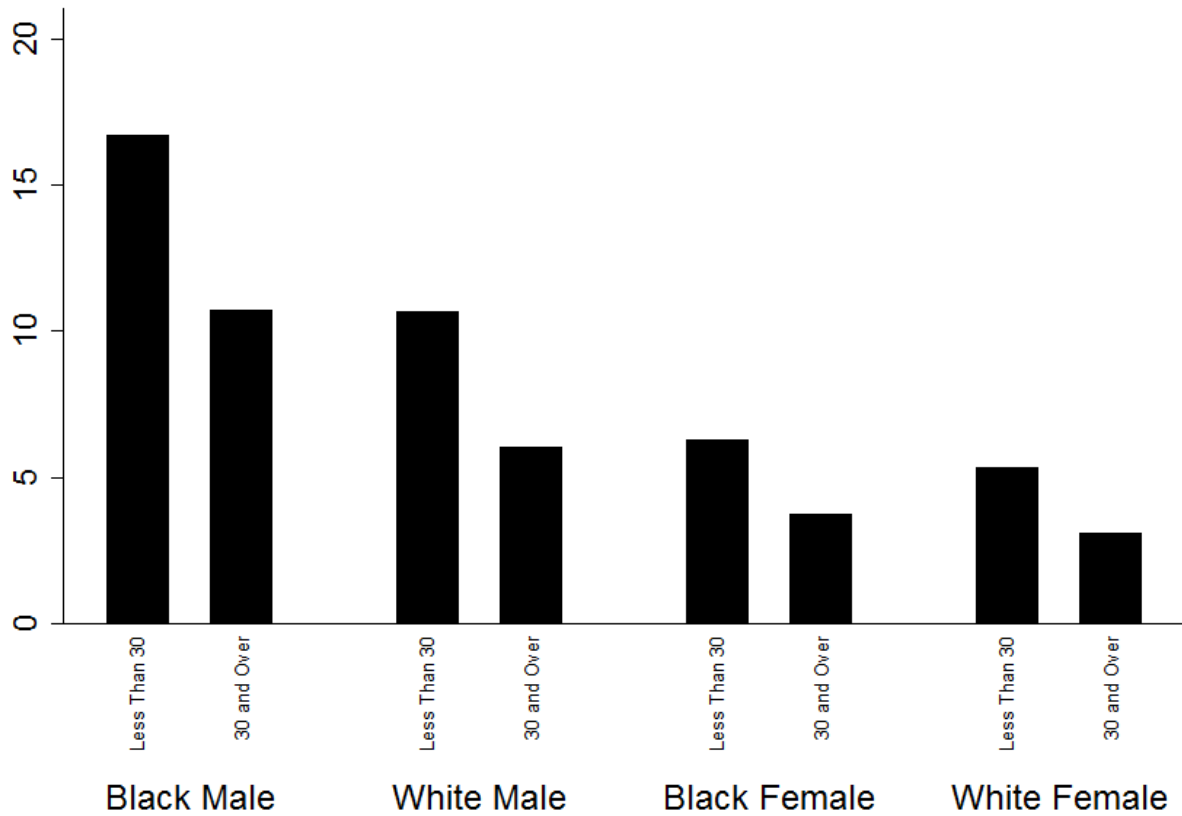


Figure 4a. Percentage Searched by Race, Gender, and Age



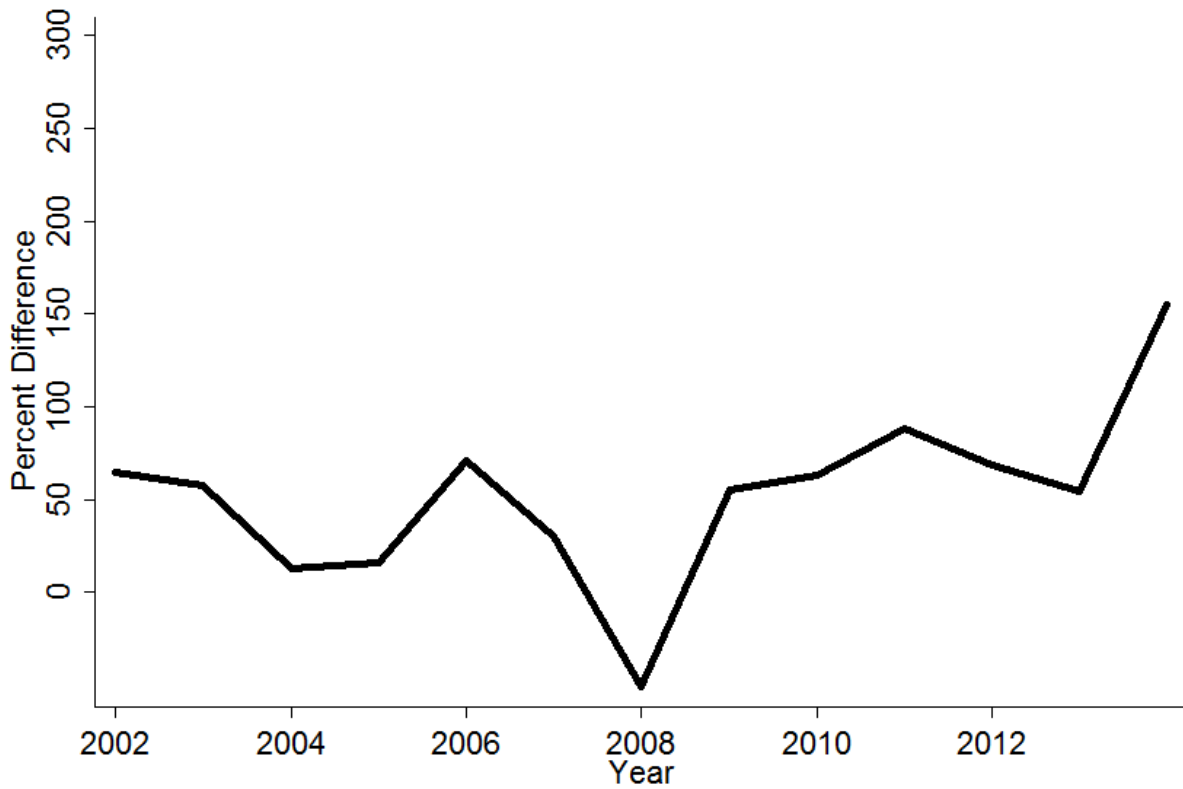
Based on 29,462 traffic stops from 2002 through 2013, and 2,131 searches. Overall rate of search: 7.23 percent. No data are presented for categories with fewer than 10 searches.

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



Based on 29,462 traffic stops from 2002 through 2013, and 2,131 searches. Overall rate of search: 7.23 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

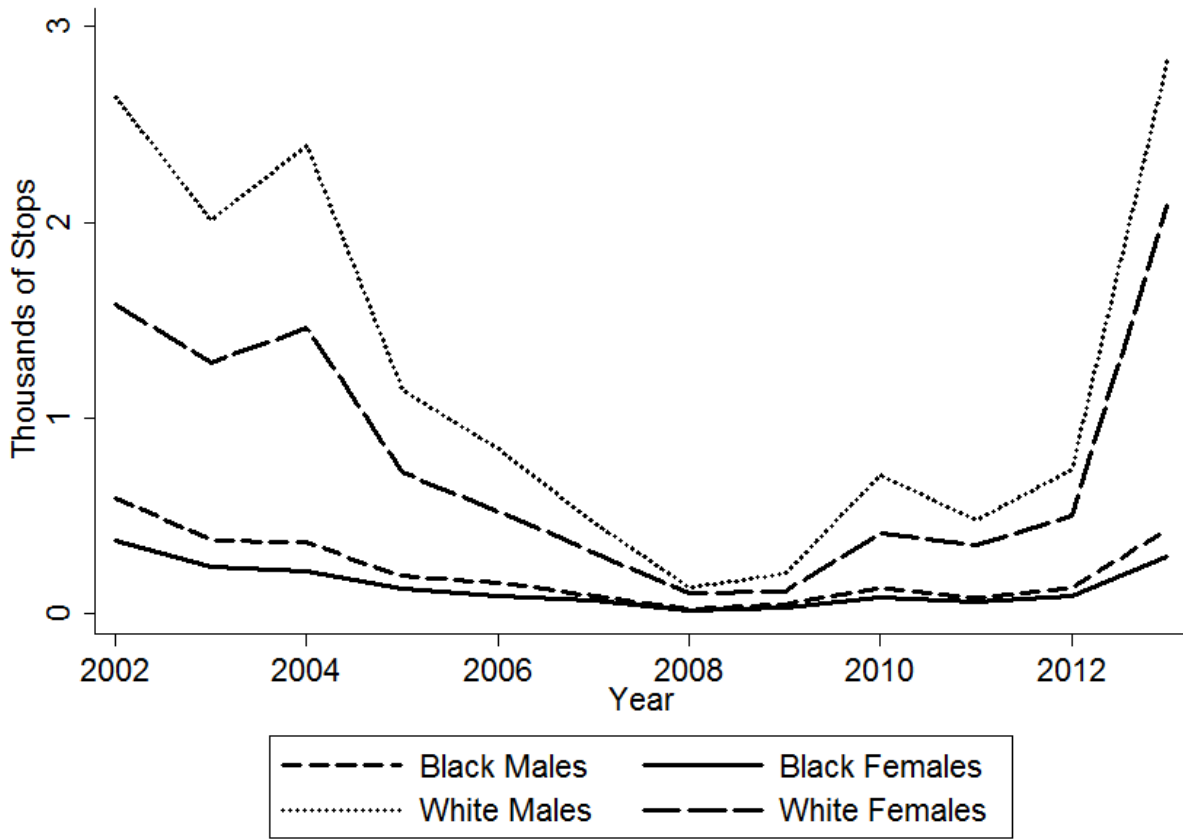
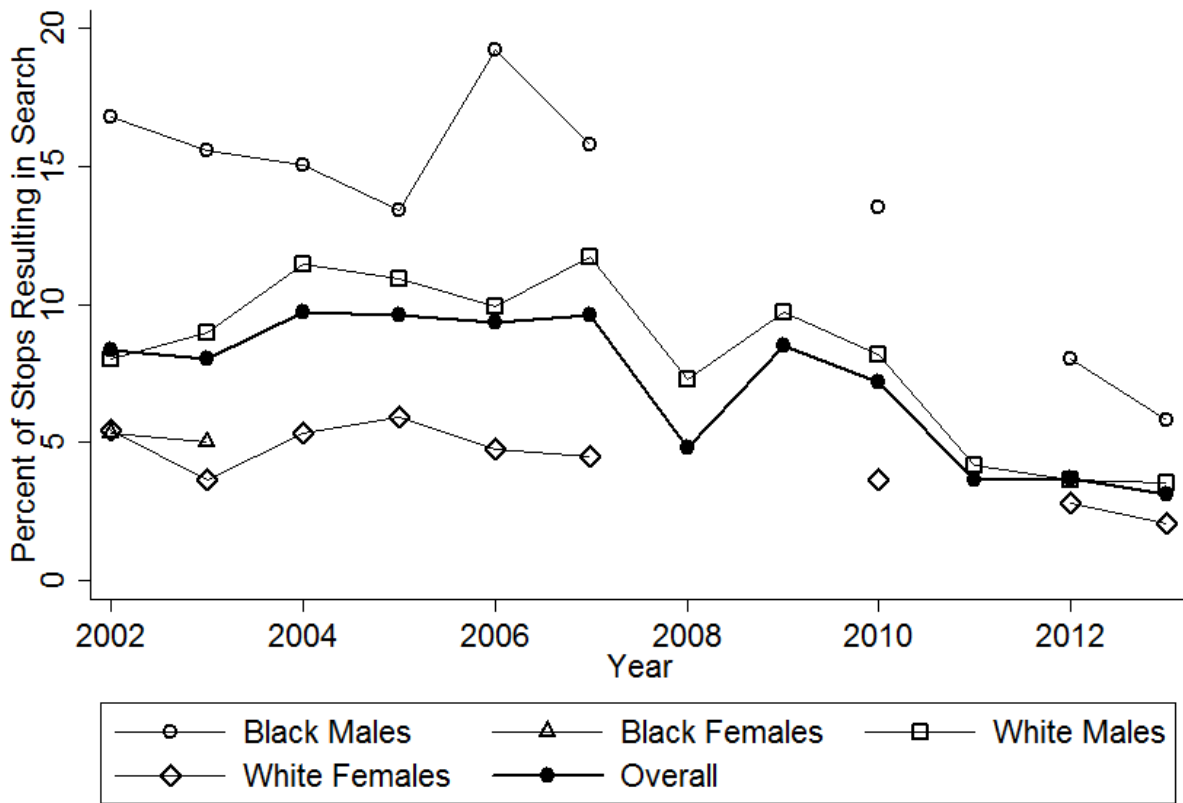


Figure 7. Percent Searched, by Race and Gender



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

Table 4. Type of Search by Race

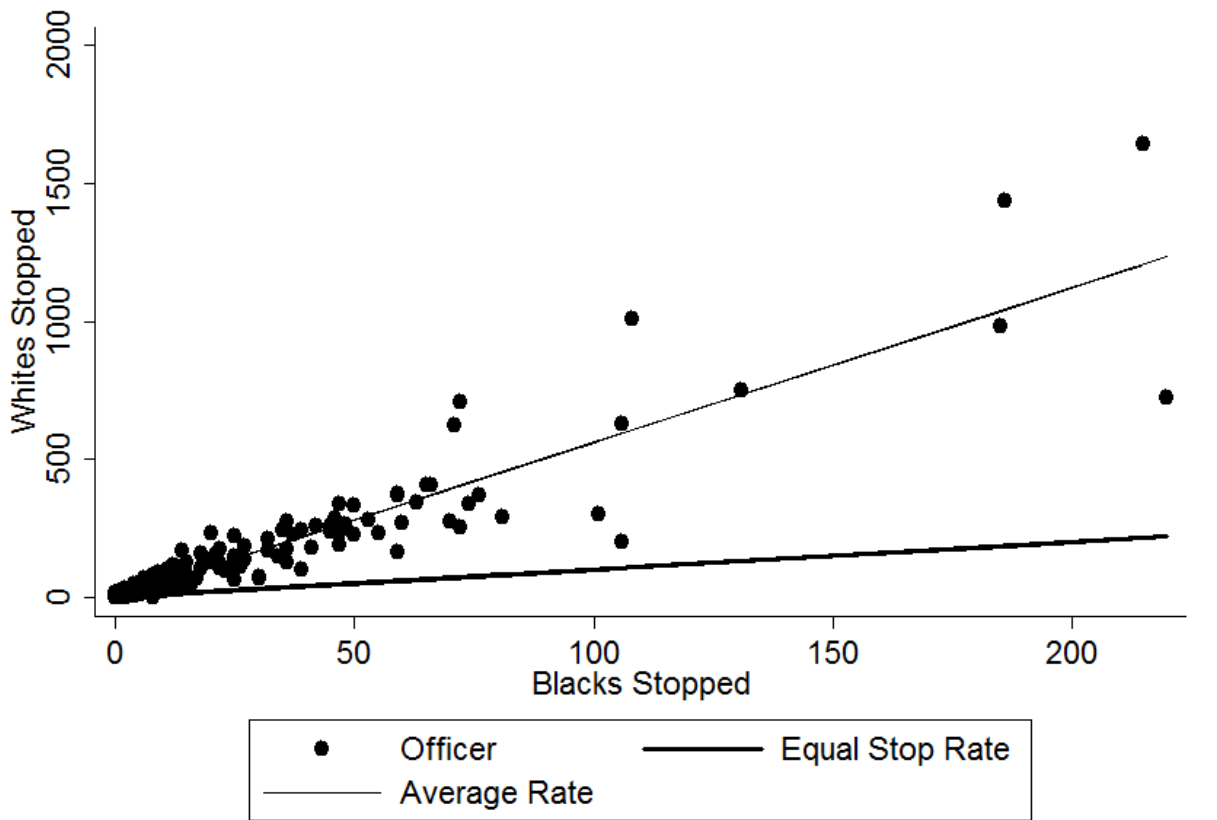
Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	29,462	-	81.74	14.76	-
Total Searches	2,131	7.23	6.42	9.98	1.55
Consent	1,128	3.83	3.58	4.30	1.20
Search Warrant	17	0.06	0.05	0.09	1.80
Probable Cause	211	0.72	0.59	1.47	2.49
Incident to Arrest	742	2.52	2.09	3.93	1.88
Protective Frisk	33	0.11	0.10	0.18	1.80

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

Table 5. Distribution of Officer IDs by Stop

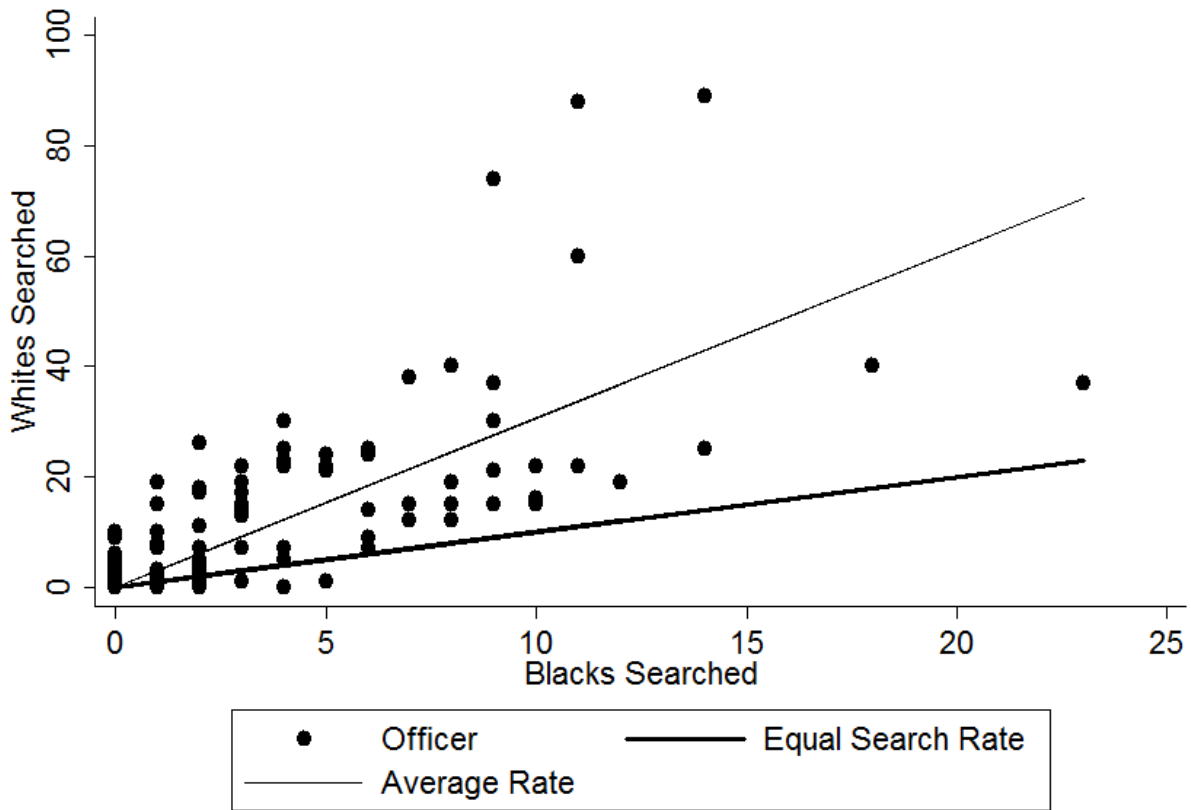
Number of Stops	Officers w/ this many Stops	Percent of Officers	Cumulative Percent	Percent of Stops	Cumulative Percent
1	318	52.48	52.48	1.08	1.08
2 – 10	145	23.93	76.40	2.12	3.20
11 - 100	73	12.05	88.45	9.19	12.39
101 – 1,000	65	10.73	99.17	63.94	76.33
1,001 +	5	0.83	100.00	23.67	100.00
Total	606	100.00	-	100.00	-

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



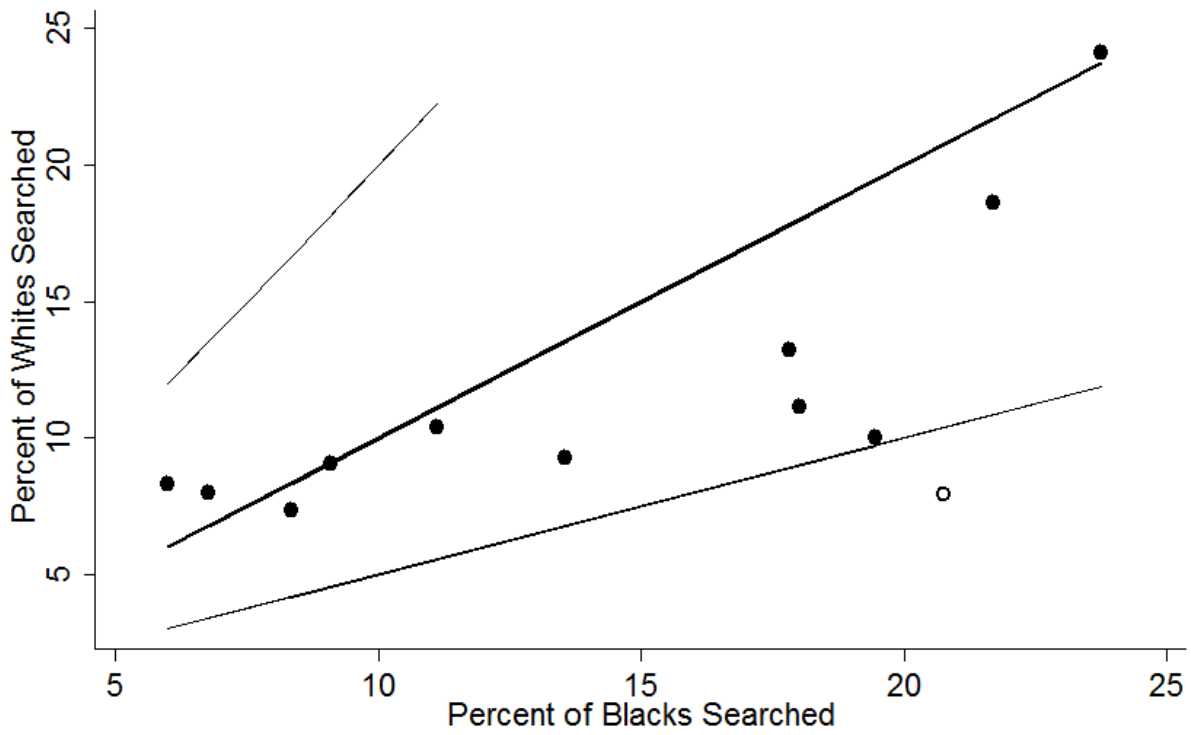
On average, officers stop 5.61 Whites for each Black stopped.

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



On average, officers search 3.07 Whites for each Black searched.

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



Includes 12 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 7.23. The hollow circles indicate high disparity officers.
 0 officer searches Whites at more than twice the rate that they search Blacks.
 1 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	1.84*(0.12)	1.82*(0.12)	1.64*(0.11)	1.64*(0.11)	1.59*(0.11)
Hispanic	1.92*(0.22)	1.80*(0.21)	1.37*(0.17)	1.38*(0.17)	1.39*(0.18)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.40*(0.18)	1.40*(0.18)	1.21(0.16)
Impaired	-	-	12.77*(1.55)	12.80*(1.55)	8.52*(1.09)
Movement	-	-	2.50*(0.28)	2.50*(0.28)	2.10*(0.24)
Equipment	-	-	2.10*(0.20)	2.11*(0.20)	1.56*(0.16)
Regulatory	-	-	1.71*(0.17)	1.71*(0.17)	1.58*(0.16)
Seat Belt	-	-	0.94(0.14)	0.94(0.14)	1.05(0.16)
Investigation	-	-	5.84*(0.56)	5.86*(0.56)	4.59*(0.46)
Other	-	-	2.78*(0.38)	2.80*(0.38)	2.54*(0.35)
Officer Type					
Black Disparity [†]	-	-	-	1.70*(0.40)	1.74*(0.41)
White Disparity [†]	-	-	-	Omitted	Omitted
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.08*(0.00)	0.23*(0.02)	0.12*(0.01)	0.12*(0.01)	0.19*(0.03)
N	17,253	17,253	17,253	17,253	17,128
Pseudo R²	0.01	0.03	0.10	0.10	0.11

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	1.19(0.15)	1.20(0.15)	1.00(0.13)	1.00(0.13)	0.97(0.13)
Hispanic	0.61(0.28)	0.57(0.26)	0.44(0.20)	0.44(0.20)	0.46(0.22)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.98*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.42*(0.60)	2.43*(0.60)	1.90*(0.48)
Impaired	-	-	27.17*(6.46)	27.14*(6.46)	14.92*(3.78)
Movement	-	-	4.29*(1.01)	4.33*(1.02)	3.25*(0.79)
Equipment	-	-	4.93*(0.89)	4.99*(0.91)	3.26*(0.63)
Regulatory	-	-	3.67*(0.68)	3.63*(0.67)	3.20*(0.60)
Seat Belt	-	-	2.41*(0.66)	2.41*(0.66)	2.57*(0.71)
Investigation	-	-	17.34*(3.17)	17.60*(3.22)	12.88*(2.47)
Other	-	-	3.35*(1.64)	6.46*(1.67)	5.38*(1.41)
Officer Type					
Black Disparity [†]	-	-	-	2.28*(0.79)	2.32*(0.82)
White Disparity [†]	-	-	-	Omitted	Omitted
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.04*(0.00)	0.11*(0.02)	0.03*(0.01)	0.03*(0.00)	0.06*(0.02)
N	11,179	11,179	11,179	11,179	11,113
Pseudo R²	0.00	0.02	0.11	0.11	0.14

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	1,540	68.25	27.47
Speed Limit	176	72.73	24.43
Stop Light/Sign	92	69.57	29.35
Driving Impaired	127	69.29	19.69
Safe Movement	134	71.64	18.66
Vehicle Equipment	278	66.55	29.50
Vehicle Regulatory	215	73.49	23.72
Seat Belt	51	72.55	25.49
Investigation	377	64.72	32.36
Other Vehicle	82	60.98	34.15

Figure A1. Stops by Day of the Week

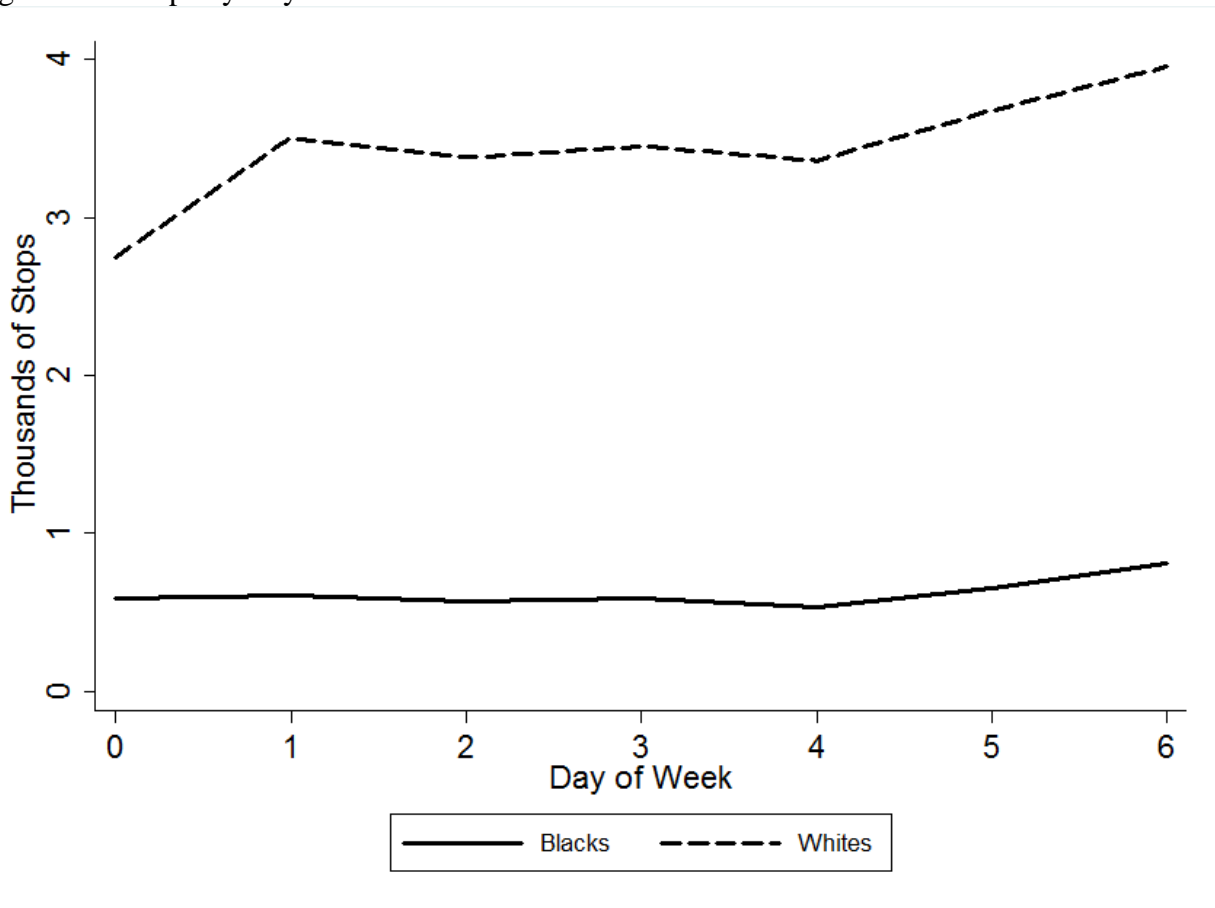


Figure A2. Searches by Day of the Week

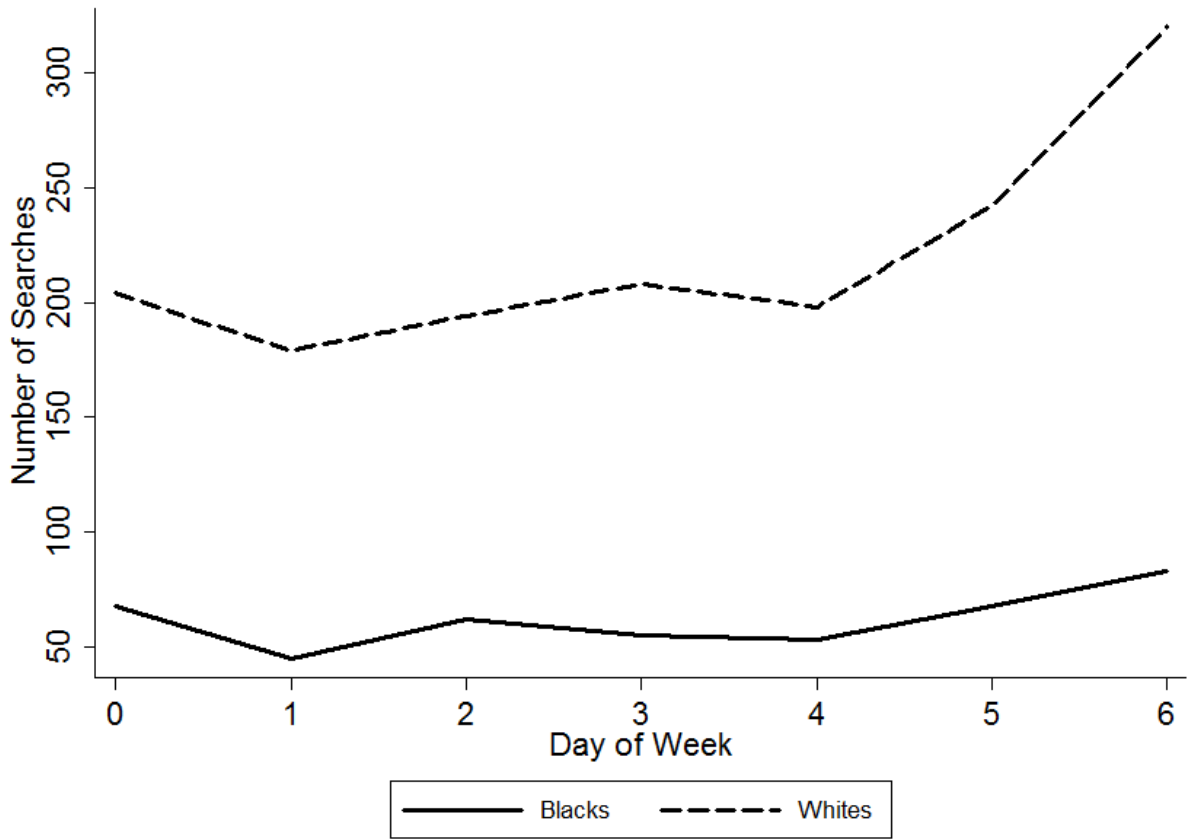
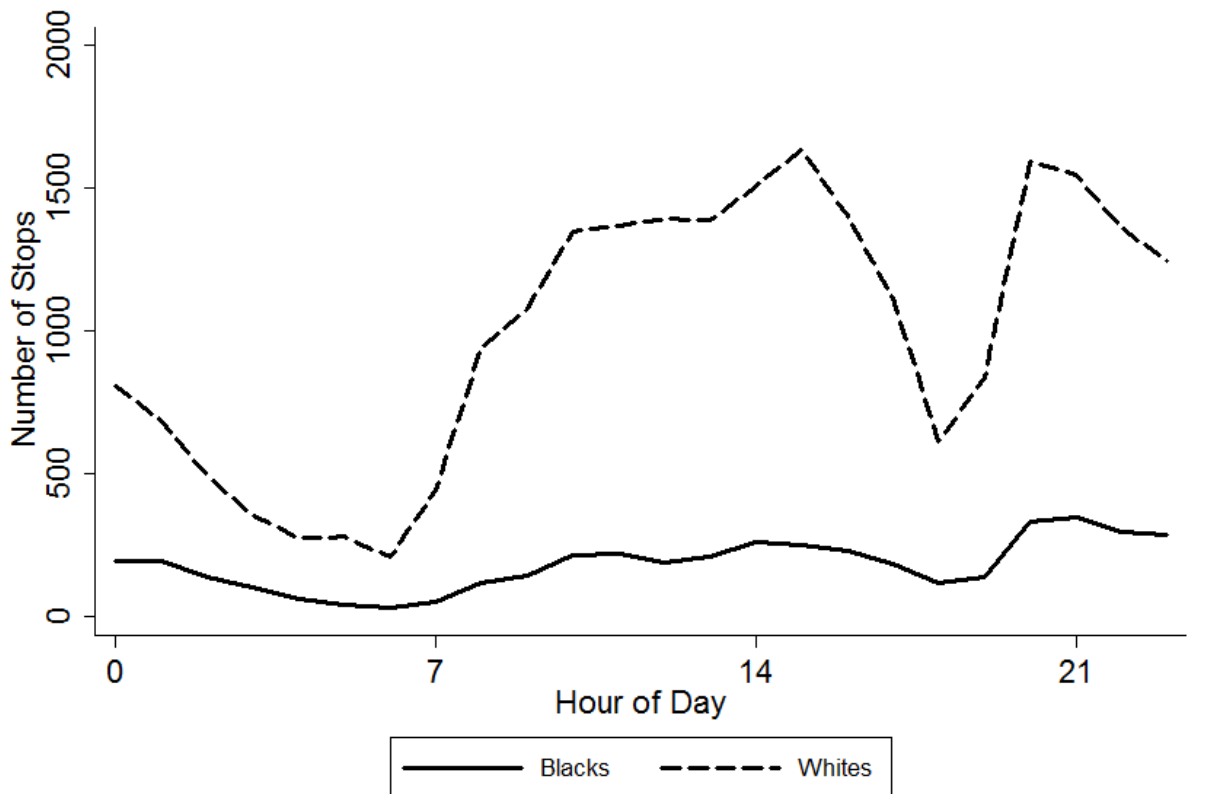
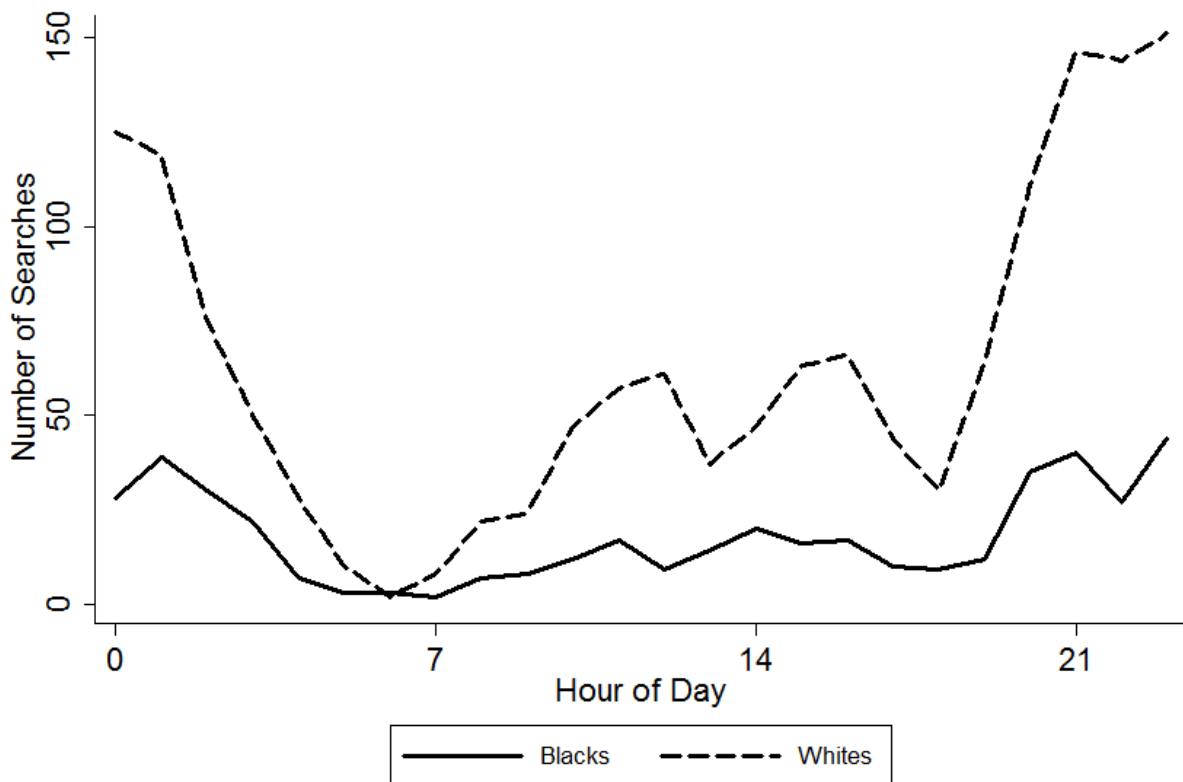


Figure A3. Stops by Hour of the Day



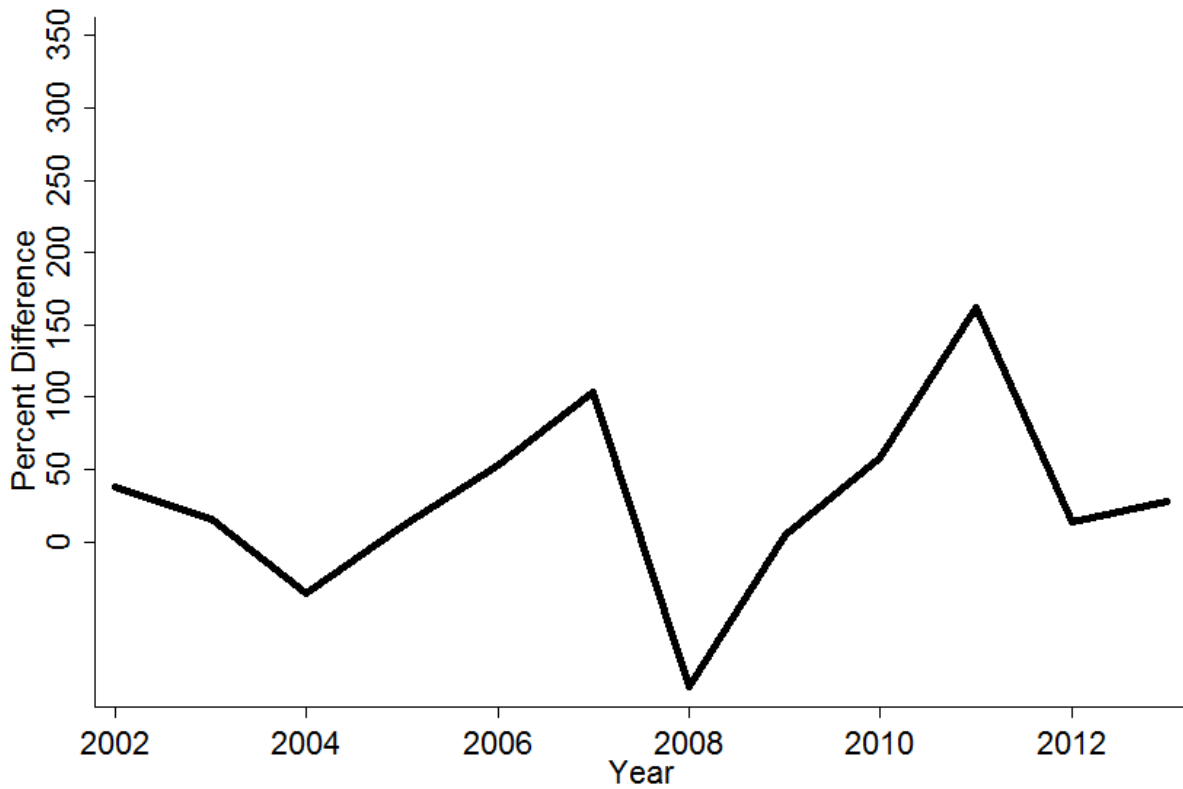
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

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	523	24.54	24.60	28.57
No	1,608	75.46	75.40	71.43
Total	2,131	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	22,538	6.55	17.21	25.53	49.98	0.72	100.00
Black	No	3,915	9.25	20.38	22.27	46.95	1.15	100.00
Total	No	27,331	7.04	17.78	24.77	49.63	0.78	100.00
White	Yes	1,545	4.72	9.32	8.09	34.76	43.11	100.00
Black	Yes	434	5.07	6.91	7.37	32.26	48.39	100.00
Total	Yes	2,131	4.88	9.01	8.02	34.07	44.02	100.00