

Analysis of Black-White Differences in Traffic Stops and Searches

Chatham County NC Sheriff's Department, 2002-2013

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	24,016
-2014	384
-Passengers	905
-Checkpoint stops	317
-Total number of cases deleted	1563
Stops remaining for analysis	22,453
Searches	1,497
Percent of stops leading to search (search rate)	6.67

Figure 1. Number of Traffic Stops per Year

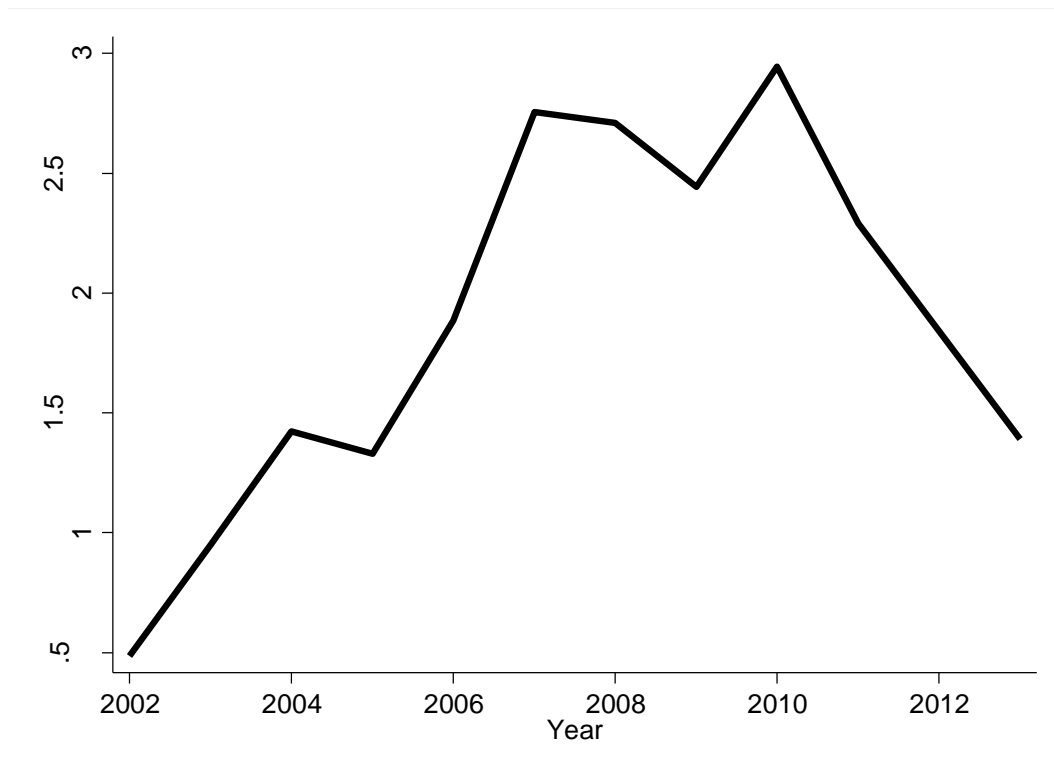


Figure 2. Racial Composition of Traffic Stops by Year

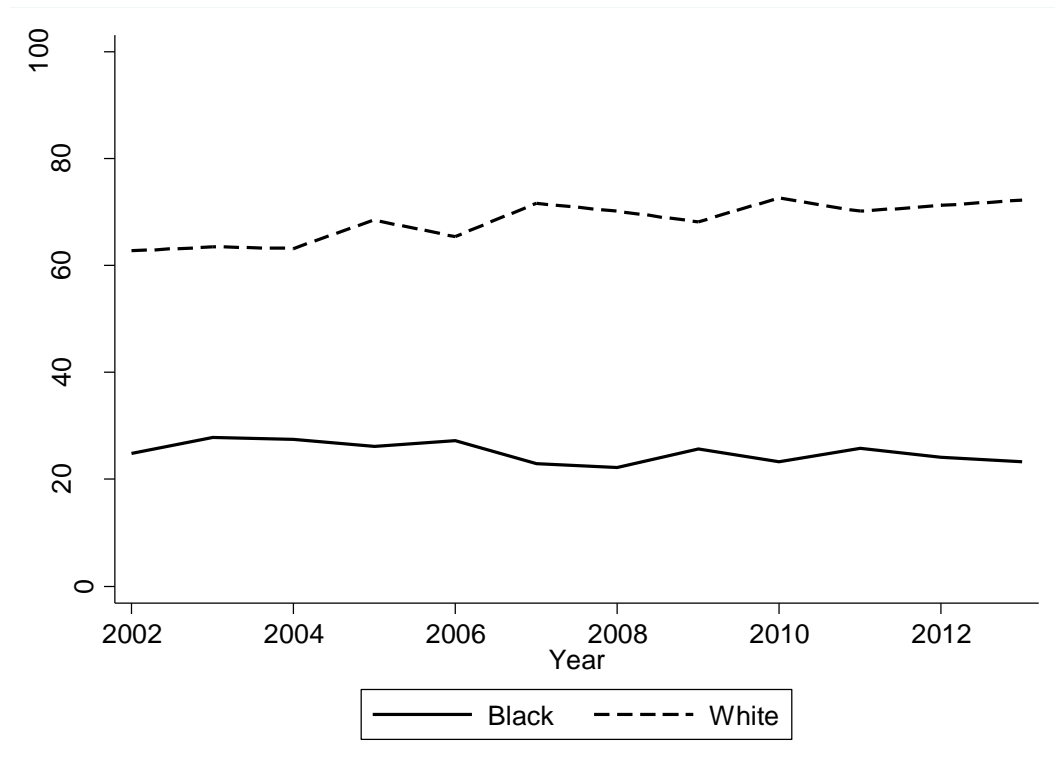


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	22,453	69.32	24.69
Speed Limit	6,819	70.64	22.91
Stop Light/Sign	1,401	77.52	17.56
Driving Impaired	521	63.72	24.76
Safe Movement	3,968	69.28	23.34
Vehicle Equipment	3,924	68.20	28.39
Vehicle Regulatory	2,680	69.81	26.53
Seat Belt	713	62.97	33.10
Investigation	1,336	65.34	26.57
Other Vehicle	1,091	65.26	24.20

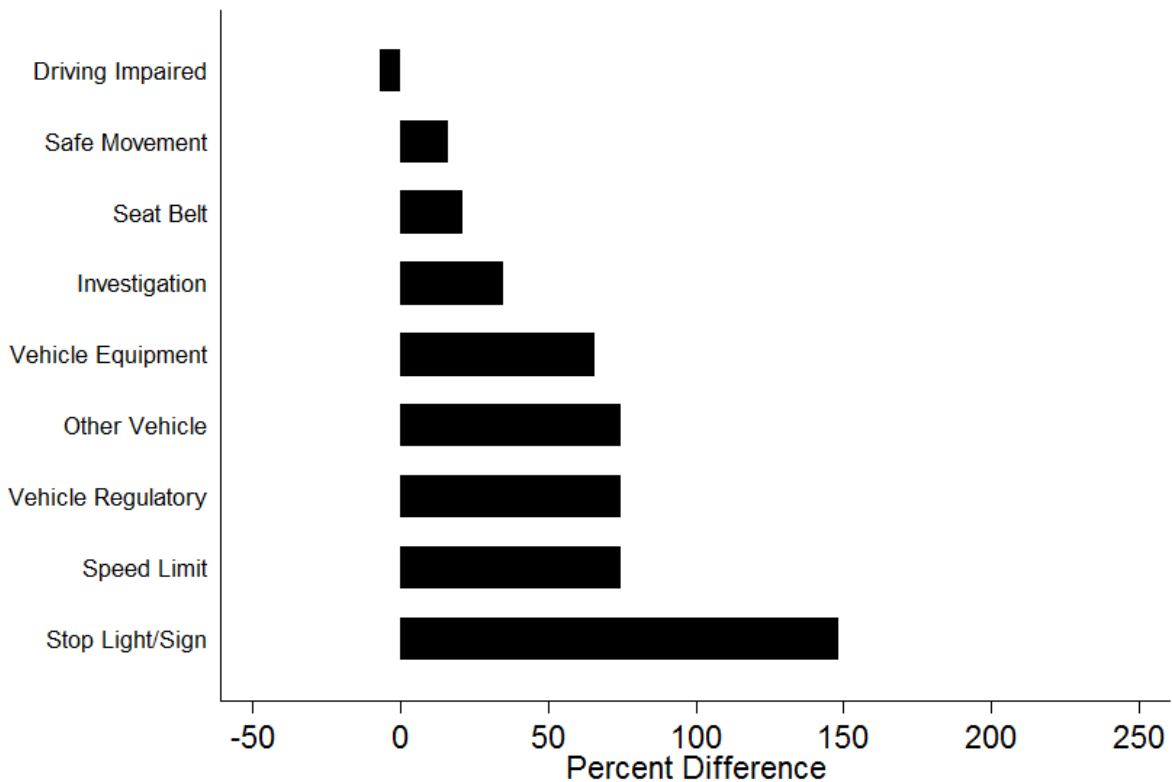
Note: Includes only drivers. Excludes 317 checkpoint stops. Excludes 905 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	22,453	-	69.32	24.69	-
Total Searches	1,497	6.67	5.79	9.09	1.57
Speed Limit	6,819	4.02	3.40	5.95	1.75
Stop Light/Sign	1,401	3.93	2.95	7.32	2.48
Driving Impaired	521	16.12	17.47	16.28	0.93
Safe Movement	3,968	6.48	6.22	7.24	1.16
Vehicle Equipment	3,924	7.06	5.79	9.61	1.66
Vehicle Regulatory	2,680	6.49	5.40	9.42	1.74
Seat Belt	713	13.74	12.92	15.68	1.21
Investigation	1,336	13.77	12.71	17.18	1.35
Other Vehicle	1,091	8.62	7.16	12.50	1.75

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

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

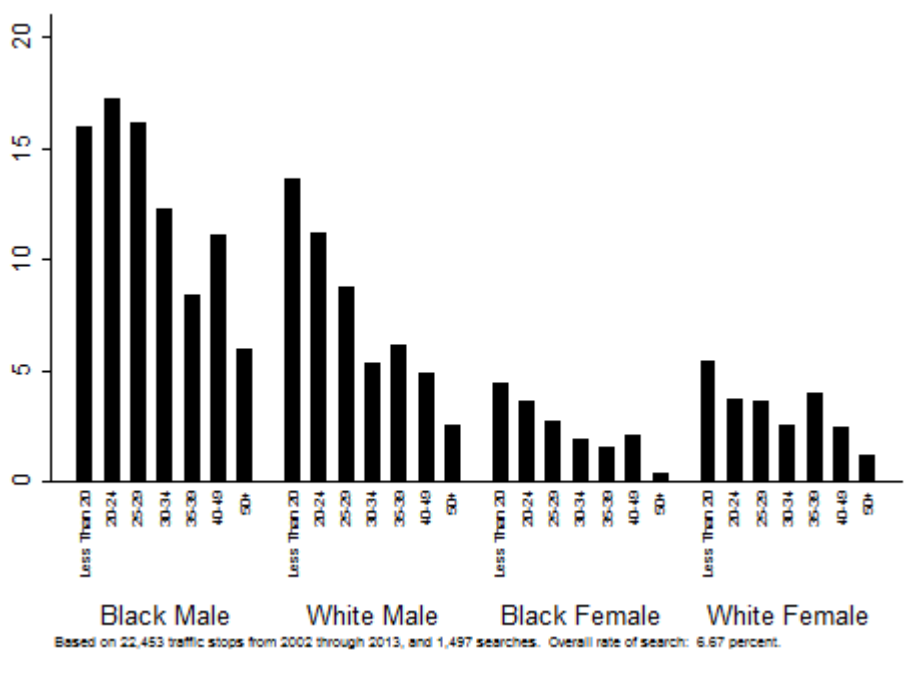


Figure 5. Racial Differences in the Likelihood of Search

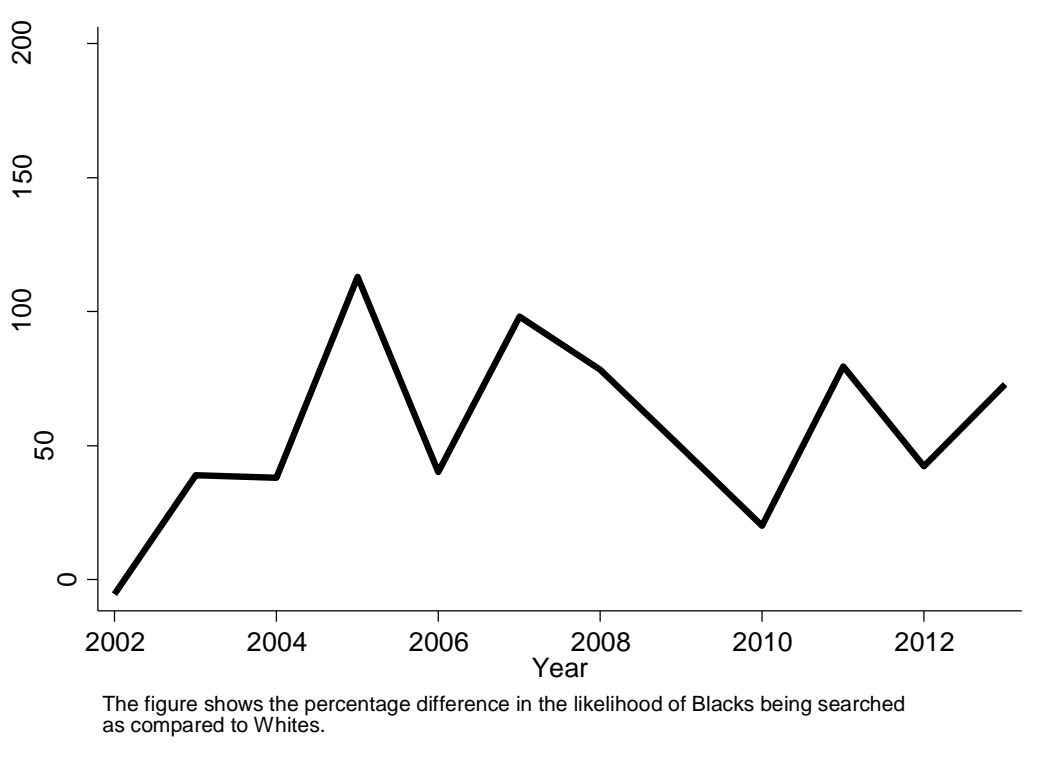


Figure 6. Number of Stops, by Race and Gender

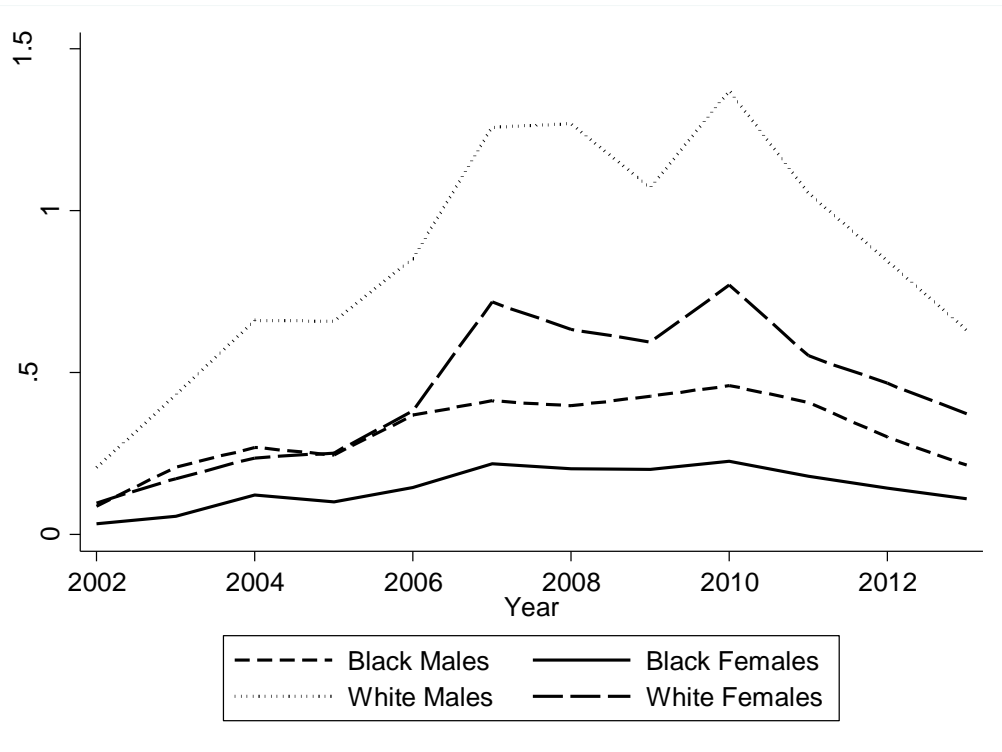


Figure 7. Percent Searched, by Race and Gender

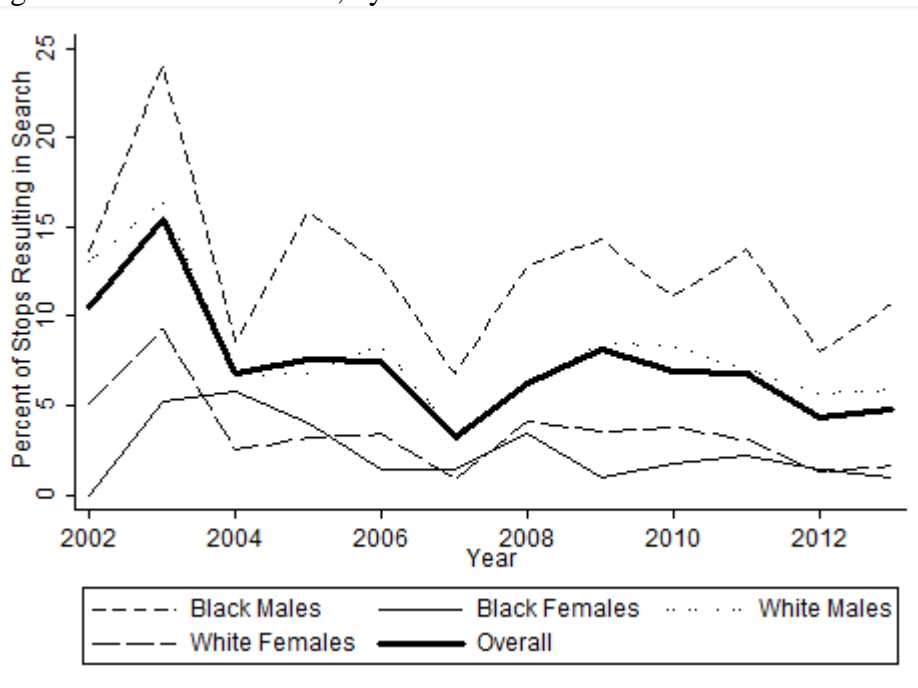


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	22,453	-	69.32	24.69	-
Total Searches	1,497	6.67	5.79	9.09	1.57
Consent	744	3.31	2.91	4.33	1.49
Search Warrant	9	-	-	-	-
Probable Cause	453	2.02	1.67	3.14	1.88
Incident to Arrest	244	1.09	0.98	1.30	1.33
Protective Frisk	47	0.21	0.19	0.29	1.53

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	218	48.66	48.66	0.97	0.97
2 – 10	102	22.77	71.43	1.66	2.63
11 - 100	75	16.74	88.17	13.59	16.22
101 – 1,000	49	10.94	99.11	59.19	75.41
1,001 +	4	0.89	100.00	24.58	100.00
Total	448	100	-	100	-

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

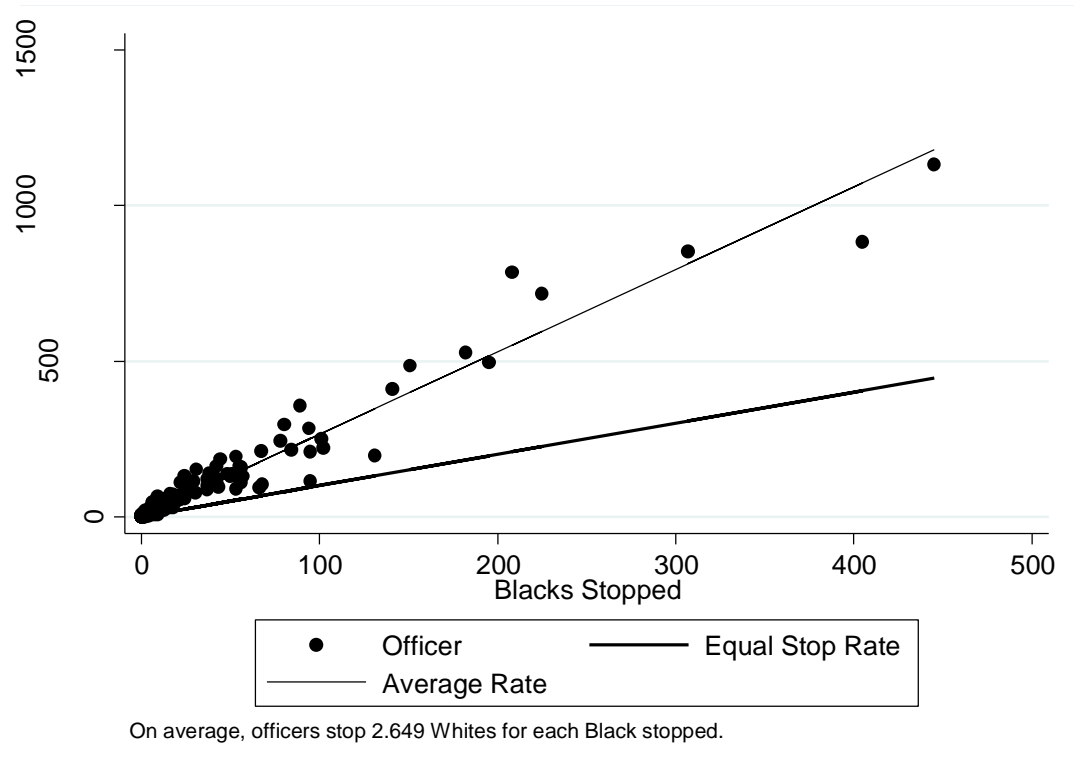


Figure 9. Number of Black and White Motorists Searched, by Officer

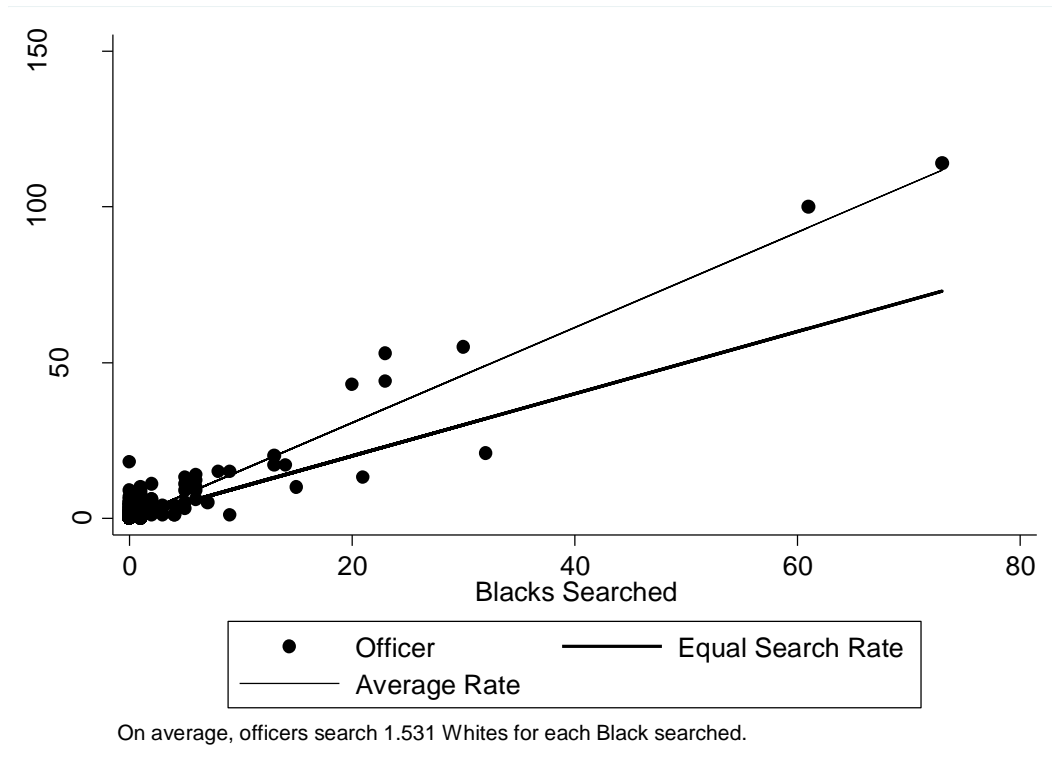


Figure 10. Percent of White and Black Drivers Searched, by Officer

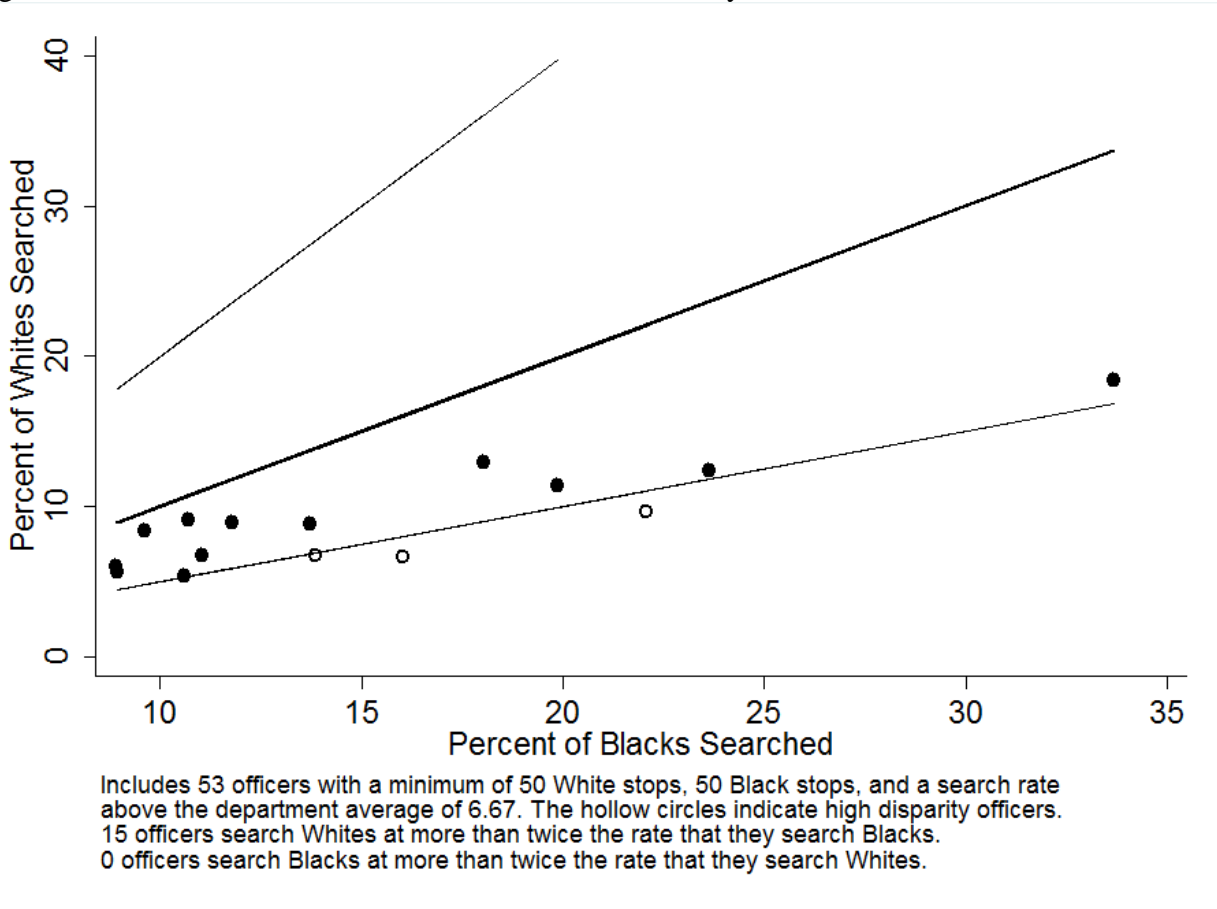


Table 6. Predicting the Occurrence of a Search, Male Drivers

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Demographics					
Race	1.83*(0.19)	1.85*(0.12)	1.76*(0.12)	1.74*(0.12)	1.79*(0.12)
Hispanic	1.12 (0.11)	0.98 (0.09)	0.89 (0.09)	0.89 (0.09)	0.94 (0.09)
Age	-	0.96*(0.00)	0.96*(0.00)	0.96*(0.00)	0.96*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.01 (0.17)	1.01 (0.17)	1.02 (0.18)
Impaired	-	-	4.52*(0.71)	4.54*(0.71)	5.57*(0.93)
Movement	-	-	1.57*(0.16)	1.55*(0.16)	1.62*(0.17)
Equipment	-	-	1.55*(0.15)	1.53*(0.15)	1.50*(0.15)
Regulatory	-	-	1.71*(0.19)	1.70*(0.19)	1.66*(0.19)
Seat Belt	-	-	2.72*(0.37)	2.57*(0.36)	2.67*(0.39)
Investigation	-	-	3.34*(0.38)	3.30*(0.38)	3.49*(0.42)
Other	-	-	1.94*(0.29)	1.92*(0.28)	1.95*(0.30)
Officer Type					
Black Disparity [†]	-	-	-	1.39*(0.17)	1.32*(0.17)
White Disparity [†]	-	-	-	Omitted	Omitted
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.08*(0.00)	0.28*(0.24)	0.18*(0.02)	0.18*(0.02)	0.13*(0.02)
N	14,115	14,115	14,115	14,115	12,949
Pseudo R²	0.01	0.04	0.06	0.06	0.08

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.

* = Significant at 0.05 p-value

† = See Figure 10 for an explanation 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	0.71 (0.13)	0.69*(0.13)	0.65*(0.12)	0.66*(0.12)	0.65*(0.12)
Hispanic	0.53 (0.20)	0.46*(0.17)	0.39*(0.14)	0.39*(0.14)	0.40*(0.15)
Age	-	0.96*(0.01)	0.96*(0.01)	0.96*(0.01)	0.96*(0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.57 (0.64)	1.58 (0.65)	1.48 (0.65)
Impaired	-	-	10.19*(3.65)	10.16*(3.64)	11.60*(4.36)
Movement	-	-	3.24*(0.84)	3.25*(0.84)	3.56*(0.96)
Equipment	-	-	3.13*(0.80)	3.17*(0.81)	3.43*(0.92)
Regulatory	-	-	2.24*(0.67)	2.24*(0.67)	2.18*(0.67)
Seat Belt	-	-	7.30*(2.95)	7.88*(3.21)	7.18*(3.00)
Investigation	-	-	7.66*(2.26)	7.69*(2.27)	8.70*(2.63)
Other	-	-	5.39*(1.74)	5.36*(1.73)	5.81*(1.94)
Officer Type					
Black Disparity [†]	-	-	-	0.54 (0.28)	0.59 (0.31)
White Disparity [†]	-	-	-	Omitted	Omitted
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.03*(0.00)	0.11*(0.02)	0.04*(0.01)	0.04*(0.01)	0.06*(0.02)
N	6,993	6,993	6,993	6,993	6,464
Pseudo R²	0.00	0.03	0.07	0.07	0.08

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.

* = Significant at 0.05 p-value

† = See Figure 10 for an explanation of high disparity officers.

Appendix

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

Purpose	Number	Percent	
		White	Black
Total Stops	905	493	371
Speed Limit	149	73	73
Stop Light/Sign	32	16	16
Driving Impaired	35	18	14
Safe Movement	162	99	51
Vehicle Equipment	159	82	68
Vehicle Regulatory	95	47	45
Seat Belt	75	38	34
Investigation	111	68	41
Other Vehicle	65	34	25

Figure A1. Stops by Day of the Week

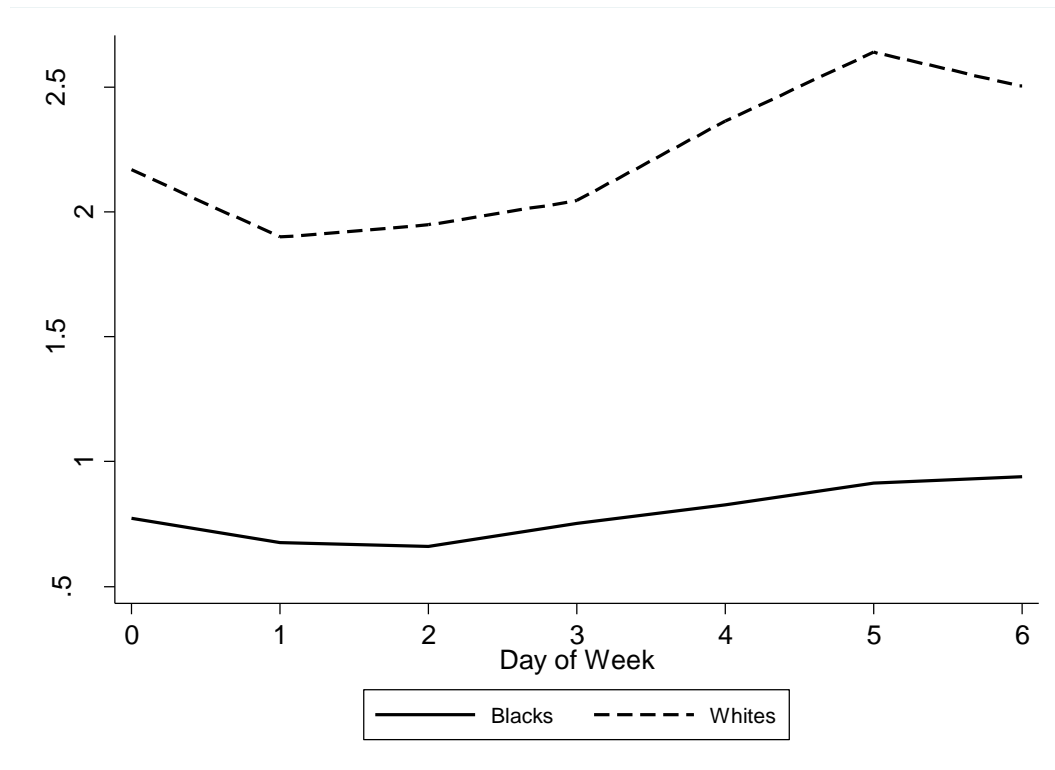


Figure A2. Searches by Day of the Week

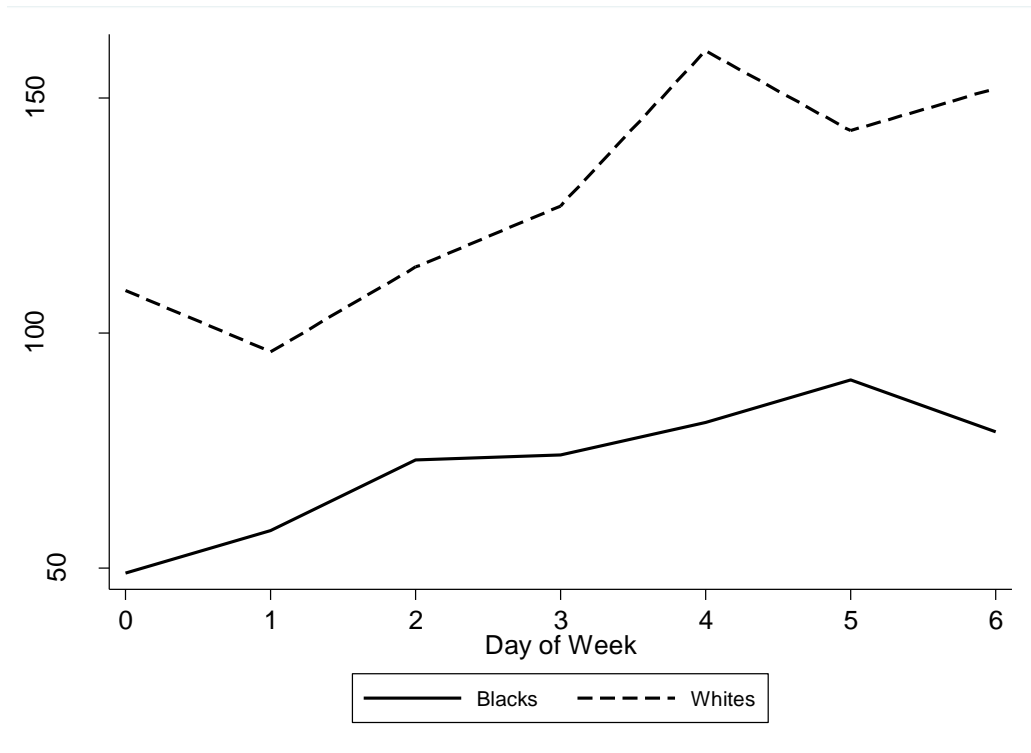


Figure A3. Stops by Hour of the Day

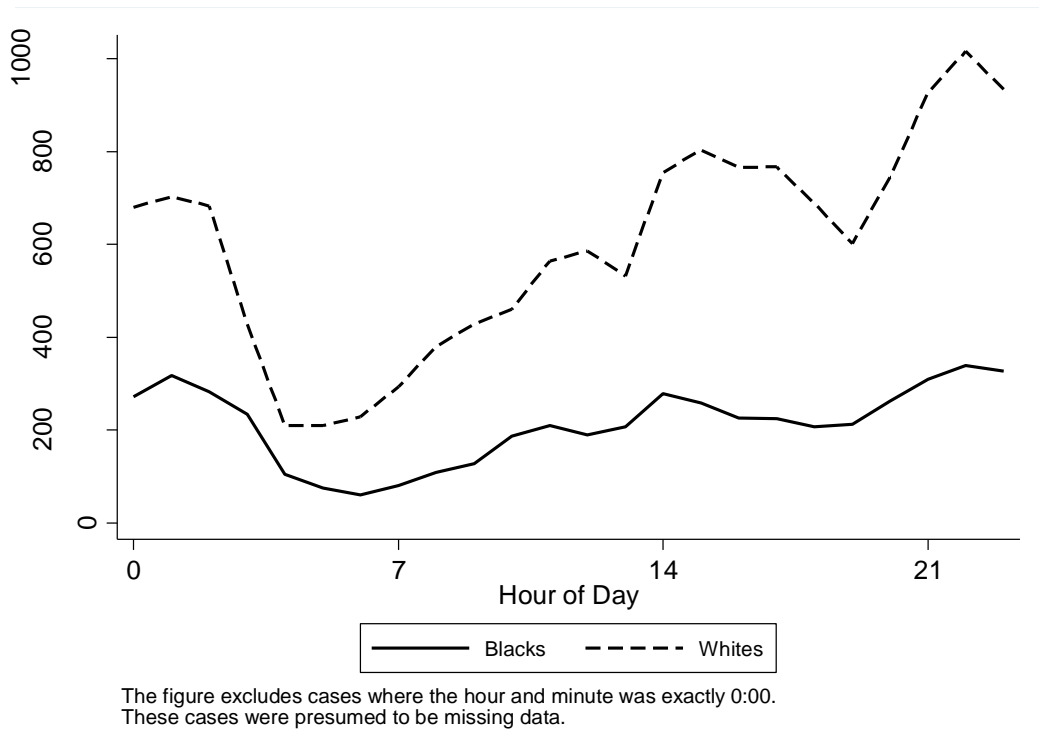
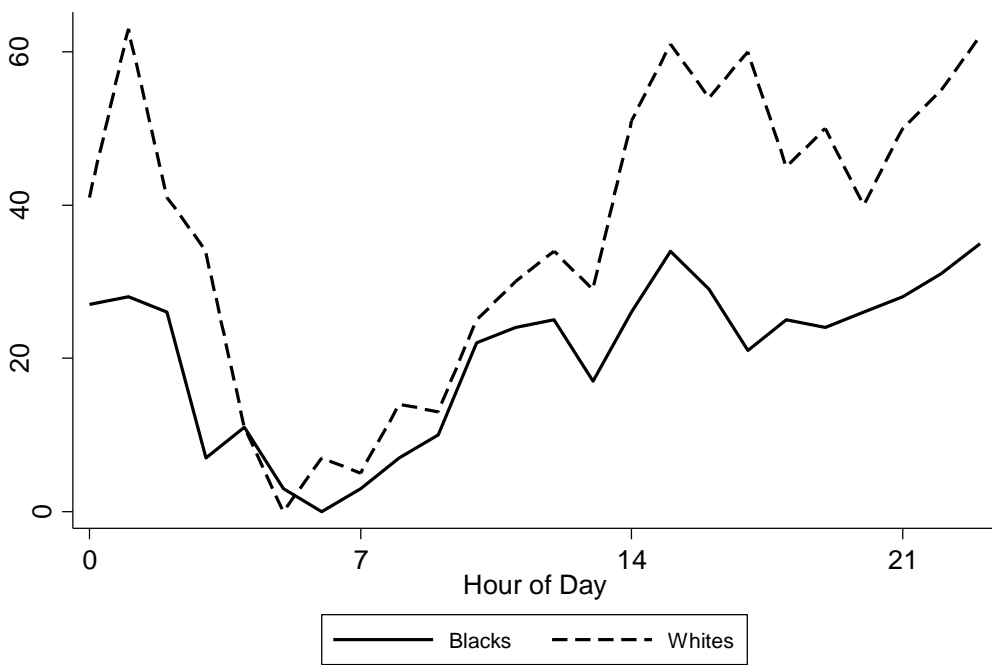
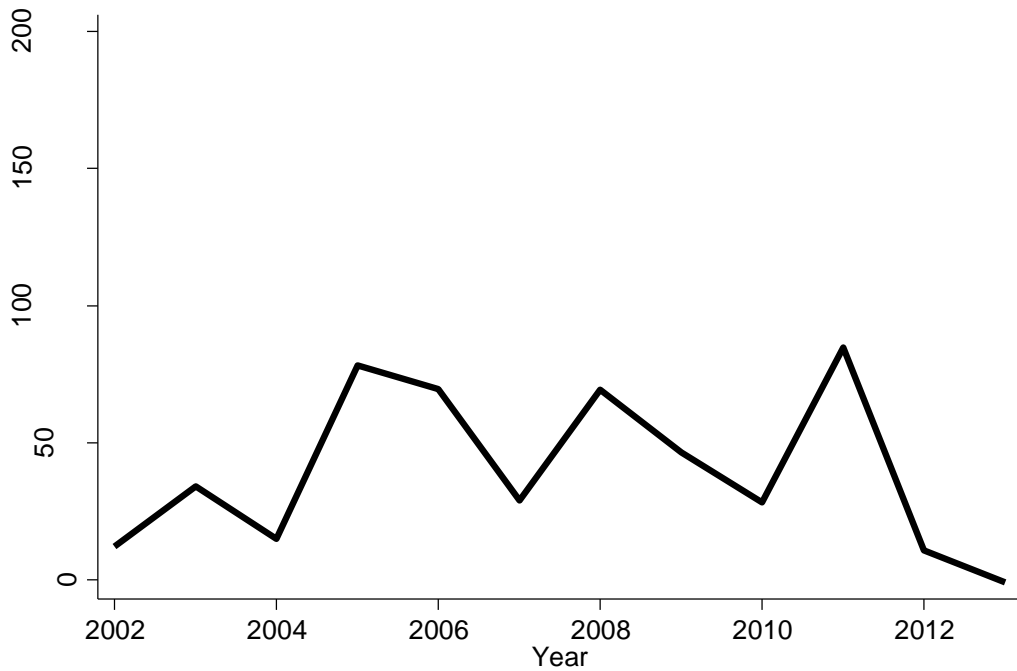


Figure A4. Searches by Hour of the Day



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	511	34.13	36.85	31.94
No	986	65.87	63.15	68.06
Total	1,497	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	14,664	2.21	10.63	56.55	28.61	1.99	100.0
Black	No	5,039	2.46	10.70	54.93	30.13	1.79	100.0
Total	No	1,253	2.30	10.77	54.98	29.96	1.99	100.0
White	Yes	901	1.66	3.44	21.31	43.62	29.97	100.0
Black	Yes	504	0.79	2.98	27.18	43.06	25.99	100.0
Total	Yes	1,497	1.34	3.54	23.25	44.02	27.86	100.0