

# **Analysis of Black-White Differences in Traffic Stops and Searches for Guilford County Sheriff, NC, 2002-2013**

8 December 2014

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[report prepared by Katherine Elliott]

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	76,868
-2014	3,141
-Passengers	2,741
-Checkpoint stops	159
Total number of cases deleted	5,941
Stops remaining for analysis	70,927
Searches	5,376
Percent of stops leading to search (search rate)	7.57

Figure 1. Number of Traffic Stops per Year

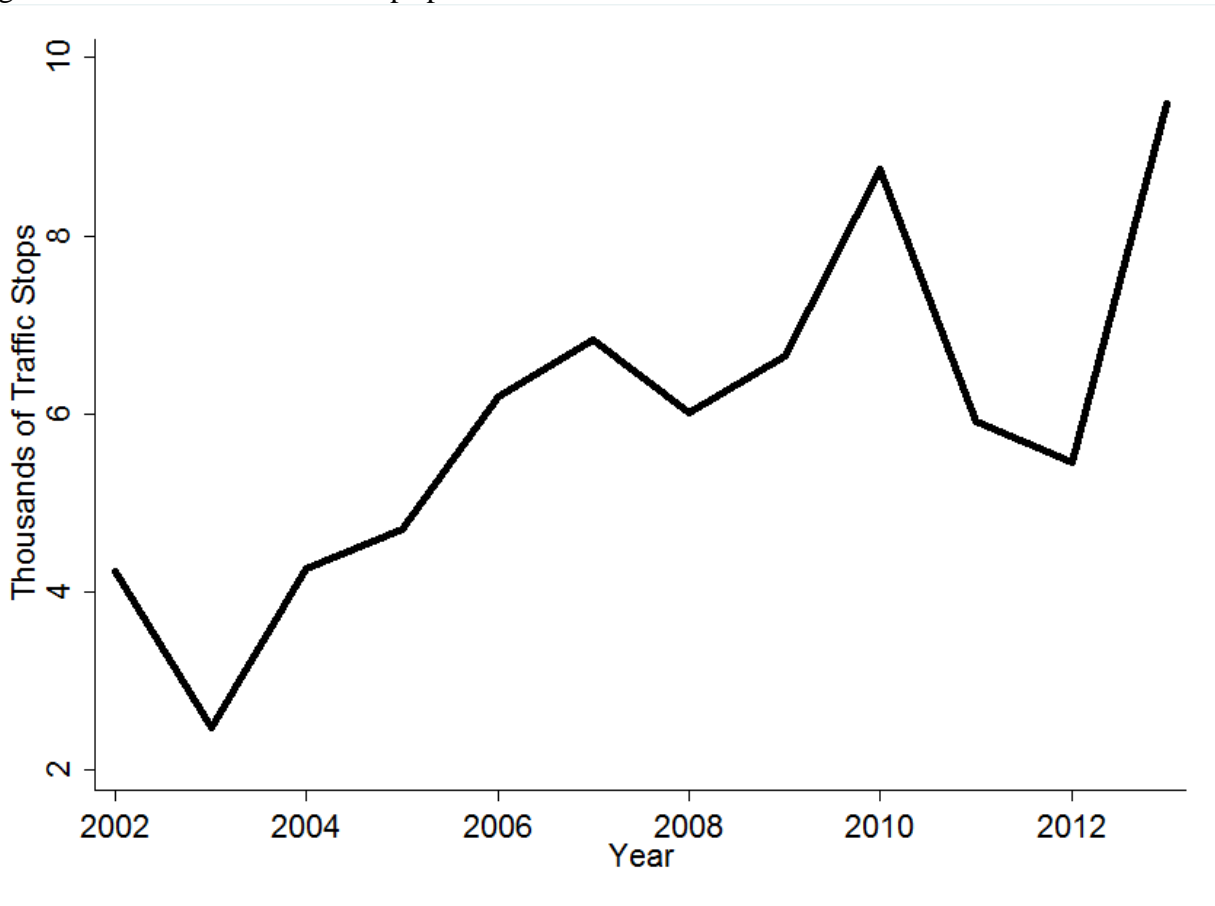


Figure 2. Racial Composition of Traffic Stops by Year

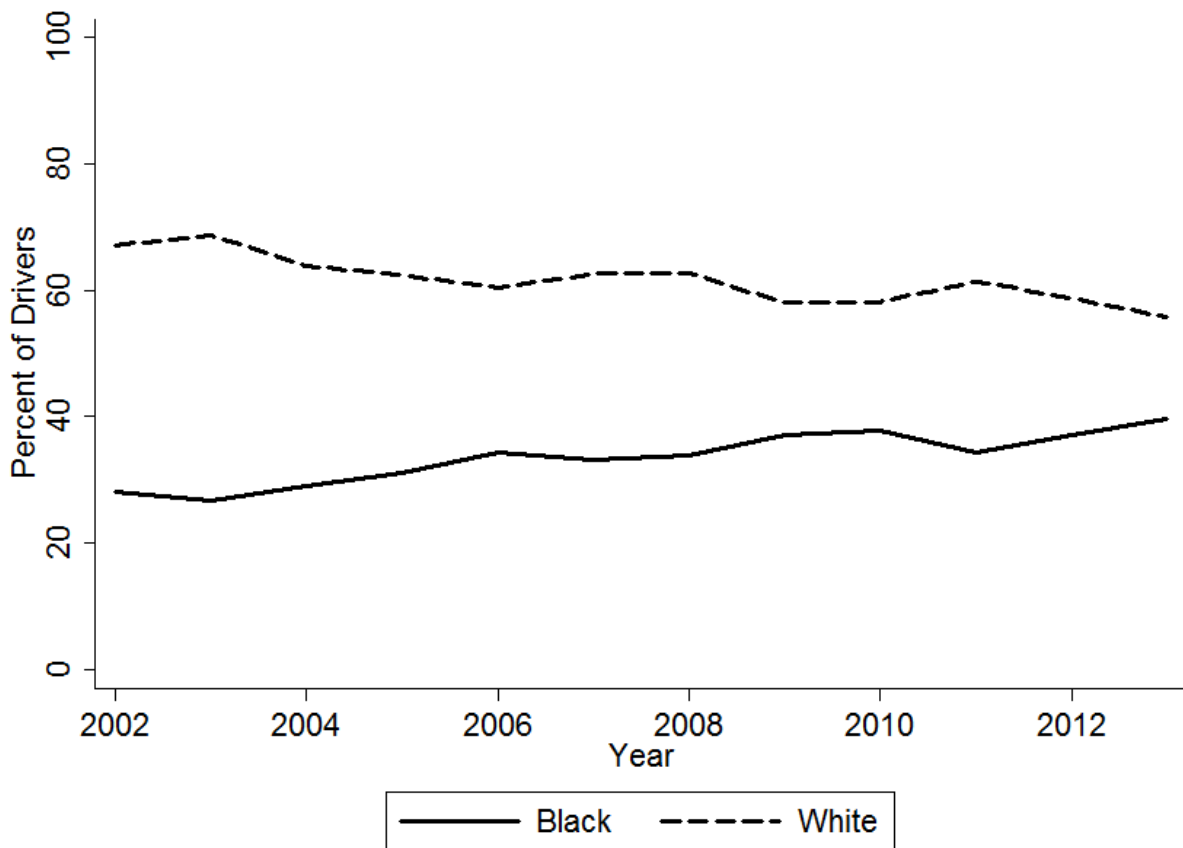


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	70,927	60.69	34.62
Speed Limit	22,893	64.80	30.59
Stop Light/Sign	3,494	65.17	28.56
Driving Impaired	1,062	67.61	27.31
Safe Movement	7,119	59.56	34.51
Vehicle Equipment	11,515	57.46	38.42
Vehicle Regulatory	12,918	56.46	40.02
Seat Belt	2,697	58.32	37.12
Investigation	6,179	60.25	34.49
Other Vehicle	3,050	58.10	35.51

Note: Includes only drivers. Excludes 2,741 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	70,927	-	60.69	34.62	-
Total Searches	5,376	7.58	7.52	7.62	1.01
Speed Limit	22,893	4.25	3.84	5.04	1.31
Stop Light/Sign	3,494	5.50	5.49	6.11	1.11
Driving Impaired	1,062	40.30	44.15	28.97	0.66
Safe Movement	7,119	10.32	10.47	9.69	0.93
Vehicle Equipment	11,515	8.20	8.45	7.89	0.93
Vehicle Regulatory	12,918	6.84	6.62	7.14	1.08
Seat Belt	2,697	7.08	6.80	7.49	1.10
Investigation	6,179	12.82	13.46	12.01	0.89
Other Vehicle	3,050	7.77	7.45	8.03	1.08

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

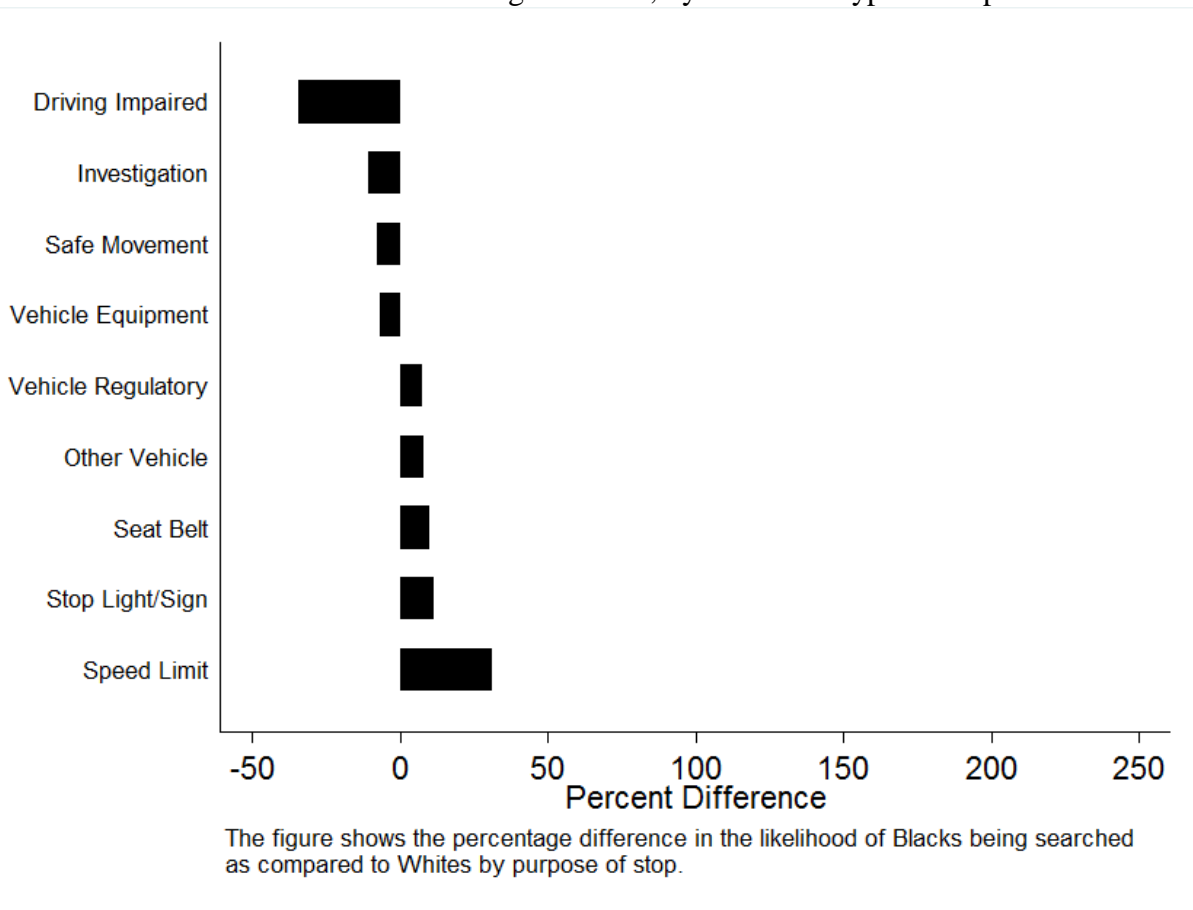
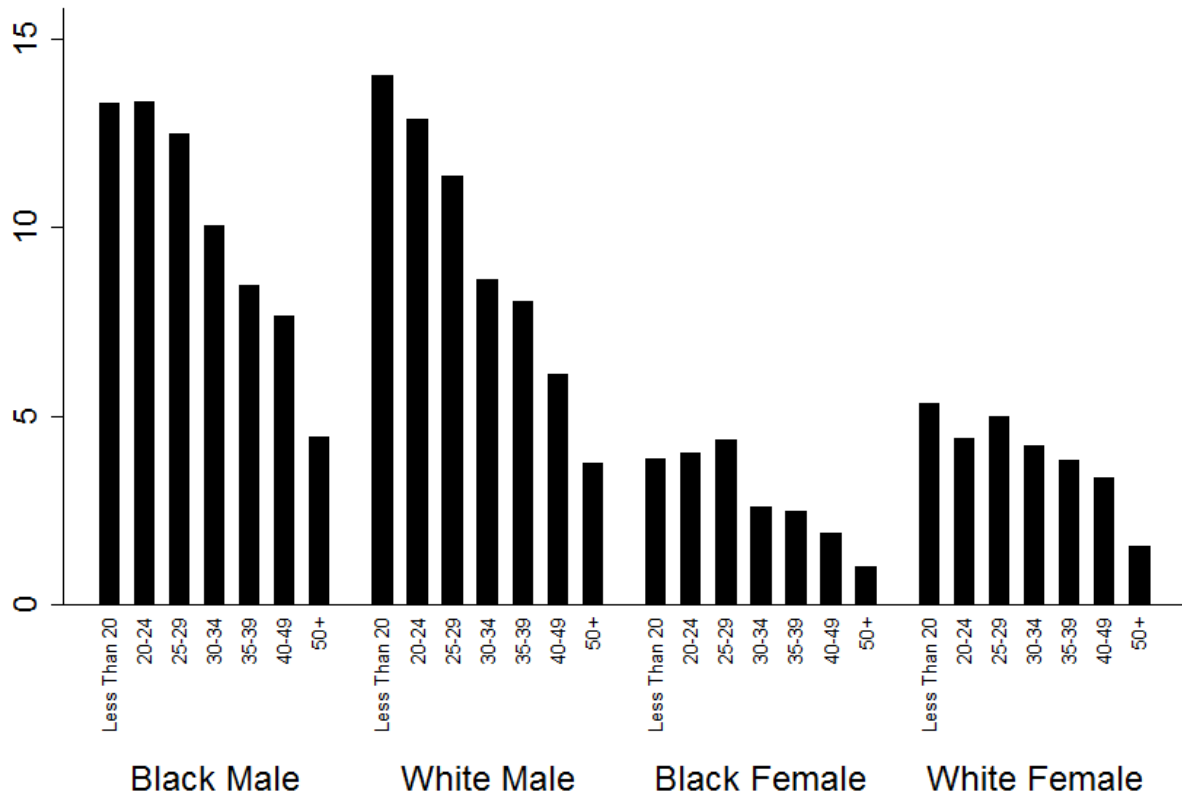
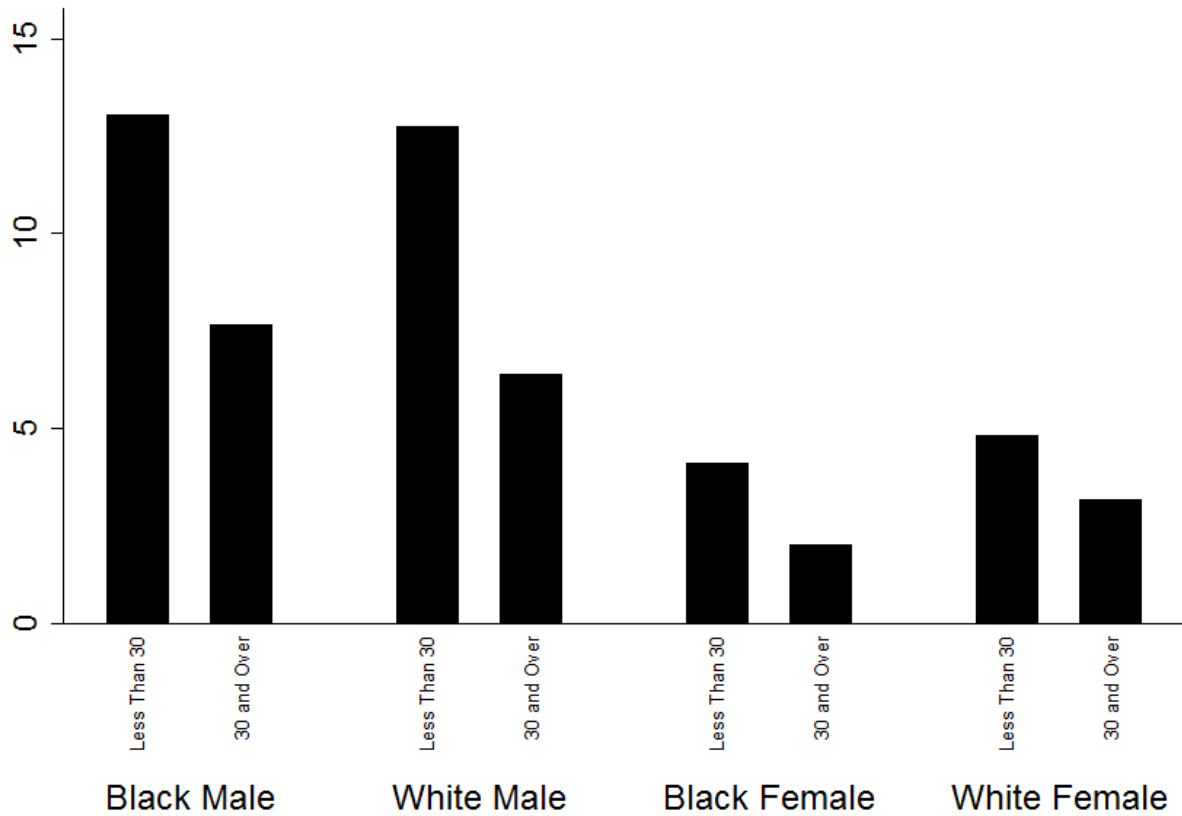


Figure 4a. Percentage Searched by Race, Gender, and Age



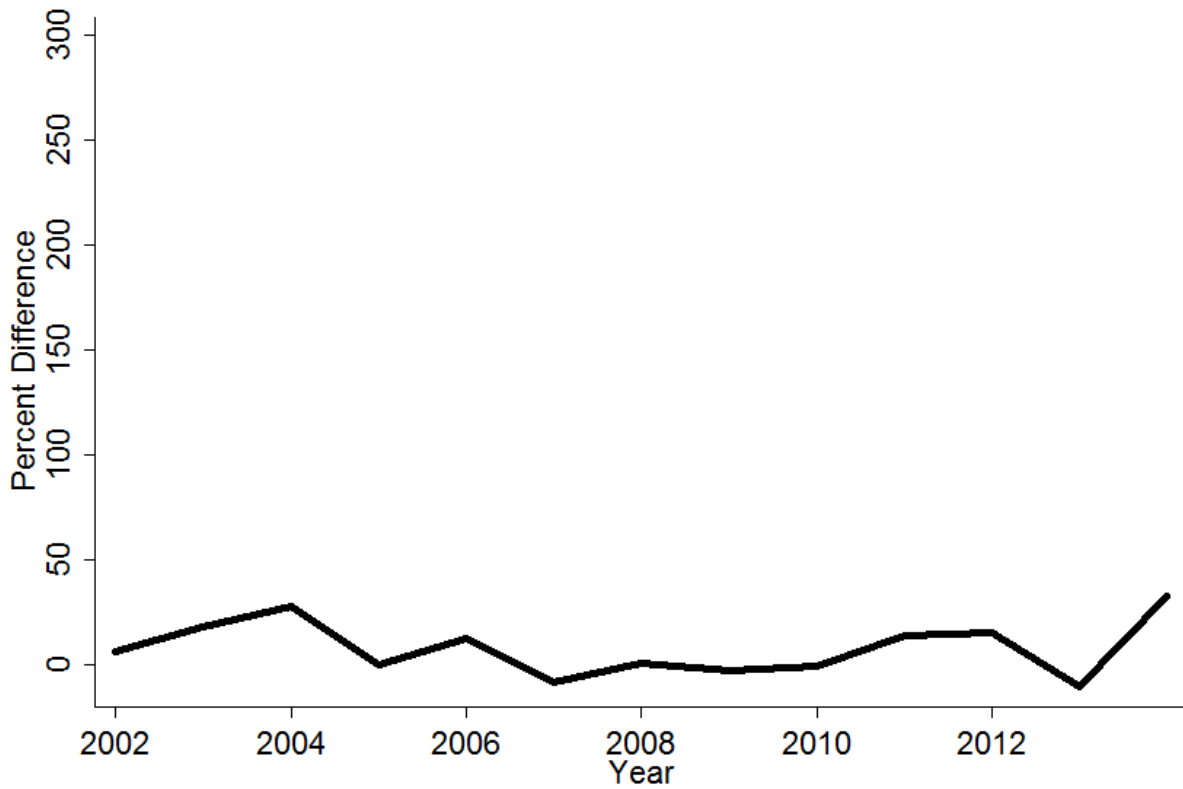
Based on 70,927 traffic stops from 2002 through 2013, and 5,376 searches. Overall rate of search: 7.58 percent. No data are presented for categories with fewer than 10 searches.

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



Based on 70,927 traffic stops from 2002 through 2013, and 5,376 searches. Overall rate of search: 7.58 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

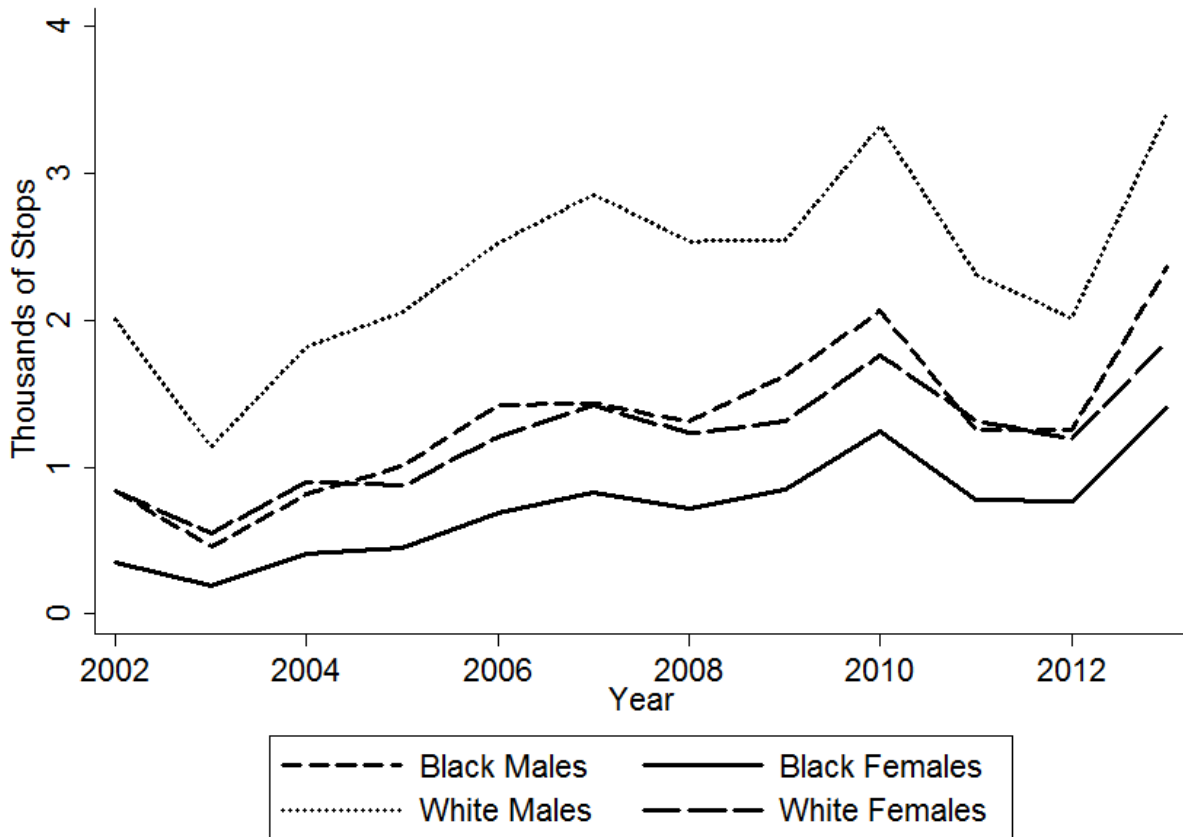
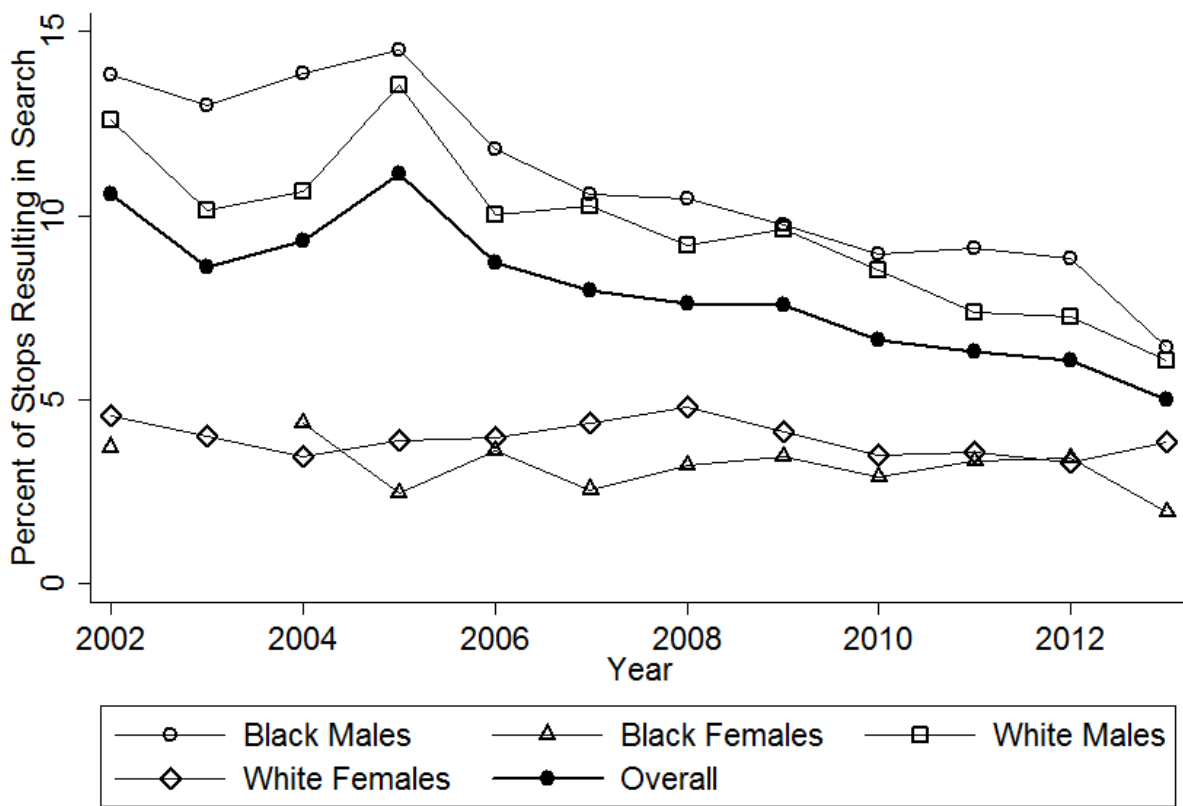




Figure 7. Percent Searched, by Race and Gender



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

Table 4. Type of Search by Race

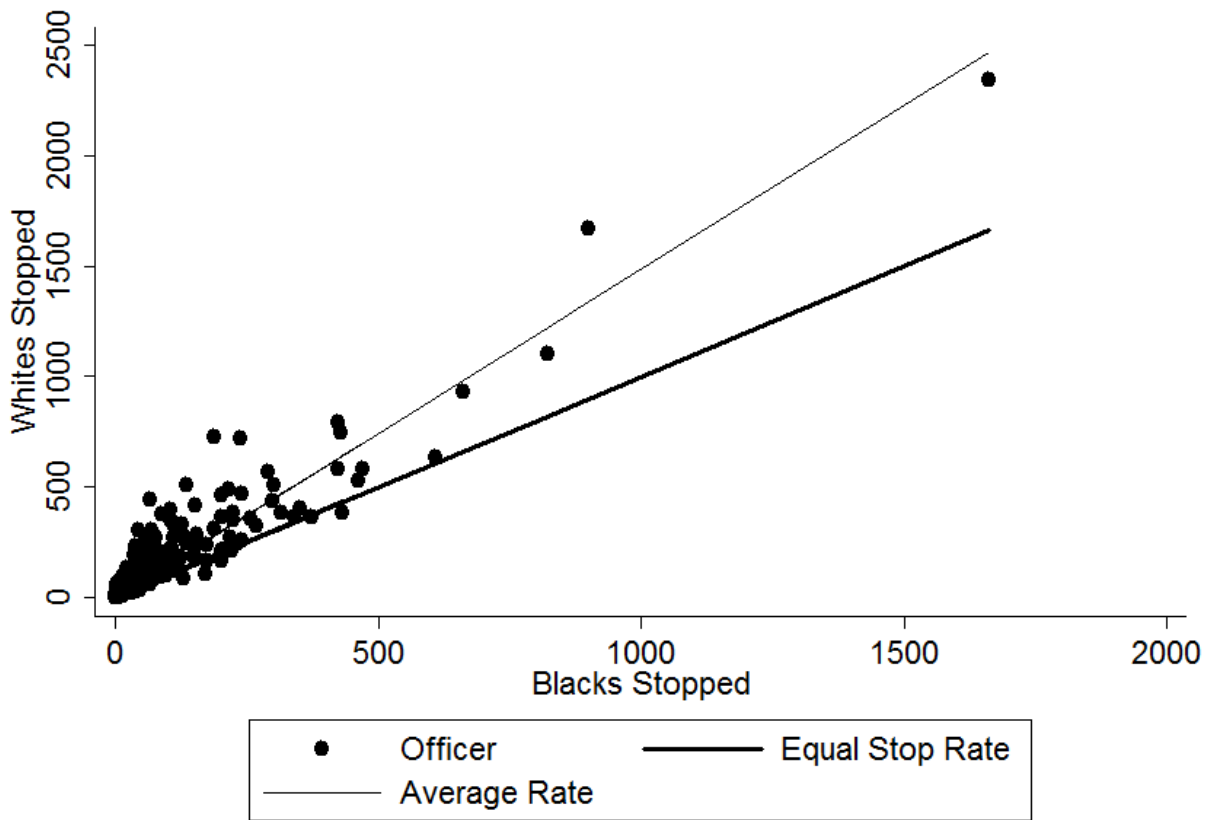
Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	70,927	-	60.69	34.62	-
Total Searches	5,376	7.58	7.52	7.62	1.01
Consent	2,762	3.89	4.07	3.45	0.85
Search Warrant	25	0.04	0.03	0.05	1.67
Probable Cause	984	1.39	1.19	1.79	1.50
Incident to Arrest	1,523	2.15	2.11	2.21	1.05
Protective Frisk	82	0.12	0.12	0.12	1.00

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

Table 5. Distribution of Officer IDs by Stop

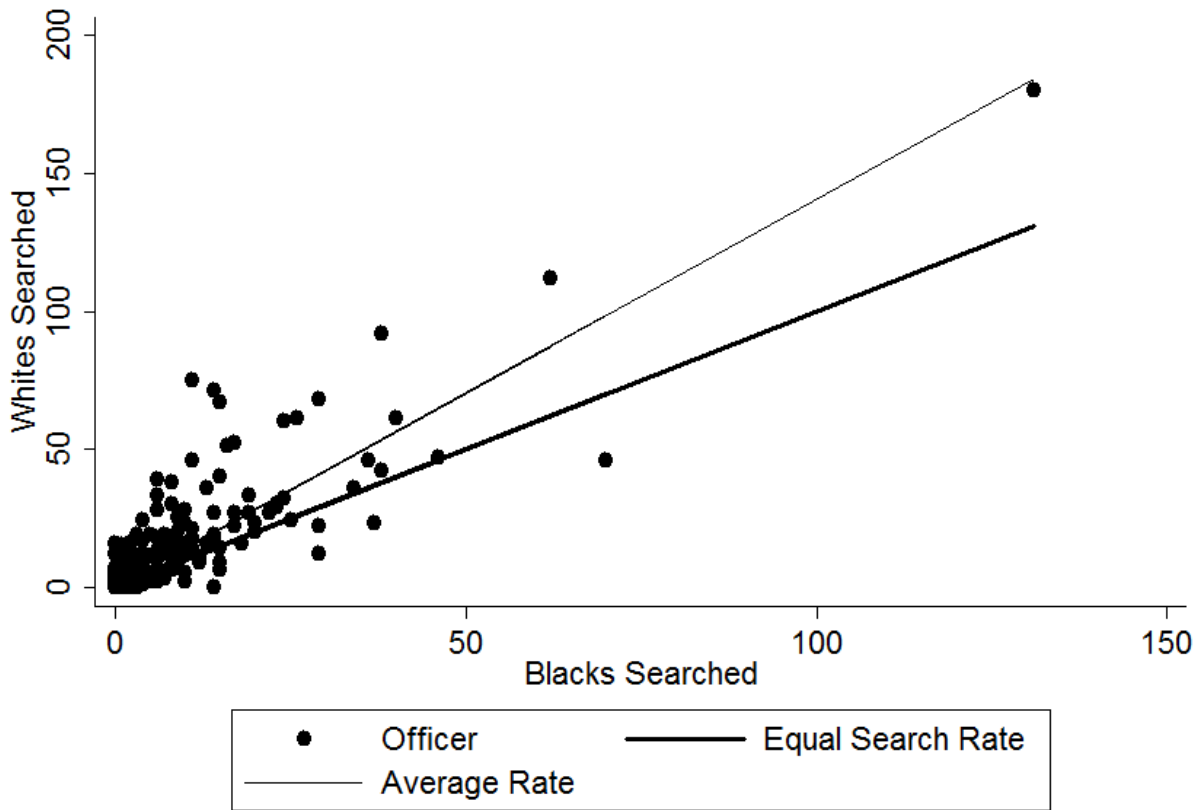
Number of Stops	Officers w/ this many Stops	Percent of Officers	Cumulative Percent	Percent of Stops	Cumulative Percent
1	398	43.40	43.40	0.56	0.56
2 – 10	194	21.16	64.56	1.19	1.75
11 - 100	177	19.30	83.86	9.51	11.26
101 – 1,000	138	15.05	98.91	63.81	75.07
1,001 +	10	1.09	100.00	24.93	100.00
Total	917	100.00	-	100.00	-

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



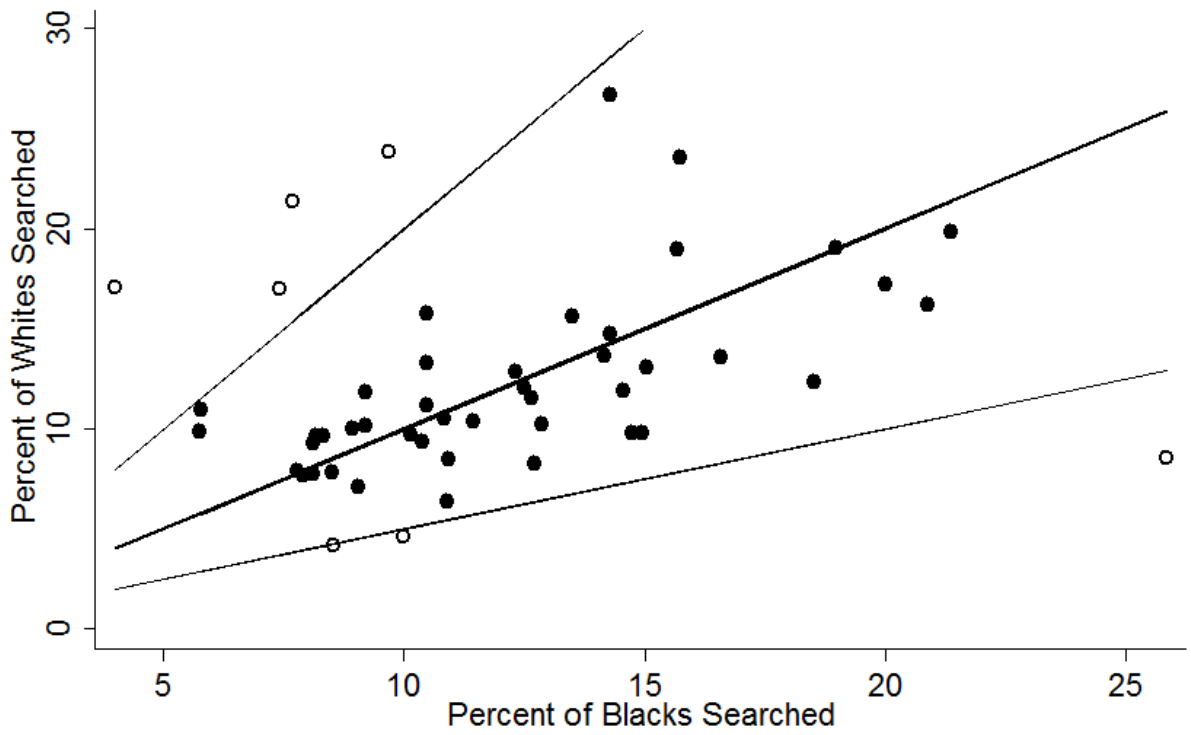
On average, officers stop 1.487 Whites for each Black stopped.

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



On average, officers search 1.409 Whites for each Black searched.

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



Includes 50 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 7.58. The hollow circles indicate high disparity officers. 4 officer searches Whites at more than twice the rate that they search Blacks. 3 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
<b>Demographics</b>					
Race	1.16*(0.04)	1.15*(0.04)	1.13*(0.04)	1.13*(0.04)	1.08*(0.04)
Hispanic	1.46*(0.08)	1.38*(0.07)	1.18*(0.06)	1.17*(0.06)	1.04(0.06)
Age	-	0.97*(0.01)	0.96*(0.00)	0.96*(0.00)	0.97*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.30*(0.12)	1.33*(0.12)	1.36*(0.13)
Impaired	-	-	13.51*(1.14)	13.70*(1.16)	12.02*(1.10)
Movement	-	-	2.41*(0.14)	2.41*(0.14)	2.37*(0.15)
Equipment	-	-	1.78*(0.10)	1.79*(0.10)	1.67*(0.10)
Regulatory	-	-	1.66*(0.09)	1.68*(0.09)	1.73*(0.10)
Seat Belt	-	-	1.53*(0.14)	1.56*(0.14)	1.76*(0.17)
Investigation	-	-	2.93*(0.17)	2.94*(0.17)	2.92*(0.18)
Other	-	-	1.71*(0.15)	1.72*(0.15)	1.75*(0.16)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	1.06(0.10)	1.11(0.11)
White Disparity <sup>†</sup>	-	-	-	2.40*(0.24)	2.31*(0.24)
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.10*(0.00)	0.29*(0.01)	0.18*(0.01)	0.17*(0.01)	0.21*(0.02)
<b>N</b>	44,438	44,438	44,439	44,438	39,672
<b>Pseudo R<sup>2</sup></b>	0.00	0.02	0.06	0.06	0.07

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
<b>Demographics</b>					
Race	0.74*(0.06)	0.73*(0.06)	0.68*(0.05)	0.69*(0.05)	0.65*(0.05)
Hispanic	0.64*(0.13)	0.61*(0.13)	0.50*(0.10)	0.50*(0.11)	0.45*(0.11)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.98*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.89*(0.36)	1.88*(0.36)	1.72*(0.34)
Impaired	-	-	26.81*(4.41)	26.38*(4.36)	16.11*(2.87)
Movement	-	-	2.86*(0.40)	2.81*(0.40)	2.29*(0.35)
Equipment	-	-	2.89*(0.35)	2.85*(0.34)	1.92*(0.25)
Regulatory	-	-	2.22*(0.27)	2.22*(0.27)	2.13*(0.27)
Seat Belt	-	-	1.49(0.39)	1.50(0.39)	1.82*(0.48)
Investigation	-	-	5.33*(0.67)	5.32*(0.67)	4.50*(0.59)
Other	-	-	2.83*(0.53)	2.78*(0.52)	2.29*(0.45)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	0.71(0.20)	0.73(0.21)
White Disparity <sup>†</sup>	-	-	-	2.32*(0.50)	2.23*(0.50)
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.04*(0.00)	0.10*(0.01)	0.05*(0.01)	0.05*(0.01)	0.07*(0.02)
<b>N</b>	23,167	23,167	23,167	23,167	20,996
<b>Pseudo R<sup>2</sup></b>	0.00	0.01	0.07	0.07	0.10

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	2,741	57.94	37.10
Speed Limit	460	53.26	41.52
Stop Light/Sign	100	66.00	31.00
Driving Impaired	358	70.83	21.88
Safe Movement	587	52.79	39.11
Vehicle Equipment	424	57.24	40.37
Vehicle Regulatory	93	55.90	37.74
Seat Belt	512	54.84	44.09
Investigation	106	65.04	30.47
Other Vehicle	39	55.66	36.79

Figure A1. Stops by Day of the Week

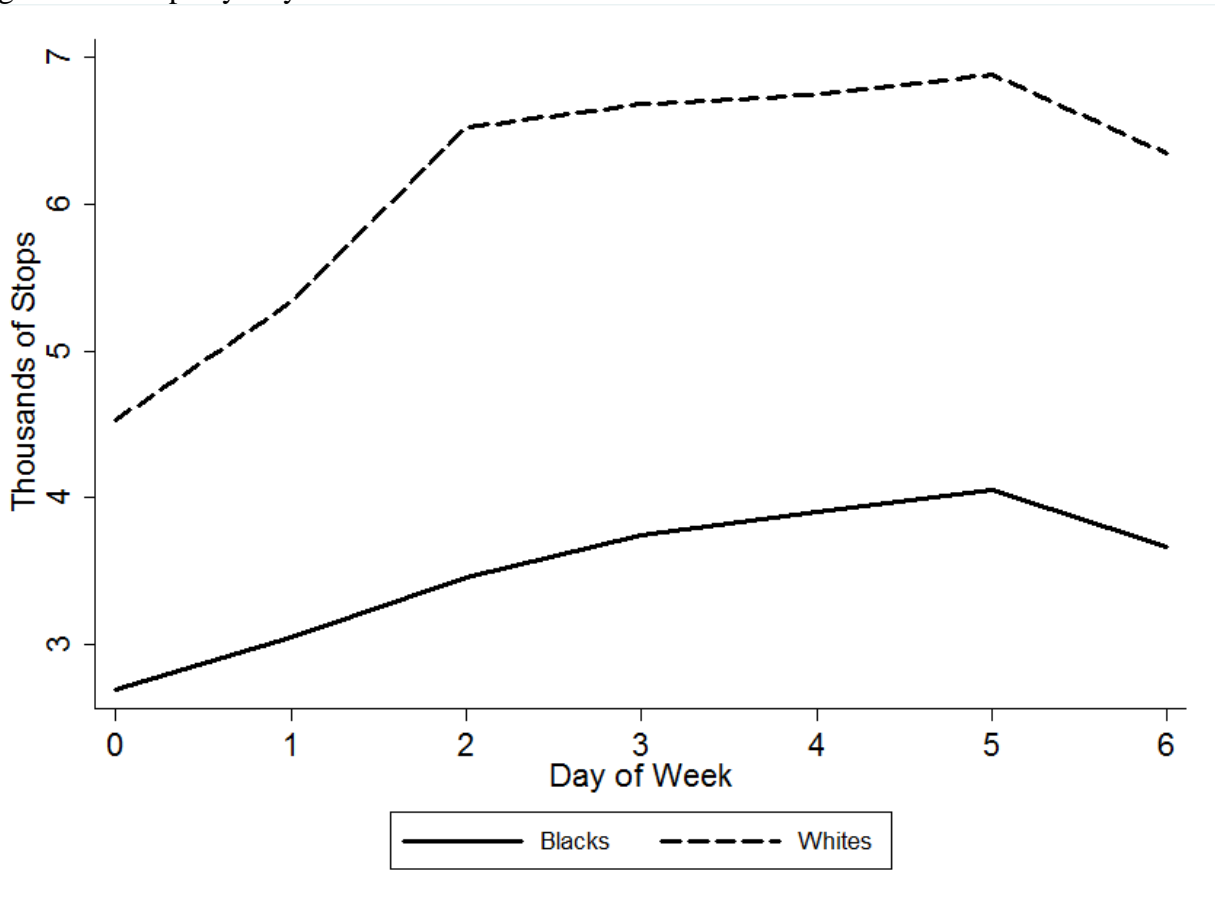




Figure A2. Searches by Day of the Week

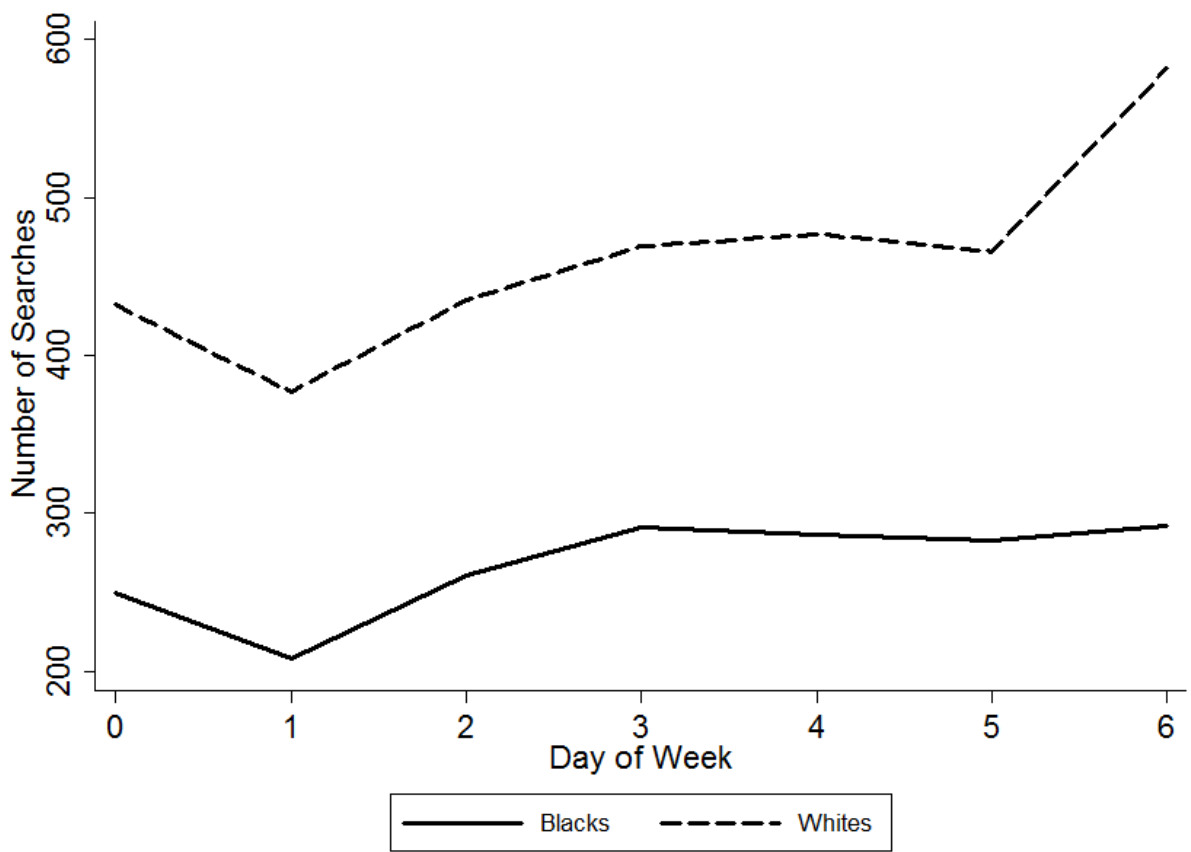
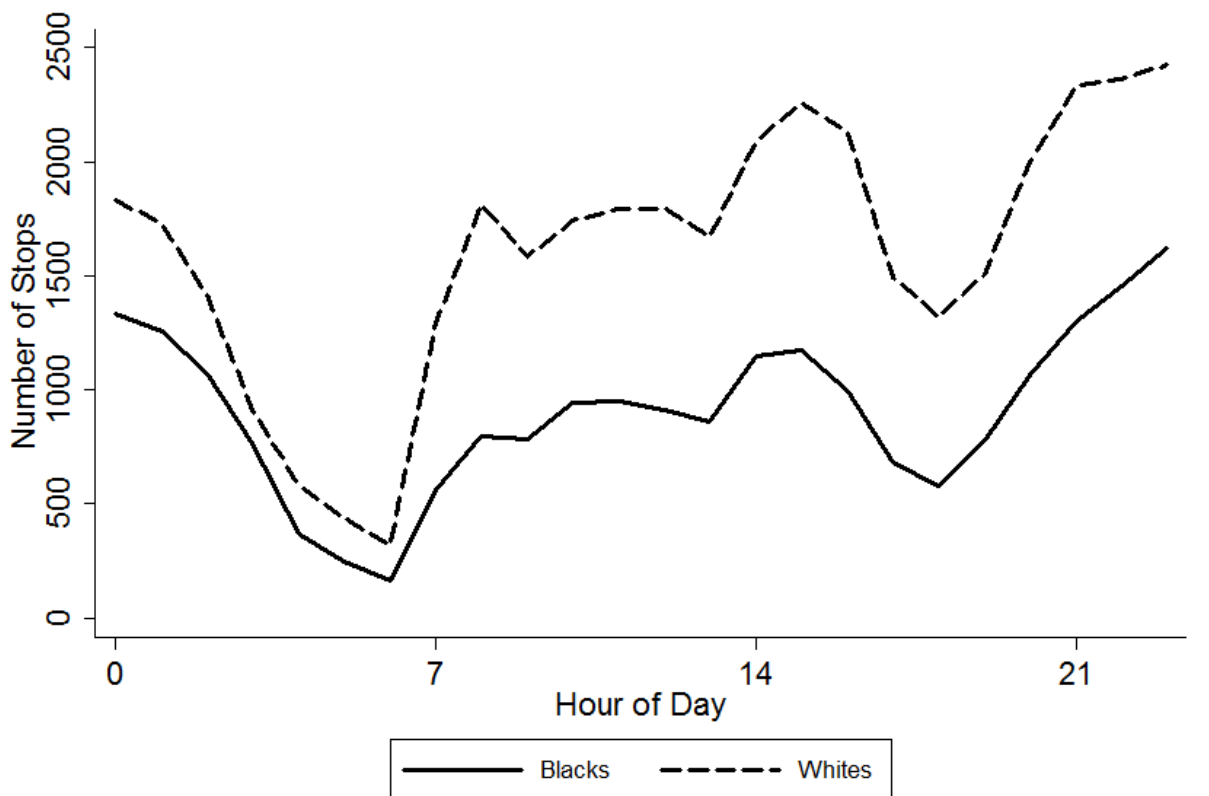
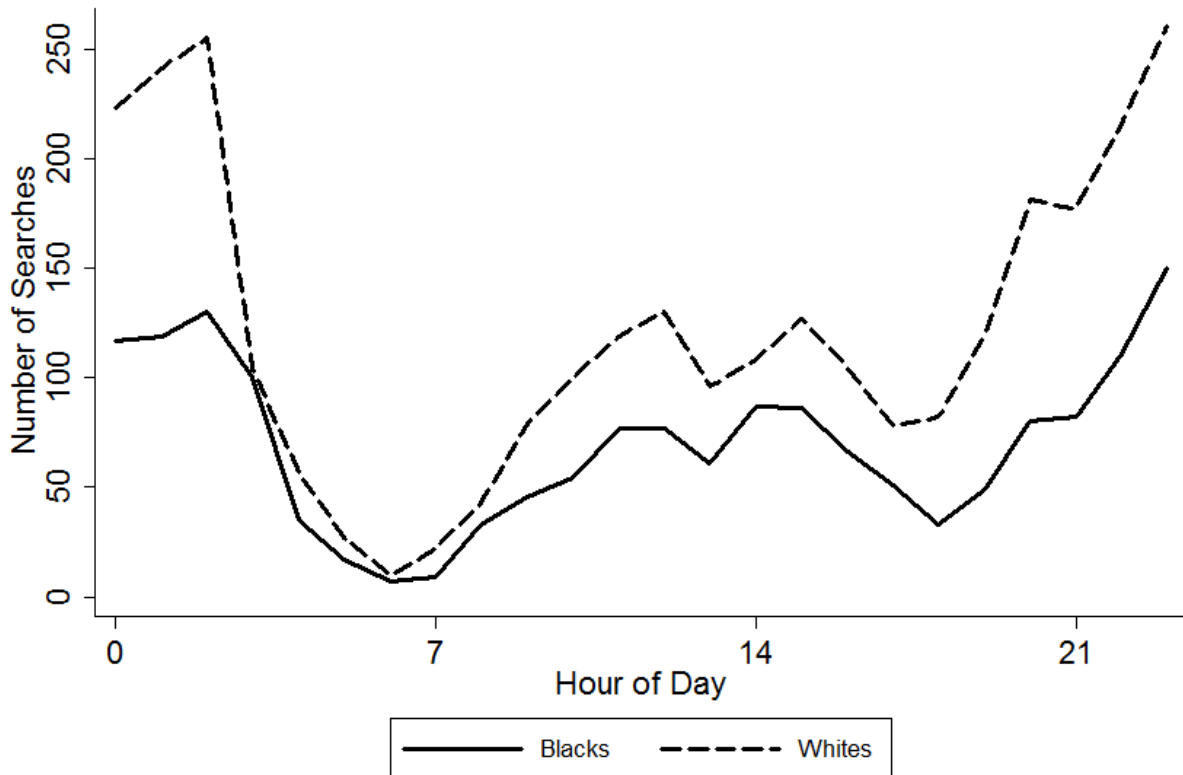


Figure A3. Stops by Hour of the Day



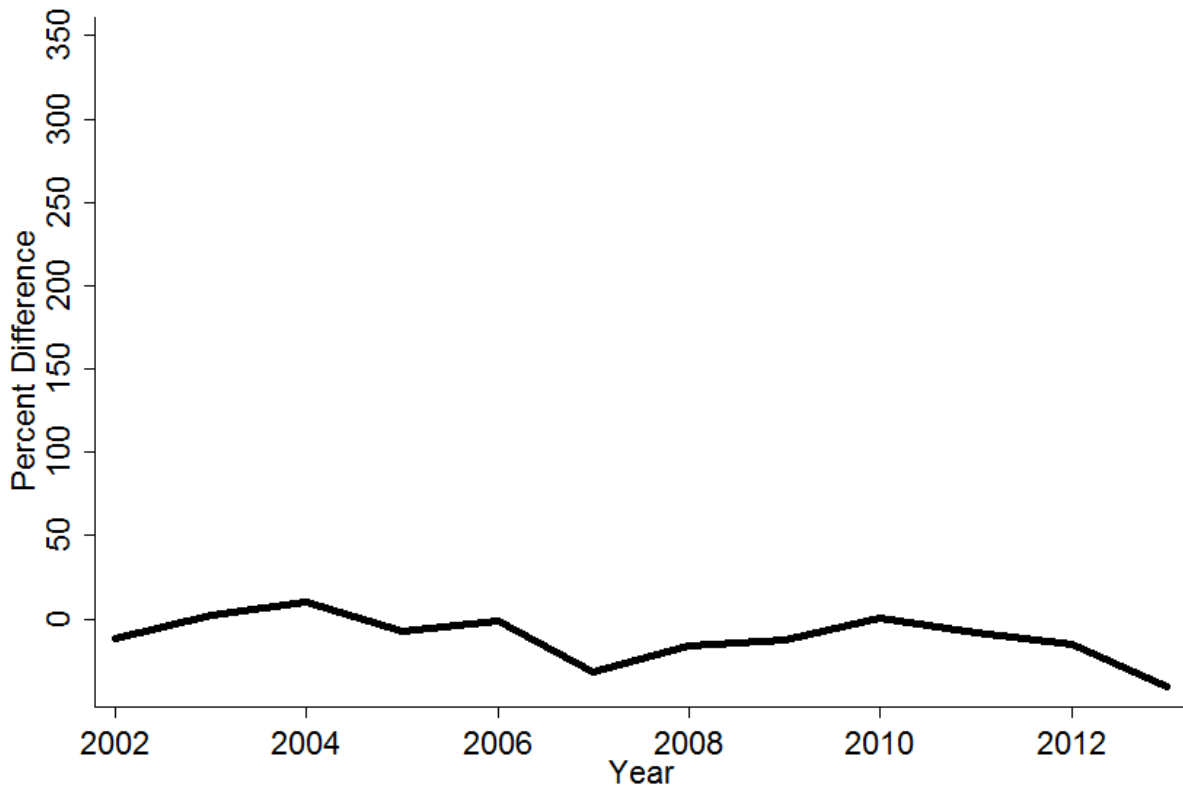
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

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	1,145	21.30	21.19	22.60
No	4,231	78.70	78.81	77.40
Total	5,376	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	39,809	4.40	39.61	5.41	59.17	1.42	100.00
Black	No	22,686	4.62	40.20	4.74	48.89	1.56	100.00
Total	No	65,551	4.46	39.72	5.14	49.21	1.47	100.00
White	Yes	3,238	2.01	16.34	4.91	45.12	31.62	100.00
Black	Yes	1,872	2.40	12.61	5.45	48.50	31.04	100.00
Total	Yes	5,376	2.18	15.05	5.54	46.00	31.23	100.00