

Analysis of Black-White Differences in Traffic Stops and Searches

Orange County NC Sheriff's Office, 2002-2013

Frank R. Baumgartner, Derek Epp, and Kelsey Shoub¹

University of North Carolina at Chapel Hill

Department of Political Science

<http://www.unc.edu/~fbaum/traffic.htm>

Contact: Frankb@unc.edu

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¹ Baumgartner is the Richard J. Richardson Distinguished Professor of Political Science at UNC-Chapel Hill. Epp and Shoub are graduate students in political science. We thank UNC undergraduates Katherine B. Elliott, Amirah Jiwa, Morgan Herman, and Reena Gupta for assistance on the logistics of this project. We also acknowledge the assistance of the NC Department of Justice and State Bureau of Investigation for making available the official statistics on which this analysis relies, and for answering technical questions about the organization of this complex database.

Table 1. Overview of the Data

Data Subsets	Observations
Total stops	15,824
-2014	382
-Passengers	456
-Checkpoint stops	102
-Total number of cases deleted	923
Stops for analysis	14,901
Searches	950
Percent of stops leading to search (search rate)	6.38

Figure 1. Number of Traffic Stops per Year

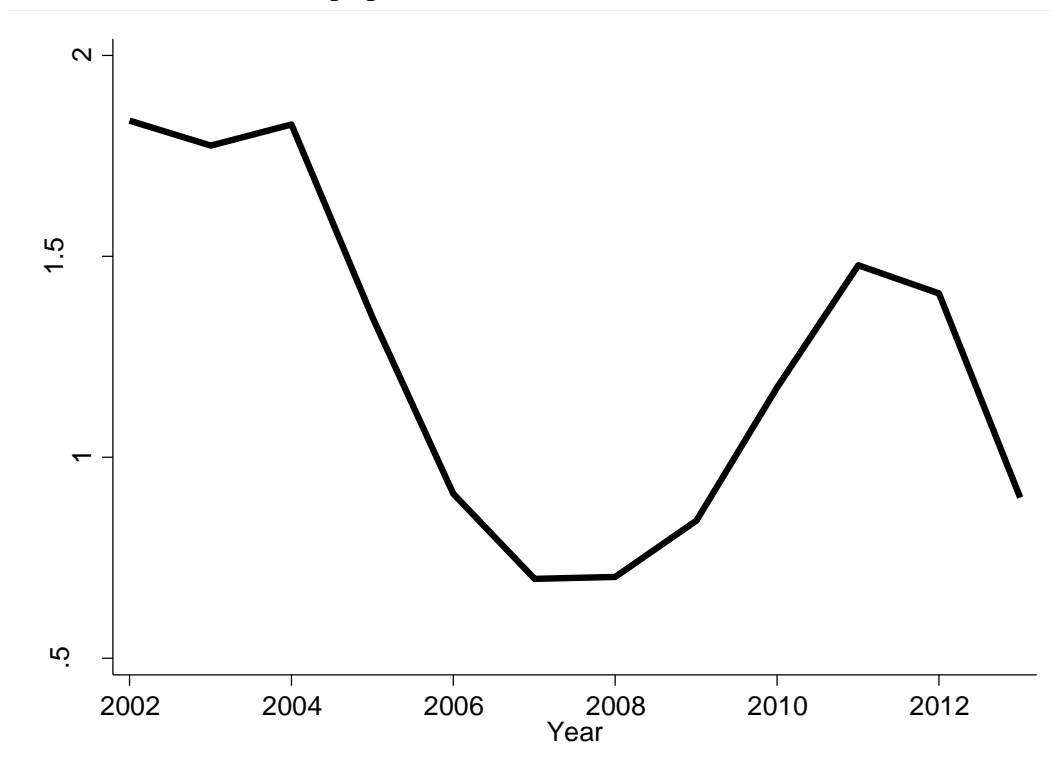


Figure 2. Racial Composition of Traffic Stops by Year

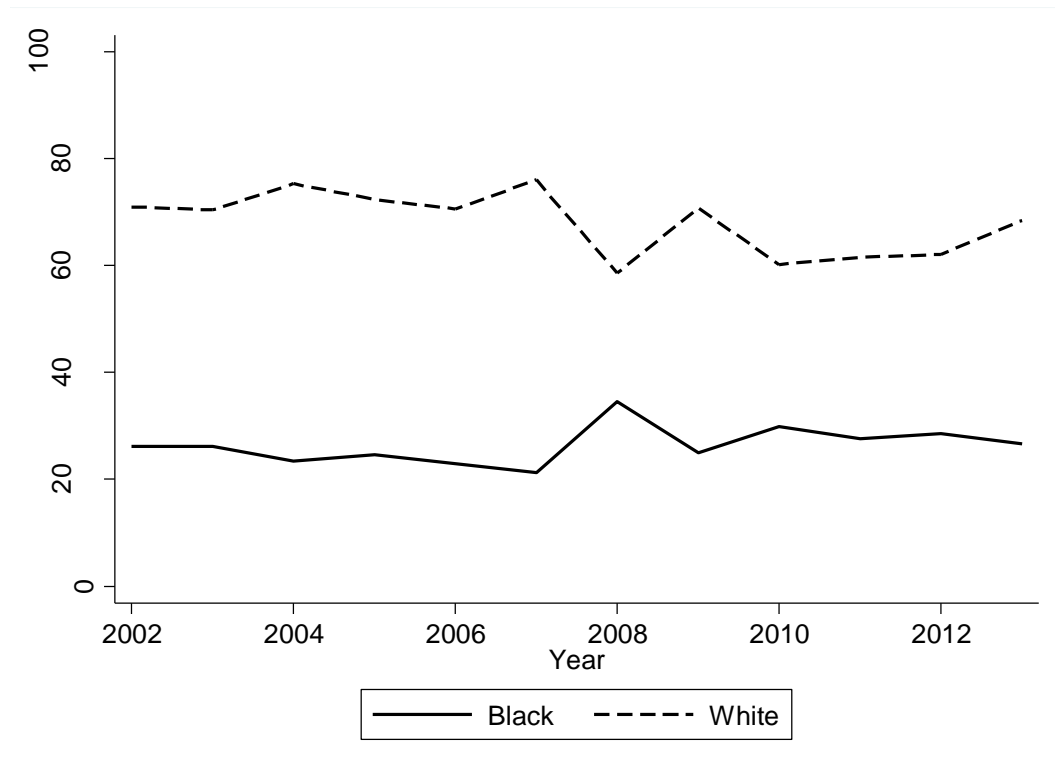


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	14,901	68.42	26.27
Speed Limit	4,067	77.92	19.25
Stop Light/Sign	958	75.57	18.89
Driving Impaired	66	60.61	30.30
Safe Movement	3,188	59.41	28.95
Vehicle Equipment	3,084	64.95	31.36
Vehicle Regulatory	1,498	67.29	29.91
Seat Belt	161	61.49	34.16
Investigation	1,265	67.11	28.62
Other Vehicle	614	66.78	28.50

Note: Includes only drivers. Excludes 102 checkpoint stops. Excludes 456 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	14,901	-	68.42	26.27	-
Total Searches	950	6.38	4.95	8.99	1.82
Speed Limit	4,067	1.75	1.14	4.21	3.69
Stop Light/Sign	958	1.67	1.52	2.76	1.82
Driving Impaired	66	33.33	40.00	15.00	0.38
Safe Movement	3,188	11.89	9.56	12.89	1.35
Vehicle Equipment	3,084	5.16	4.24	7.14	1.68
Vehicle Regulatory	1,498	6.81	6.15	8.71	1.42
Seat Belt	161	6.21	5.05	9.09	1.80
Investigation	1,265	11.15	9.78	16.02	1.64
Other Vehicle	614	8.14	6.34	12.00	1.89

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

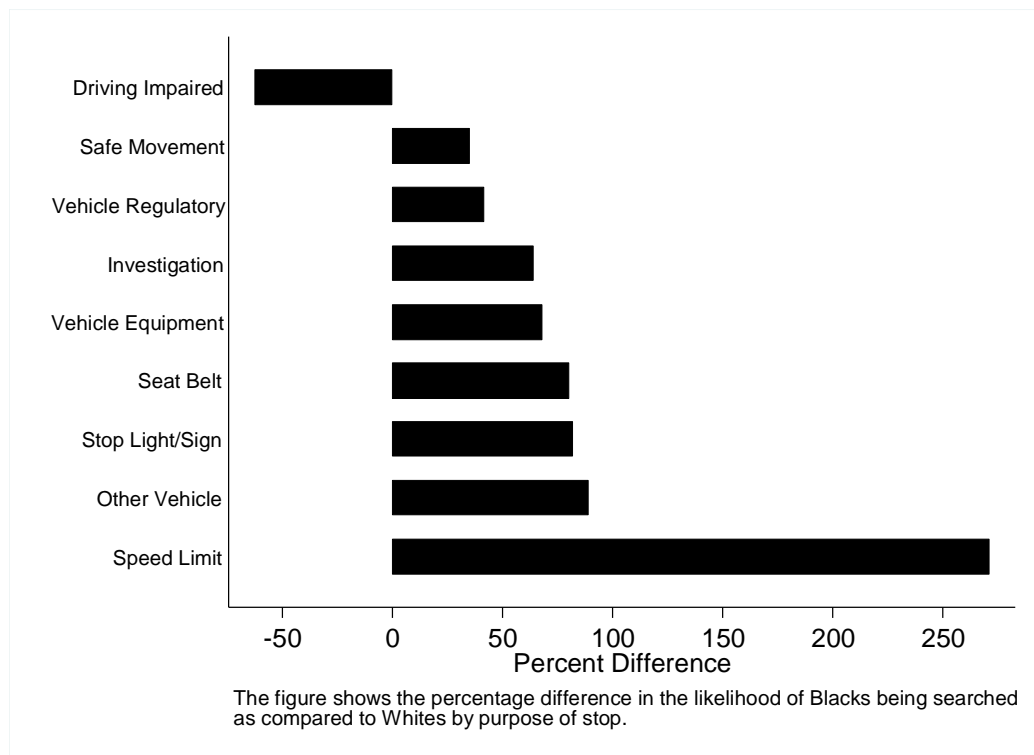


Figure 4. Percentage Searched by Race, Gender, and Age

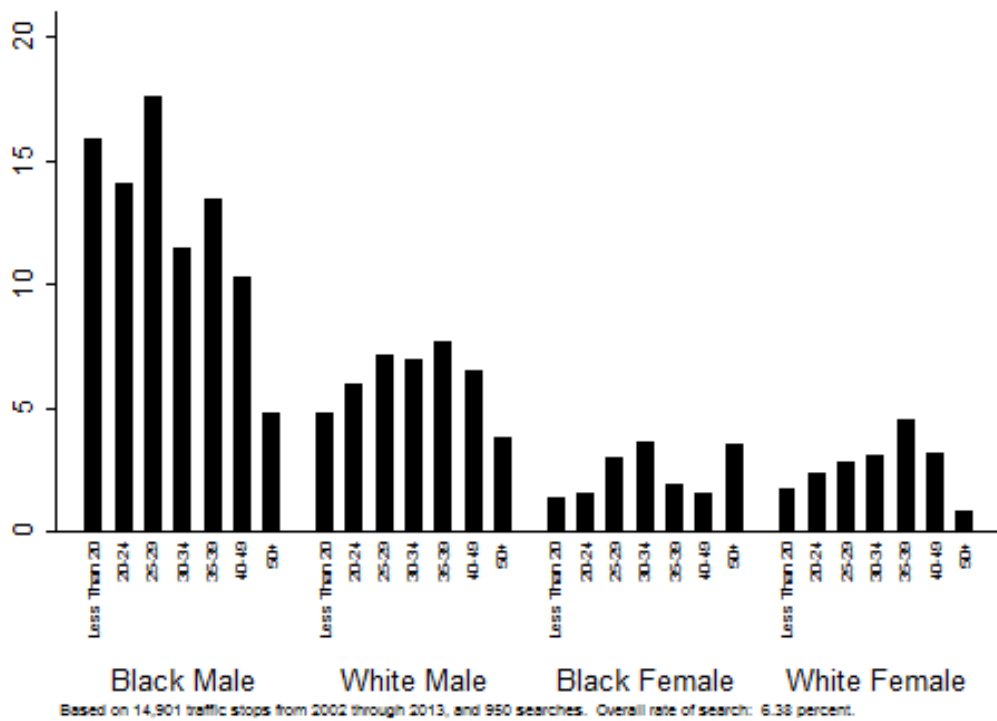
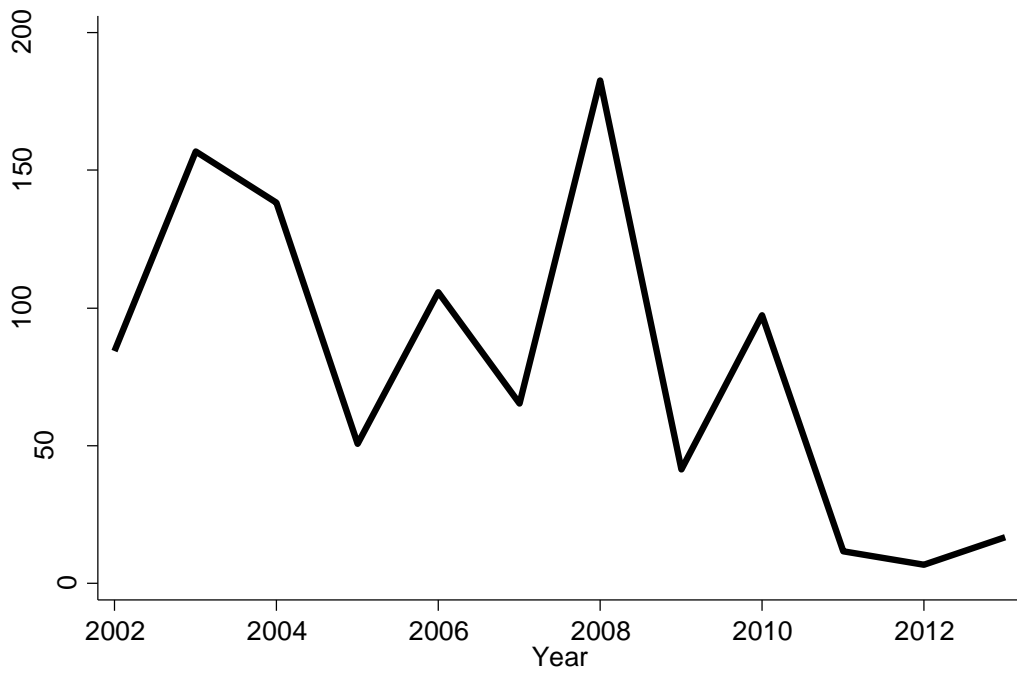


Figure 5. Racial Differences in the Likelihood of Search



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

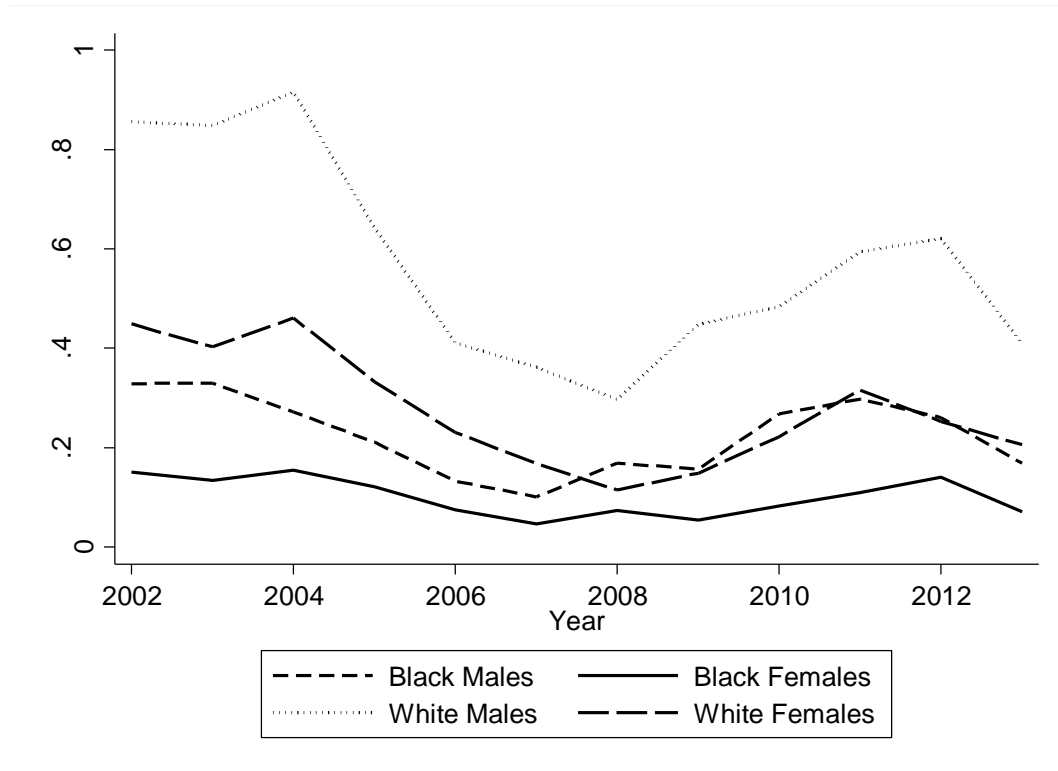


Figure 7. Percent Searched, by Race and Gender

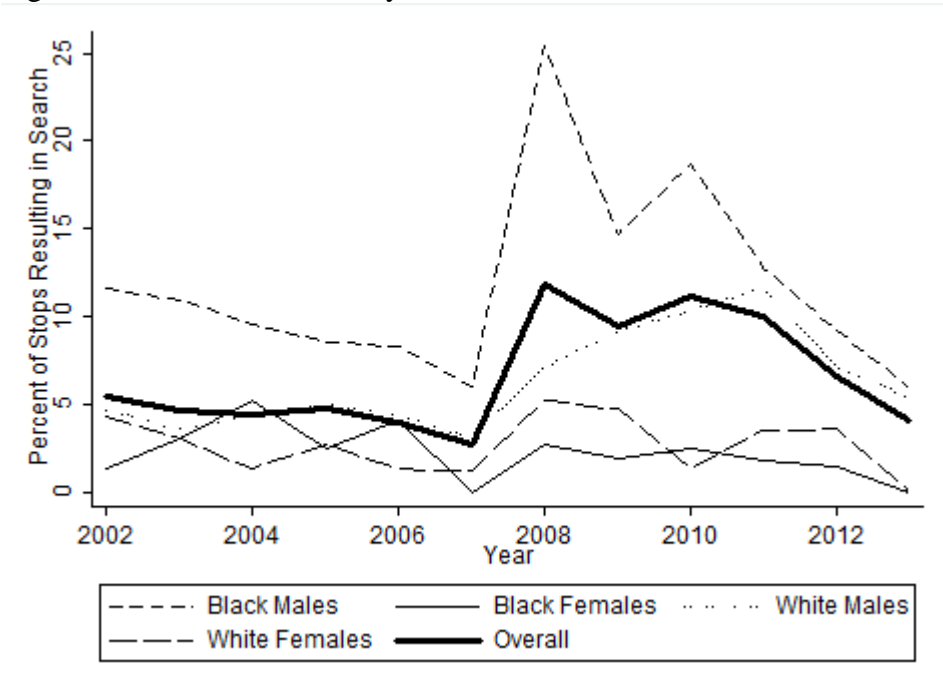


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	14,901	-	68.42	26.27	-
Total Searches	950	6.38	4.95	8.99	1.82
Consent	671	4.50	3.59	5.57	1.55
Search Warrant	1	-	-	-	-
Probable Cause	118	0.79	0.50	1.66	3.32
Incident to Arrest	147	0.99	0.76	1.69	2.22
Protective Frisk	13	0.09	0.10	0.08	0.80

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	178	52.20	52.20	1.19	1.19
2 – 10	62	18.18	70.38	1.68	2.87
11 - 100	62	18.18	88.56	16.26	19.13
101 – 1,000	37	10.85	99.41	55.27	74.40
1,001 +	2	0.59	100.00	25.60	100.00
Total	341	100	-	100	-

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

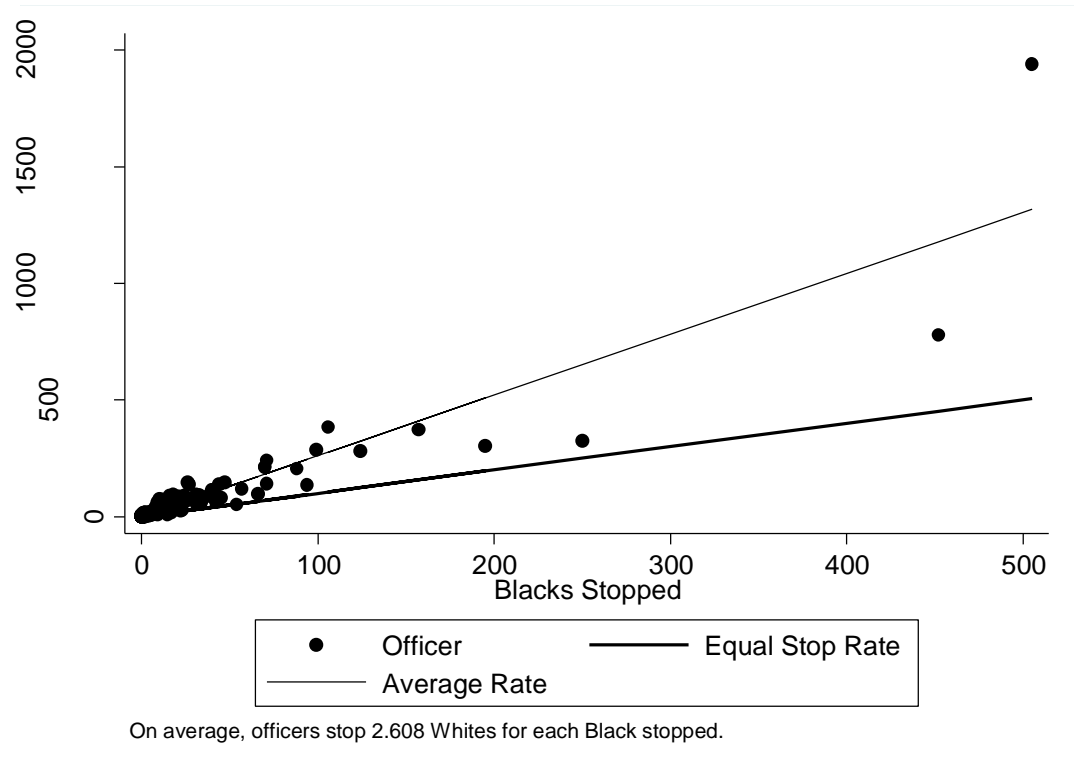


Figure 9. Number of Black and White Motorists Searched, by Officer

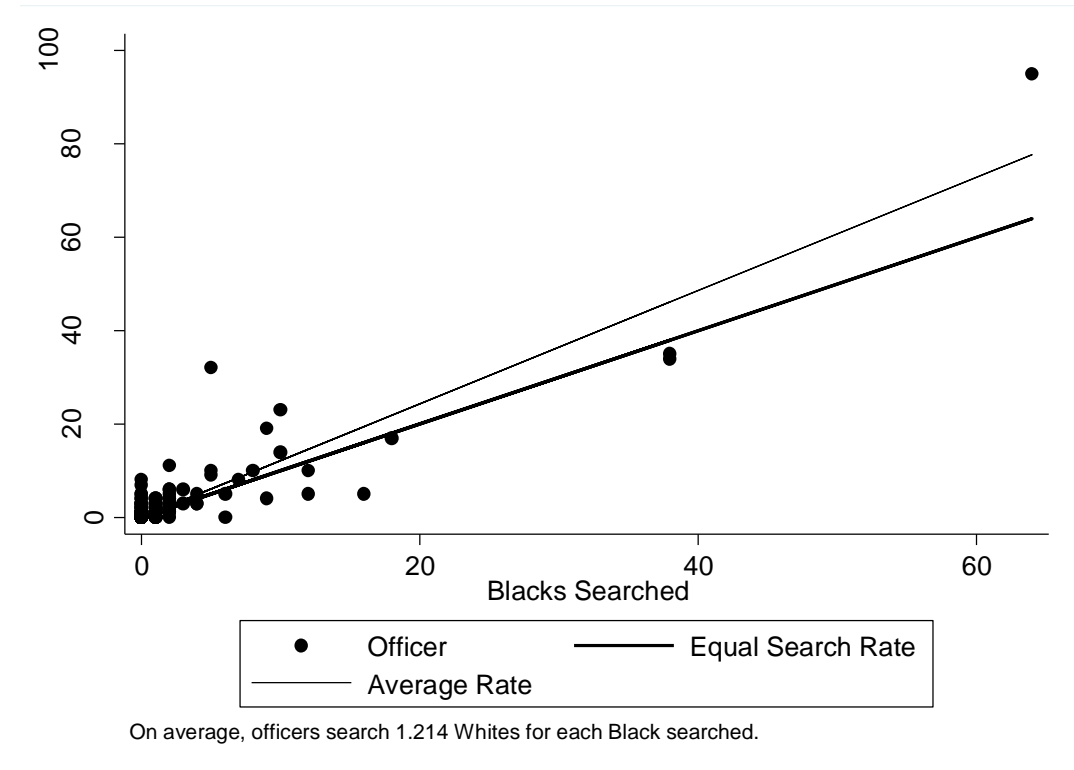


Figure 10. Percent of White and Black Drivers Searched, by Officer

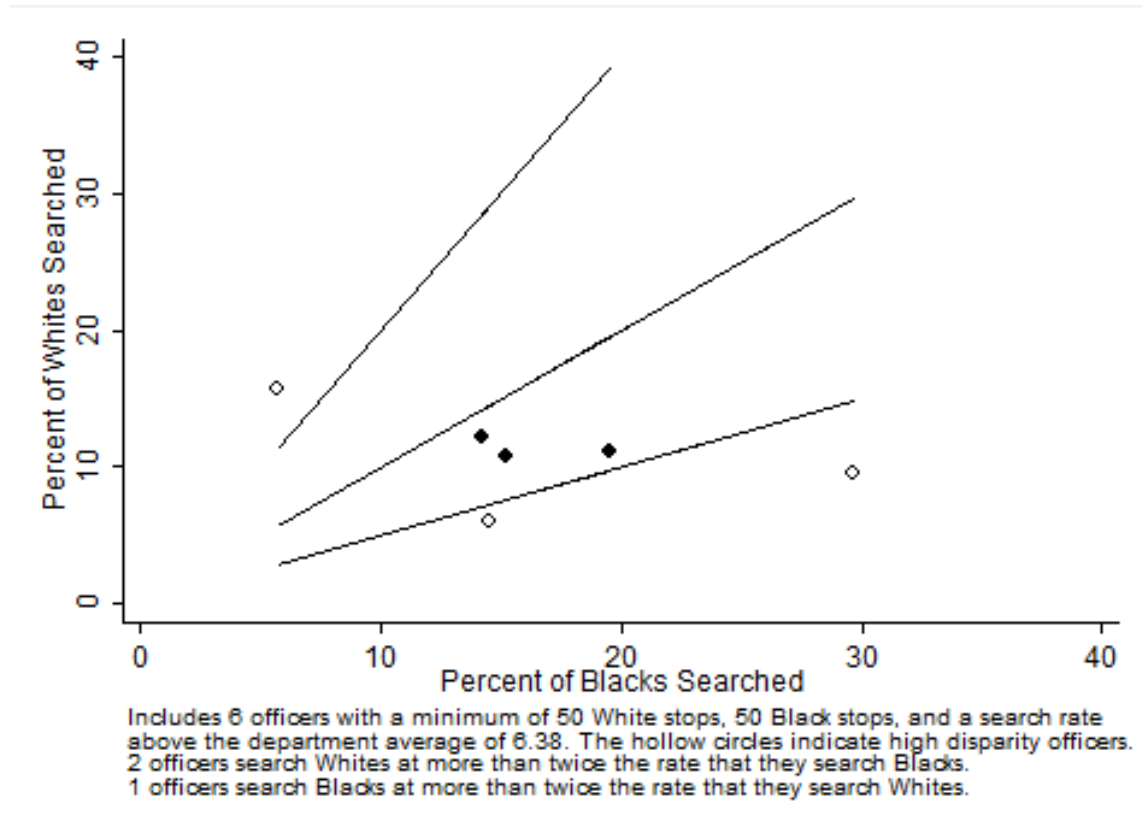


Table 6. Predicting the Occurrence of a Search, Male Drivers

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Demographics					
Race	2.61*(0.22)	2.65*(0.23)	2.27*(0.20)	2.25*(0.20)	2.17*(0.20)
Hispanic	2.51*(0.27)	2.43*(0.26)	1.83*(0.20)	1.85*(0.21)	1.88*(0.22)
Age	-	0.99*(0.00)	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	0.99 (0.30)	0.98 (0.29)	1.03 (0.32)
Impaired	-	-	20.44*(6.98)	19.44*(6.68)	20.99*(7.59)
Movement	-	-	4.91*(0.72)	4.92*(0.73)	4.77*(0.75)
Equipment	-	-	2.34*(0.37)	2.25*(0.36)	2.40*(0.42)
Regulatory	-	-	3.29*(0.58)	3.18*(0.56)	3.37*(0.62)
Seat Belt	-	-	2.81*(1.01)	2.49*(0.90)	2.73*(1.01)
Investigation	-	-	4.98*(0.83)	4.91*(0.82)	5.07*(0.90)
Other	-	-	3.58*(0.75)	3.61*(0.76)	3.35*(0.77)
Officer Type					
Black Disparity [†]	-	-	-	1.85*(0.32)	2.02*(0.36)
White Disparity [†]	-	-	-	0.95(0.20)	0.94(0.21)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.05*(0.00)	0.09*(0.01)	0.04*(0.00)	0.04*(0.01)	0.04*(0.01)
N	9,588	9,588	9,588	9,588	9,044
Pseudo R²	0.03	0.03	0.08	0.08	0.09

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	0.90 (0.20)	0.90 (0.20)	0.75 (0.17)	0.74 (0.16)	0.74 (0.17)
Hispanic	0.81 (0.42)	0.80 (0.41)	0.60 (0.31)	0.49 (0.26)	0.51 (0.28)
Age	-	1.00 (0.01)	1.00 (0.01)	1.00 (0.01)	1.00 (0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.09 (0.86)	1.11 (0.88)	1.19 (0.95)
Impaired	-	-	28.07*(23.46)	22.52*(19.15)	17.76*(16.12)
Movement	-	-	7.38*(3.06)	5.58*(2.41)	5.02*(2.21)
Equipment	-	-	5.49*(2.24)	5.41*(2.21)	4.79*(2.10)
Regulatory	-	-	8.13*(3.43)	8.09*(3.43)	7.29*(3.15)
Seat Belt	-	-	Omitted	Omitted	Omitted
Investigation	-	-	20.68*(8.38)	21.60*(8.77)	20.64*(8.68)
Other	-	-	8.29*(4.54)	8.62*(4.73)	6.97*(4.09)
Officer Type					
Black Disparity [†]	-	-	-	2.54*(0.90)	2.81*(1.04)
White Disparity [‡]	-	-	-	6.79*(3.08)	7.04*(3.35)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.03*(0.00)	0.03*(0.01)	0.01*(0.00)	0.01*(0.00)	0.01*(0.01)
N	4,522	4,522	4,489	4,489	4,209
Pseudo R²	0.00	0.00	0.01	0.10	0.13

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	456	45.61	39.69
Speed Limit	34	58.82	41.18
Stop Light/Sign	8	87.50	12.50
Driving Impaired	3	33.33	66.67
Safe Movement	156	36.54	26.92
Vehicle Equipment	88	43.18	50.00
Vehicle Regulatory	48	52.08	45.83
Seat Belt	2	0.00	100.00
Investigation	87	54.02	44.83
Other Vehicle	30	43.33	50.00

Figure A1. Stops by Day of the Week

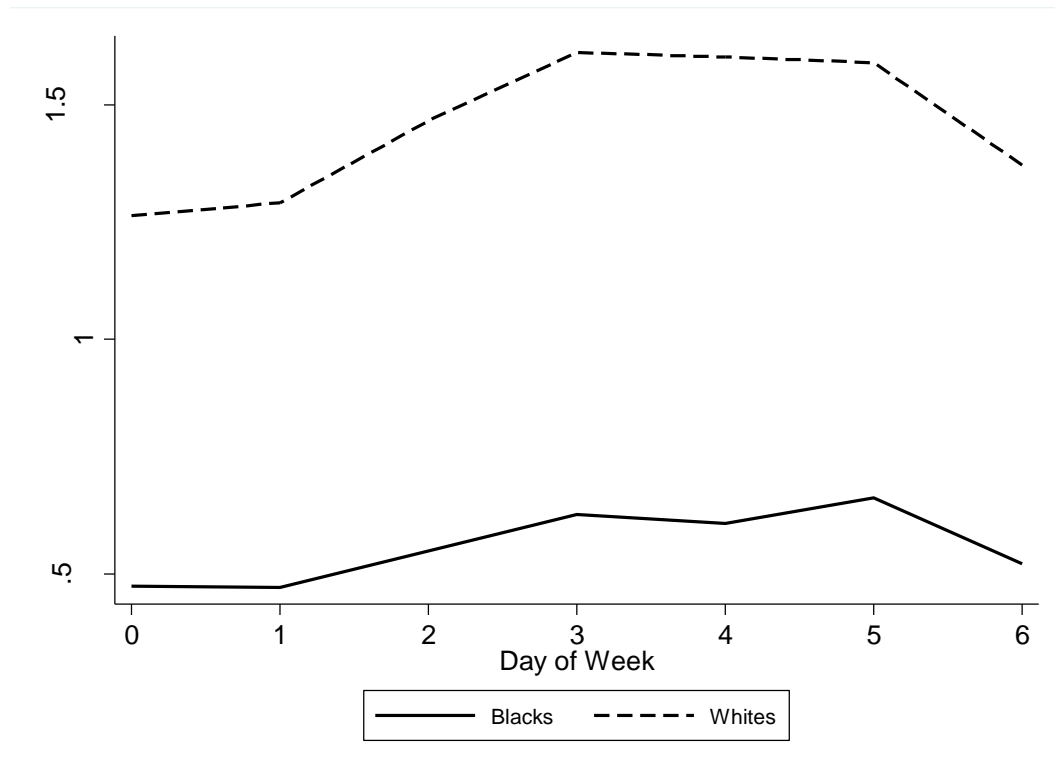


Figure A2. Searches by Day of the Week

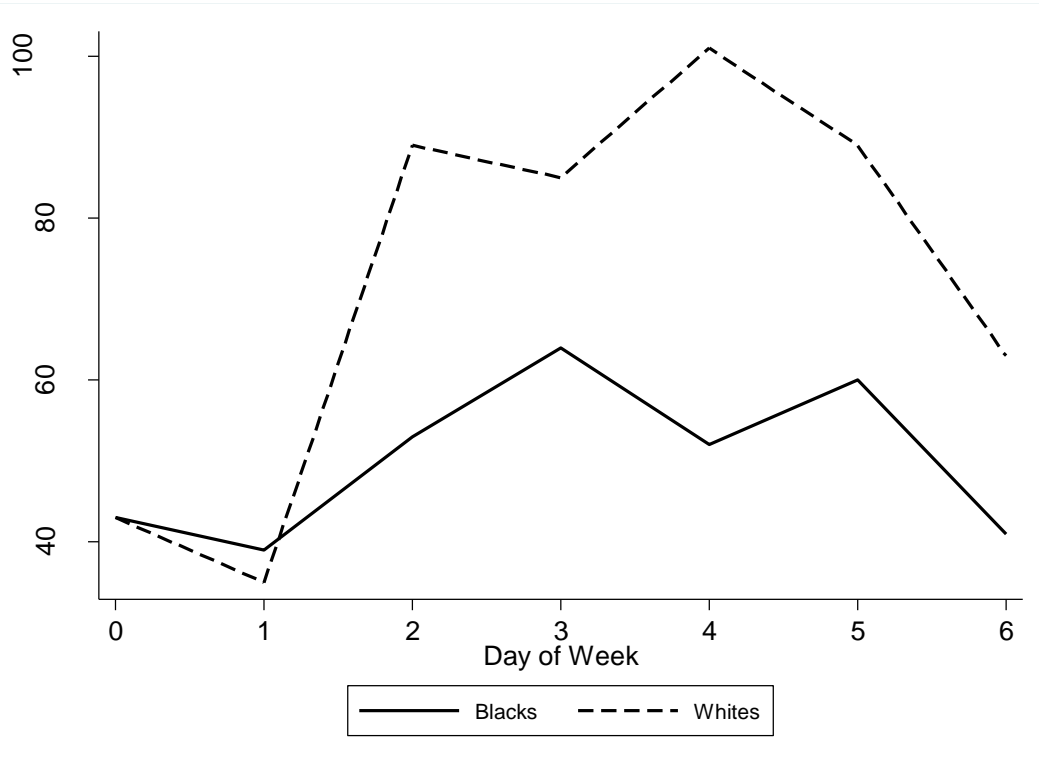


Figure A3. Stops by Hour of the Day

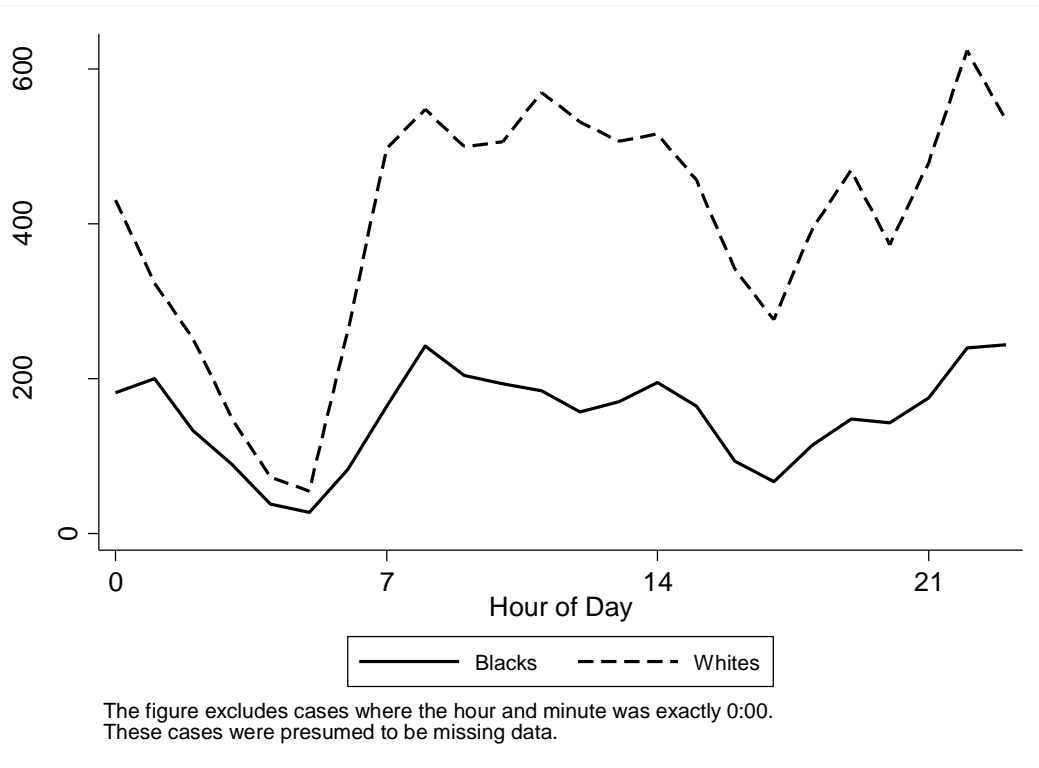
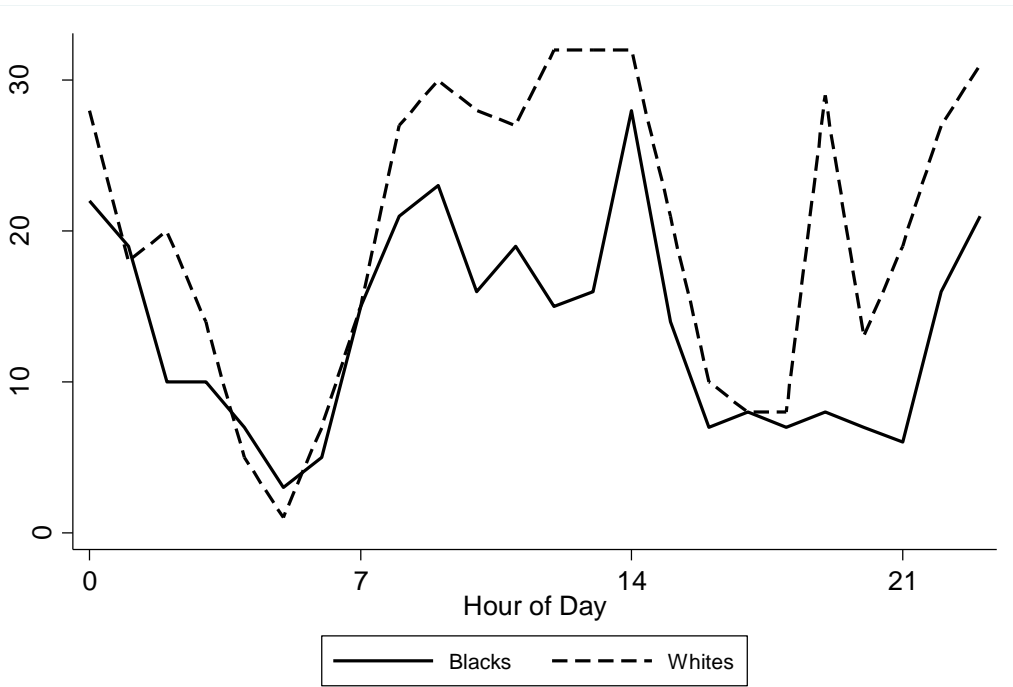
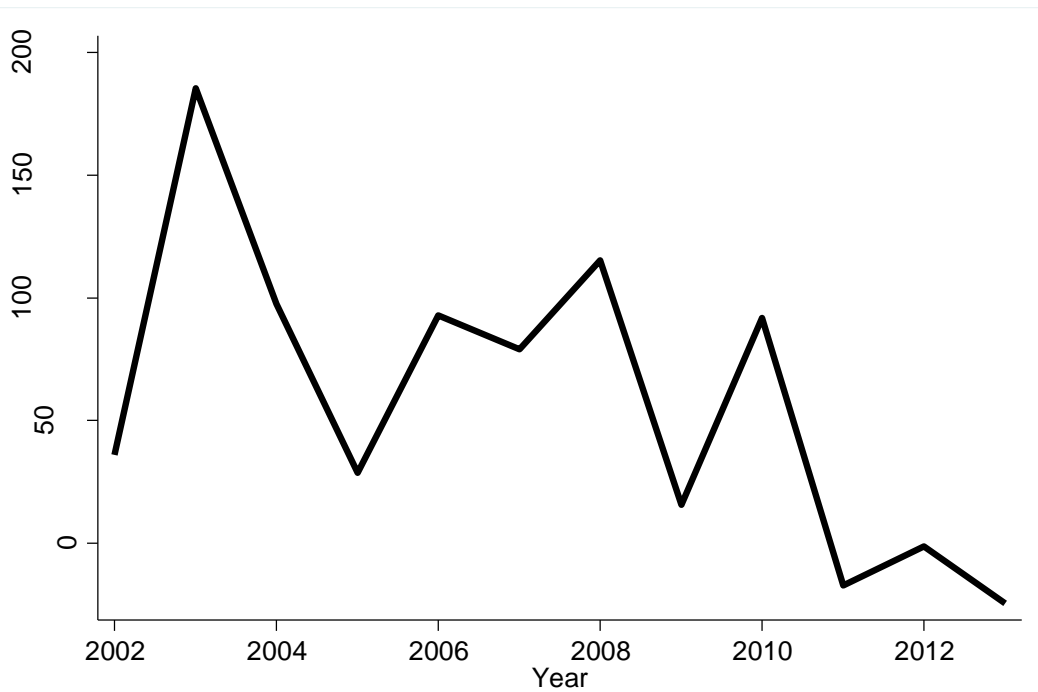


Figure A4. Searches by Hour of the Day



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	177	18.63	21.19	17.61
No	773	81.37	78.81	82.30
Total	950	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	9,691	4.67	28.89	47.35	18.37	0.71	100.0
Black	No	3,562	4.55	36.50	37.62	20.41	0.93	100.0
Total	No	698	4.55	31.83	44.11	18.76	0.75	100.0
White	Yes	505	4.75	7.72	41.58	30.10	15.84	100.0
Black	Yes	352	2.27	4.83	40.34	34.66	17.90	100.0
Total	Yes	950	3.47	6.00	45.05	29.68	15.79	100.0