

Analysis of Black-White Differences in Traffic Stops and Searches in Carrboro, NC, 2002-2013

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	32,417
-2014	964
-Passengers	930
-Checkpoint stops	87
Total number of cases deleted	1,889
Stops remaining for analysis	30,528
Searches	2,010
Percent of stops leading to search (search rate)	6.58%

Figure 1. Number of Traffic Stops per Year

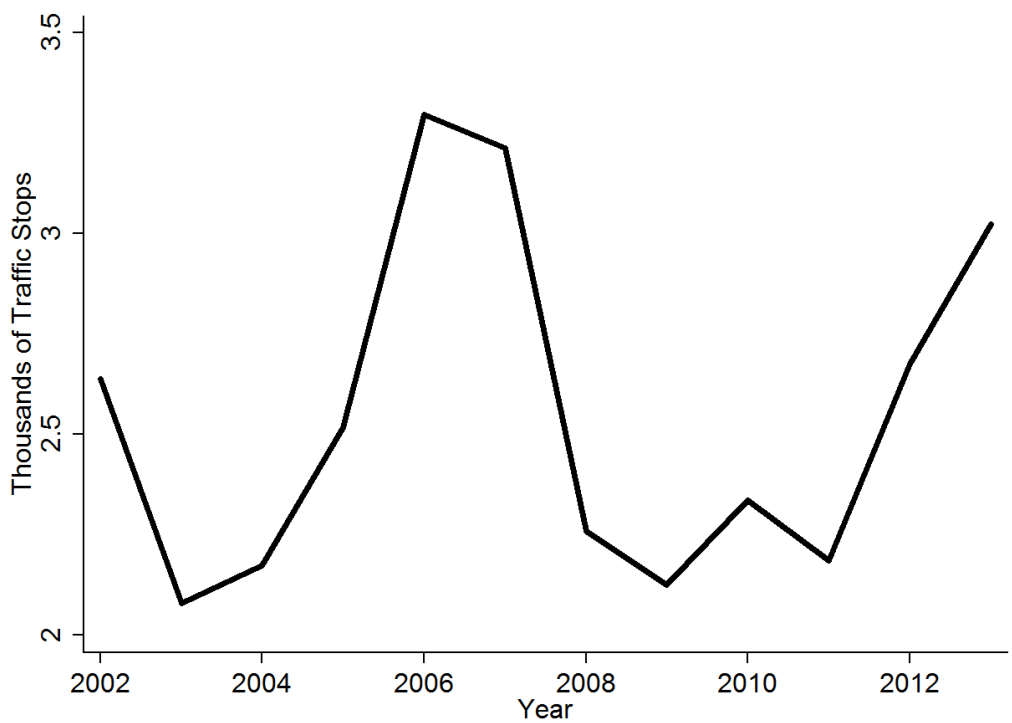


Figure 2. Racial Composition of Traffic Stops by Year

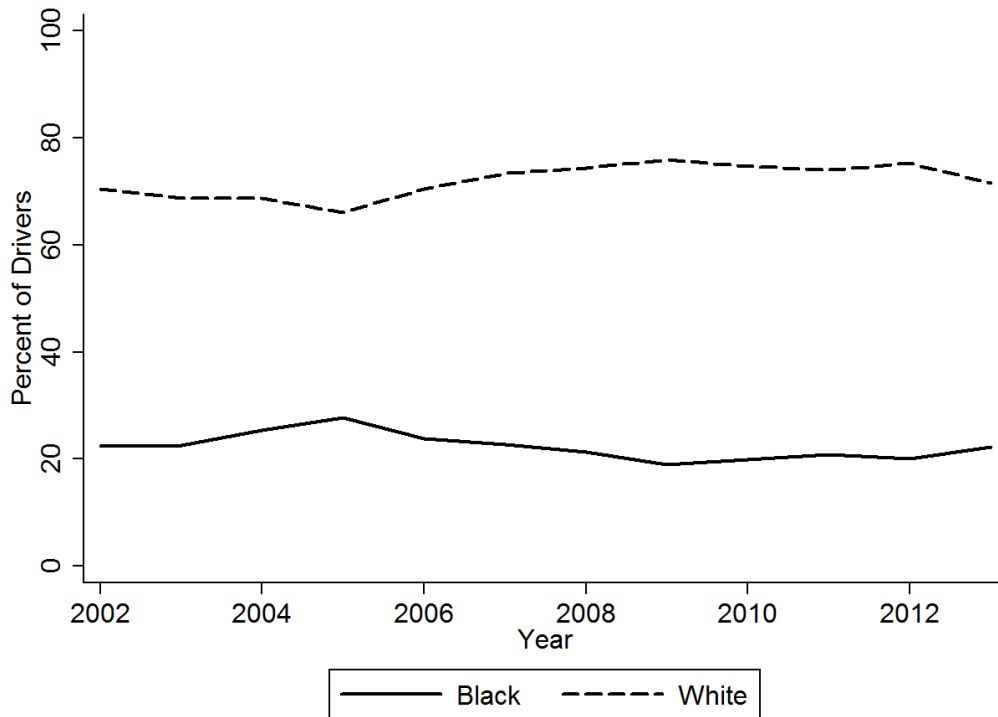


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

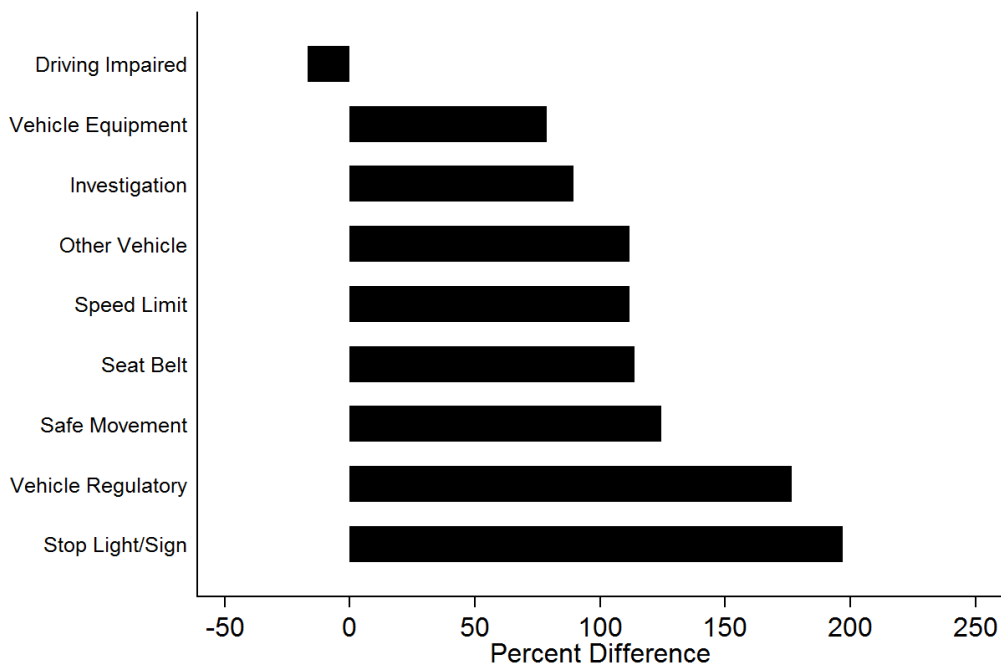
Purpose	Number	Percent	
		White	Black
Total Stops	30,528	71.94	22.40
Speed Limit	11,370	73.75	20.93
Stop Light/Sign	3,947	77.55	14.59
Driving Impaired	381	80.84	12.86
Safe Movement	2,641	73.68	20.03
Vehicle Equipment	3,843	64.43	28.62
Vehicle Regulatory	5,369	70.66	25.67
Seat Belt	255	56.86	34.90
Investigation	1,014	63.91	31.16
Other Vehicle	1,708	70.14	24.16

Note: Includes only drivers. Excludes 87 checkpoint stops. Excludes 930 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	30,528	-	71.94	22.40	-
Total Searches	2,010	6.58	5.26	11.65	2.21
Speed Limit	11,370	2.28	1.88	3.99	2.12
Stop Light/Sign	3,947	2.76	2.22	6.60	2.97
Driving Impaired	381	56.59	58.77	48.98	0.83
Safe Movement	2,641	4.96	3.96	8.88	2.24
Vehicle Equipment	3,843	10.93	9.01	16.09	1.79
Vehicle Regulatory	5,369	7.73	5.40	14.95	2.77
Seat Belt	255	14.90	11.03	23.60	2.14
Investigation	1,014	20.61	16.36	31.01	1.90
Other Vehicle	1,708	12.47	10.18	21.56	2.12

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 4. Percentage Searched by Race, Gender, and Age

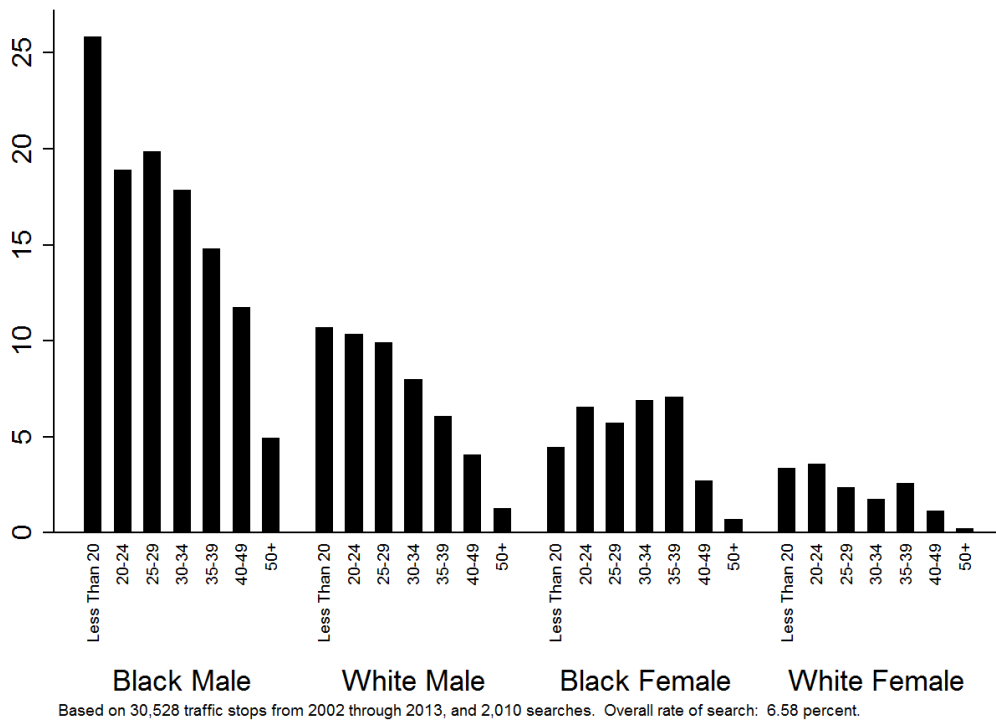


Figure 5. Racial Differences in the Likelihood of Search

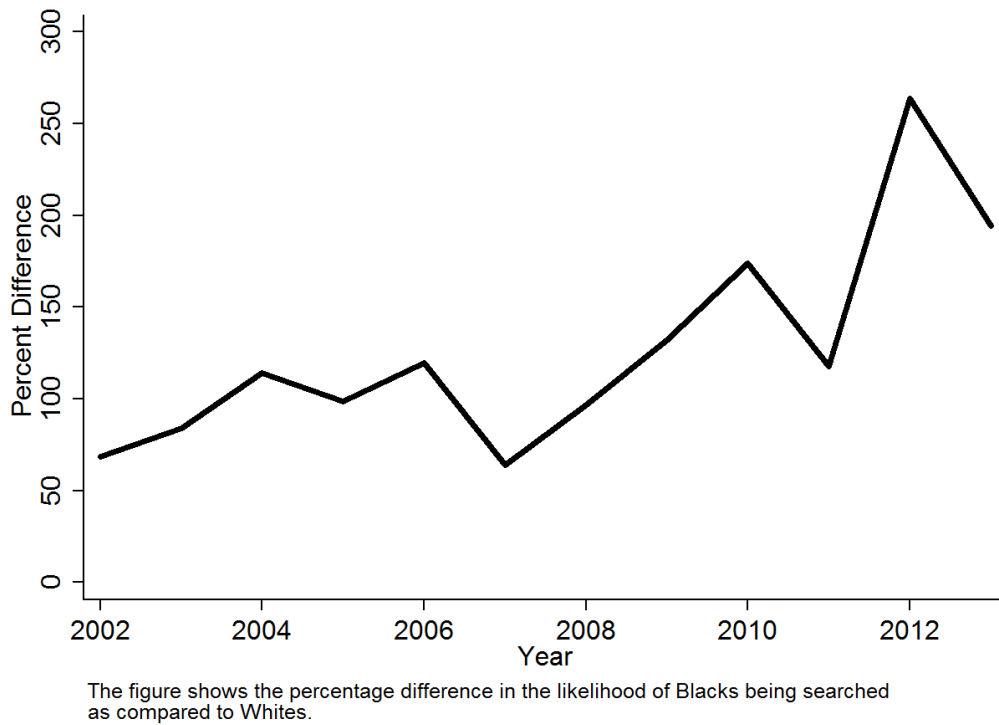


Figure 6. Number of Stops, by Race and Gender

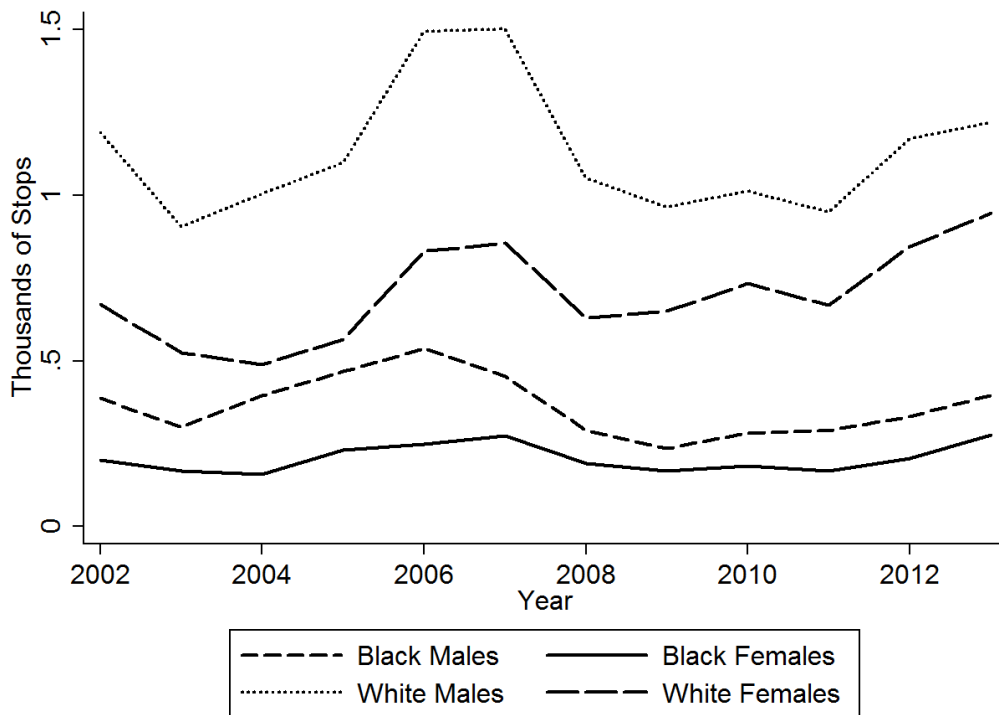


Figure 7. Percent Searched, by Race and Gender

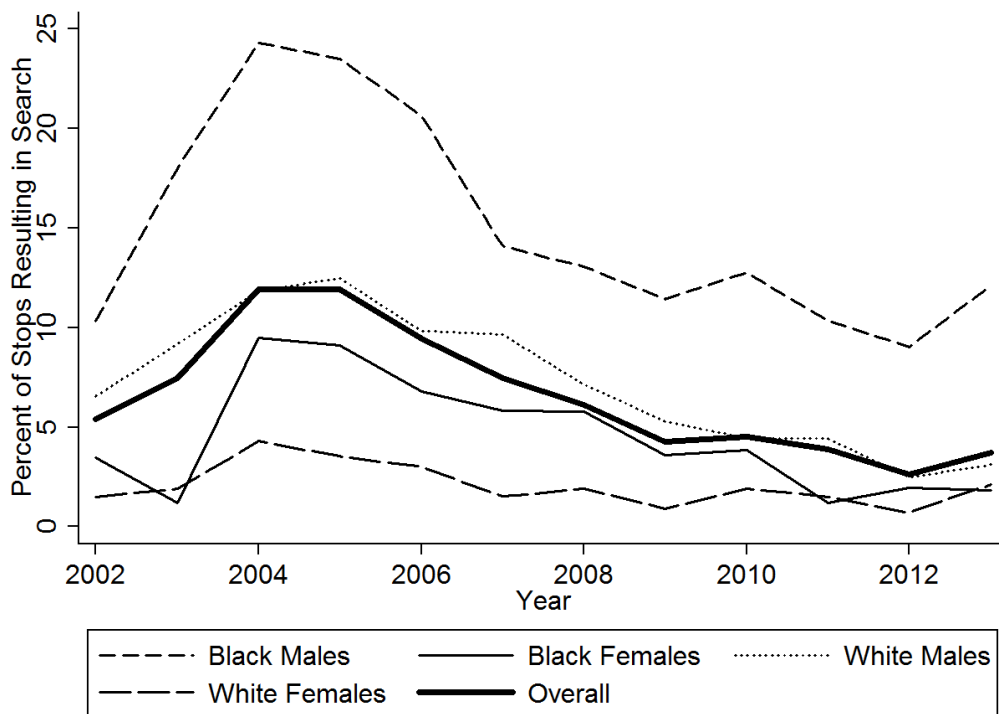


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	30,528	-	71.94	22.40	-
Total Searches	2,010	6.58	5.26	11.65	2.21
Consent	851	2.79	2.07	5.41	2.61
Search Warrant	5	0.02	0.02	0.01	-
Probable Cause	354	1.16	0.80	2.54	3.18
Incident to Arrest	746	2.44	2.28	3.23	1.42
Protective Frisk	54	0.18	0.10	0.45	4.50

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	144	46.91	46.91	0.47	0.47
2 – 10	80	26.06	72.97	0.95	1.42
11 - 100	29	9.45	82.42	4.17	5.59
101 – 1,000	47	15.31	97.73	61.31	66.90
1,001 +	7	2.28	100.00	33.11	100.00
Total	307	100.00	-	100.00	-

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

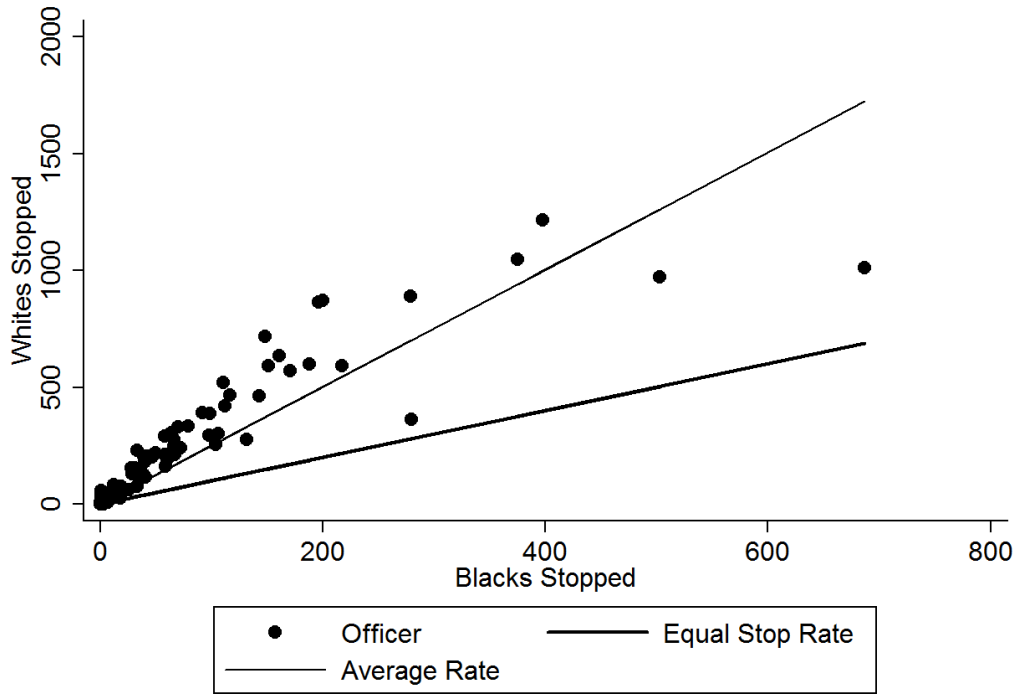


Figure 9. Number of Black and White Motorists Searched, by Officer

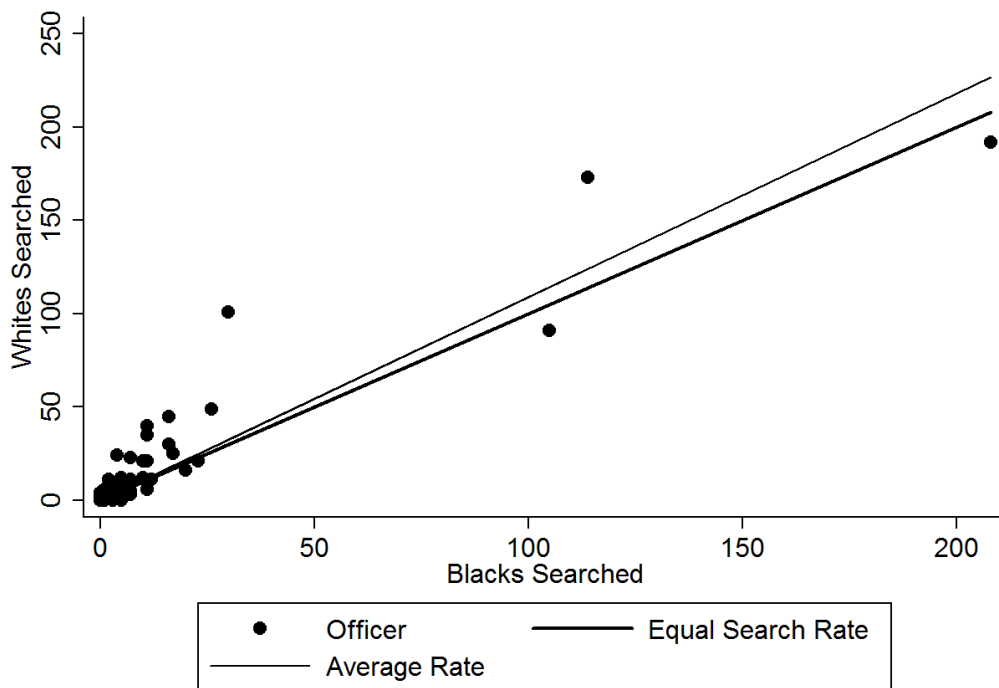
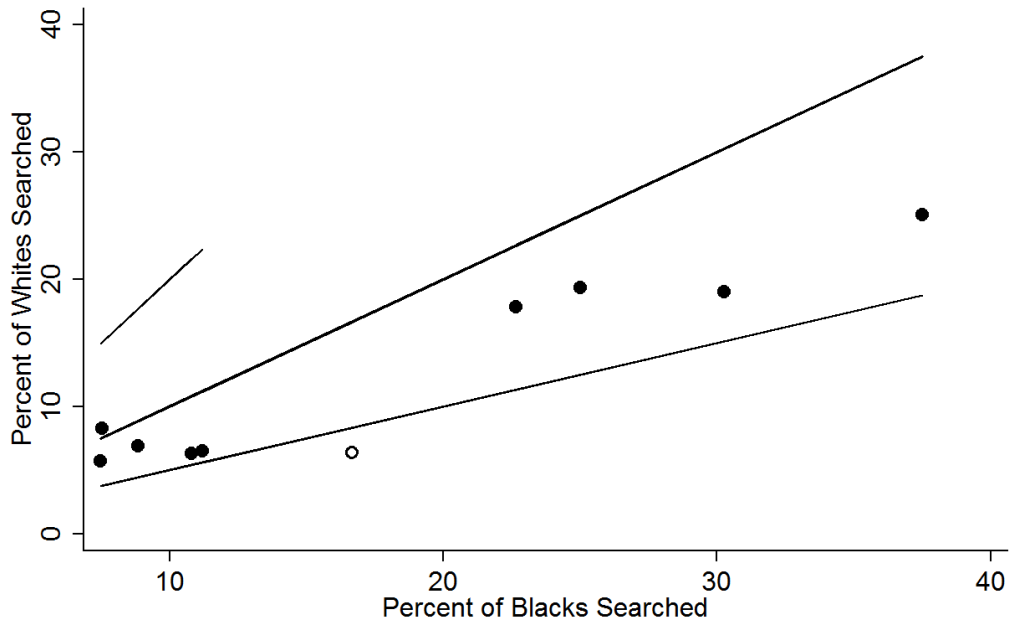


Figure 10. Percent of White and Black Drivers Searched, by Officer



Includes 10 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 6.58. The hollow circles indicate high disparity officers. No officers search Whites at more than twice the rate that they search Blacks. One officer searches 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	3.83* (0.24)	3.88* (0.25)	3.73* (0.25)	3.72* (0.25)	3.73* (0.25)
Hispanic	3.87* (0.26)	3.34* (0.22)	2.62* (0.19)	2.62* (0.19)	2.79* (0.20)
Age	-	0.96* (0.00)	0.96* (0.00)	0.96* (0.00)	0.96* (0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.23 (0.16)	1.21 (0.16)	1.16 (0.15)
Impaired	-	-	41.65* (6.12)	41.37* (6.08)	29.17* (4.41)
Movement	-	-	1.87* (0.23)	1.85* (0.23)	1.71* (0.22)
Equipment	-	-	3.14* (0.29)	3.15* (0.29)	2.73* (0.26)
Regulatory	-	-	2.78* (0.25)	2.78* (0.25)	2.94* (0.27)
Seat Belt	-	-	4.16* (0.90)	4.17* (0.90)	4.89* (1.07)
Investigation	-	-	5.92* (0.69)	5.91* (0.69)	5.34* (0.64)
Other	-	-	4.27* (0.47)	4.28* (0.47)	3.85* (0.43)
Officer Type					
Black Disparity [†]	-	-	-	1.58 (0.41)	1.54 (0.41)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.05* (0.00)	0.17* (0.01)	0.07* (0.00)	0.07* (0.00)	0.10* (0.02)
N	17,924	17,924	17,924	17,924	17,823
Pseudo R²	0.058	0.085	0.163	0.163	0.179

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 10 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
Demographics				
Race	2.37* (0.30)	2.40* (0.30)	2.25* (0.30)	2.28* (0.32)
Hispanic	1.03 (0.28)	0.90 (0.24)	0.67 (0.19)	0.76 (0.22)
Age	-	0.95* (0.00)	0.96* (0.01)	0.96* (0.01)
Stop Purpose				
Speed Limit	-	-	-	-
Stop Light	-	-	1.75 (0.52)	1.59 (0.48)
Impaired	-	-	102.31* (31.40)	70.79* (23.51)
Movement	-	-	2.55* (0.78)	2.25* (0.71)
Equipment	-	-	4.73* (1.10)	3.51* (0.85)
Regulatory	-	-	4.32* (0.94)	4.09* (0.91)
Seat Belt	-	-	9.68* (4.88)	9.38* (4.83)
Investigation	-	-	29.55* (7.18)	22.87* (5.79)
Other	-	-	9.25* (2.31)	7.47* (1.93)
Time				
Hour of Day	-	-	-	Included
Day of Week	-	-	-	Included
Constant	0.02* (0.00)	0.10* (0.02)	0.03* (0.01)	0.01* (0.01)
N	10,876	10,876	10,876	10,566
Pseudo R²	0.017	0.052	0.187	0.213

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.

* $p < 0.05$

Appendix

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

Purpose	Number	Percent	
		White	Black
Total Stops	930	45.81	52.90
Speed Limit	72	62.50	36.11
Stop Light/Sign	55	36.36	63.64
Driving Impaired	22	54.55	45.45
Safe Movement	52	36.54	61.54
Vehicle Equipment	258	42.64	54.26
Vehicle Regulatory	214	45.79	54.21
Seat Belt	27	29.63	70.37
Investigation	132	44.70	54.55
Other Vehicle	98	56.12	42.86

Figure A1. Stops by Day of the Week

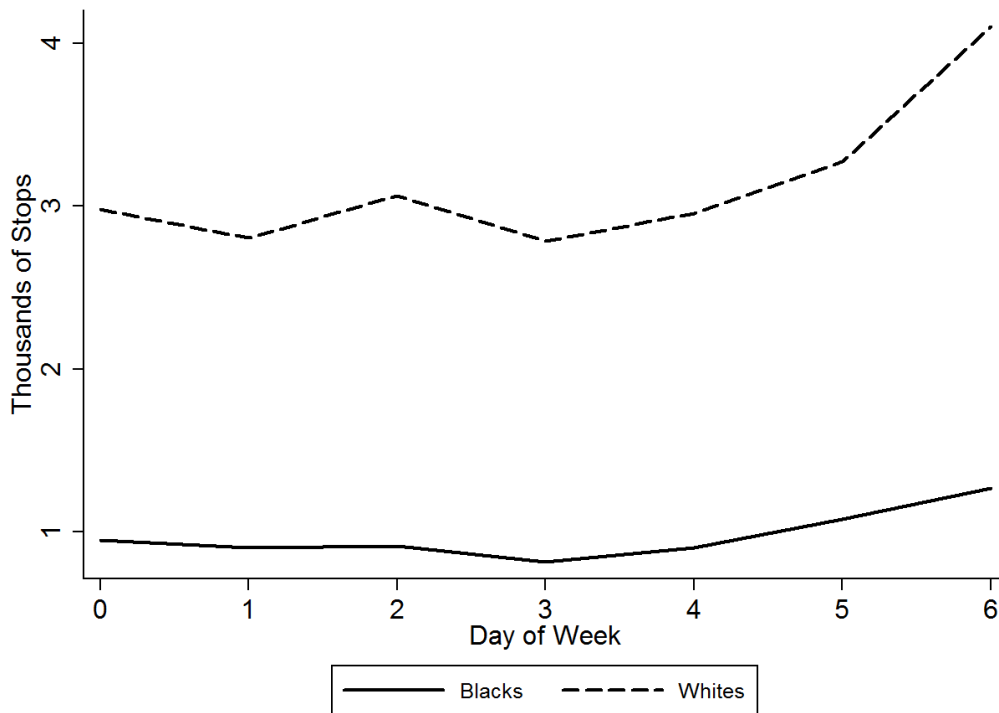
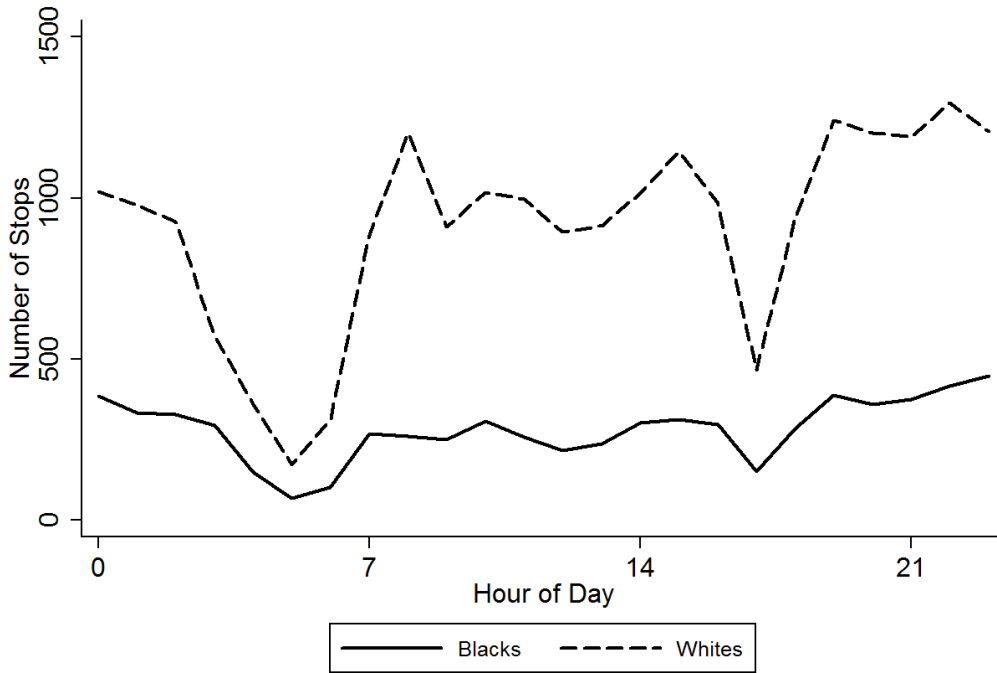


Figure A2. Searches by Day of the Week



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

Figure A3. Stops by Hour of the Day

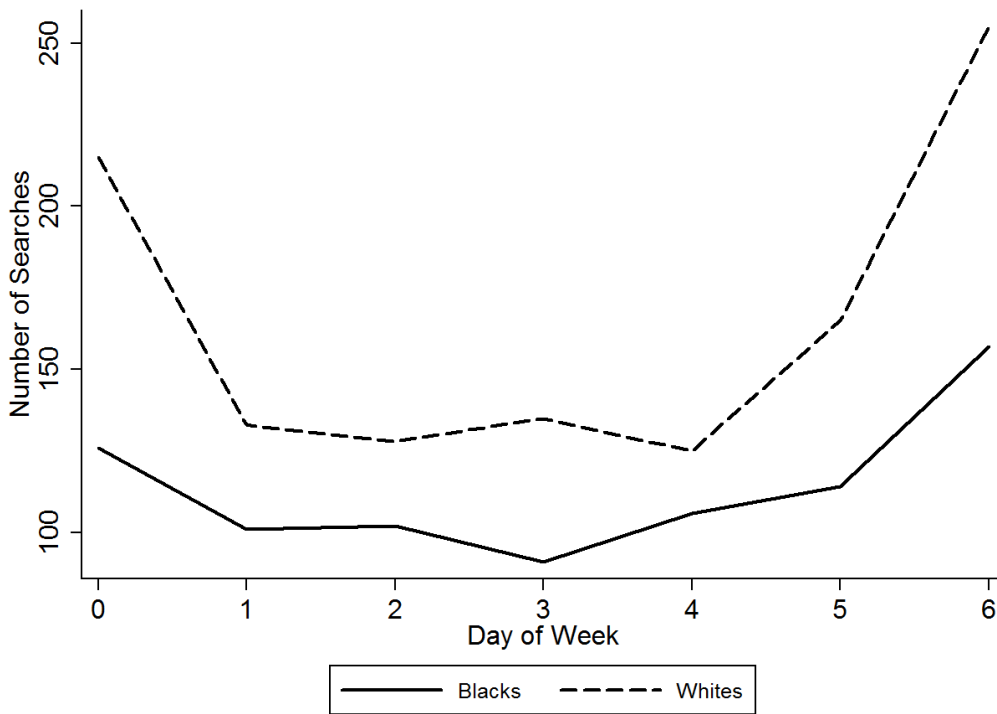
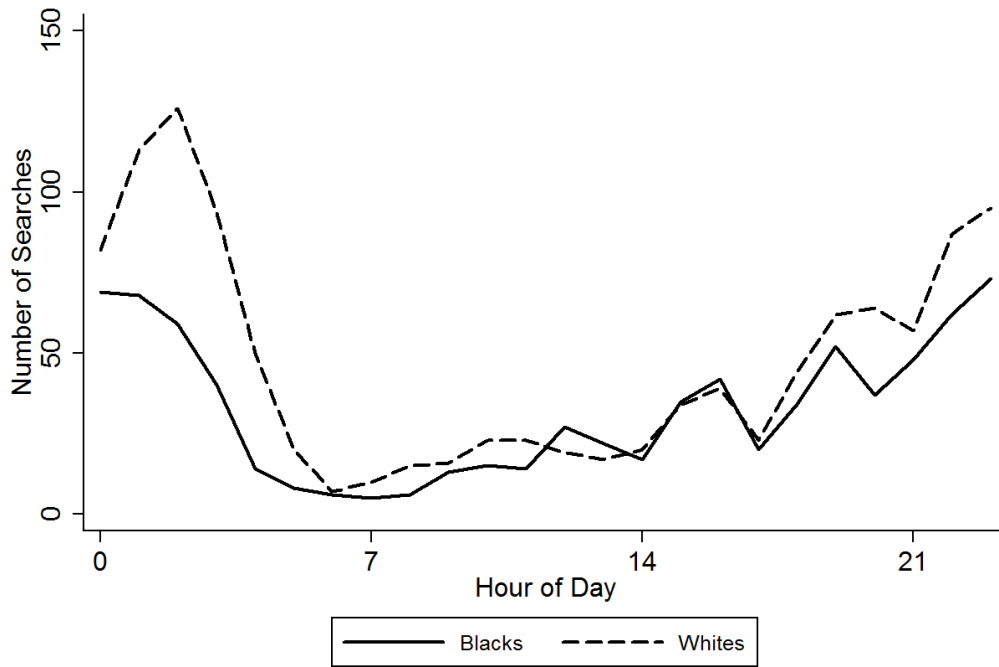
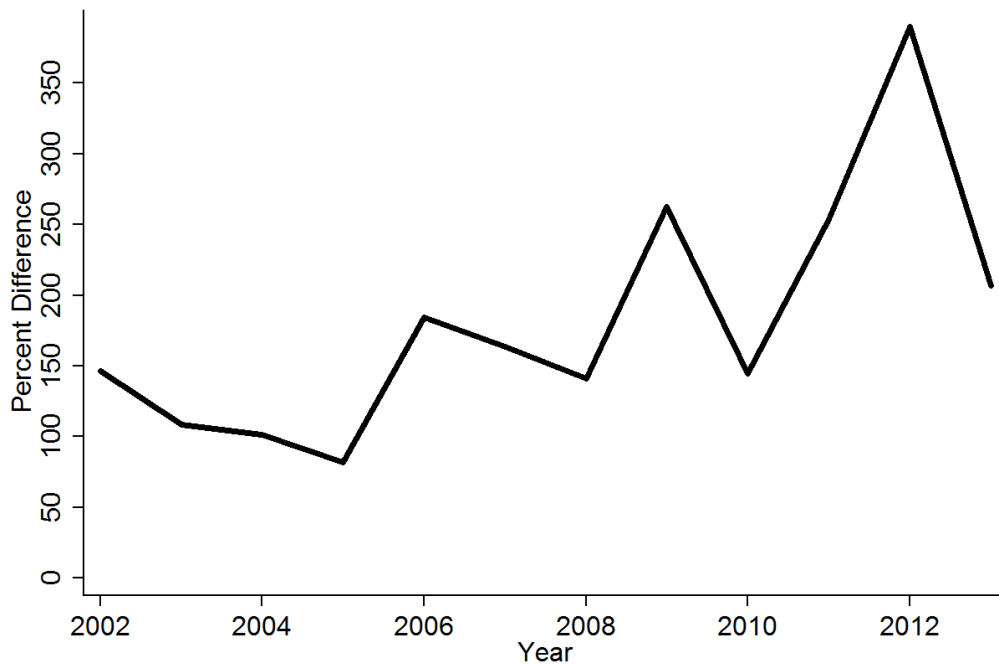


Figure A4. Searches by Hour of the Day



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	26.02	23.88	29.86
No	1,487	73.98	76.12	70.14
Total	2,010	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	28,518	3.24	41.51	9.88	44.61	0.75	100.00
Black	No	20,805	3.94	47.72	7.58	40.30	0.46	100.00
Total	No	6,042	3.34	42.87	9.26	43.84	0.69	100.00
White	Yes	1,156	1.56	19.38	0.69	26.21	52.16	100.00
Black	Yes	797	2.51	22.84	1.13	32.75	40.78	100.00
Total	Yes	2,010	1.94	20.90	0.95	28.86	47.36	100.00