

# **Analysis of Black-White Differences in Traffic Stops and Searches in Lexington, 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	62,399
-2014	247
-Passengers	2,332
-Checkpoint stops	499
Total number of cases deleted	3,037
Stops remaining for analysis	59,362
Searches	3,454
Percent of stops leading to search (search rate)	5.82

Figure 1. Number of Traffic Stops per Year

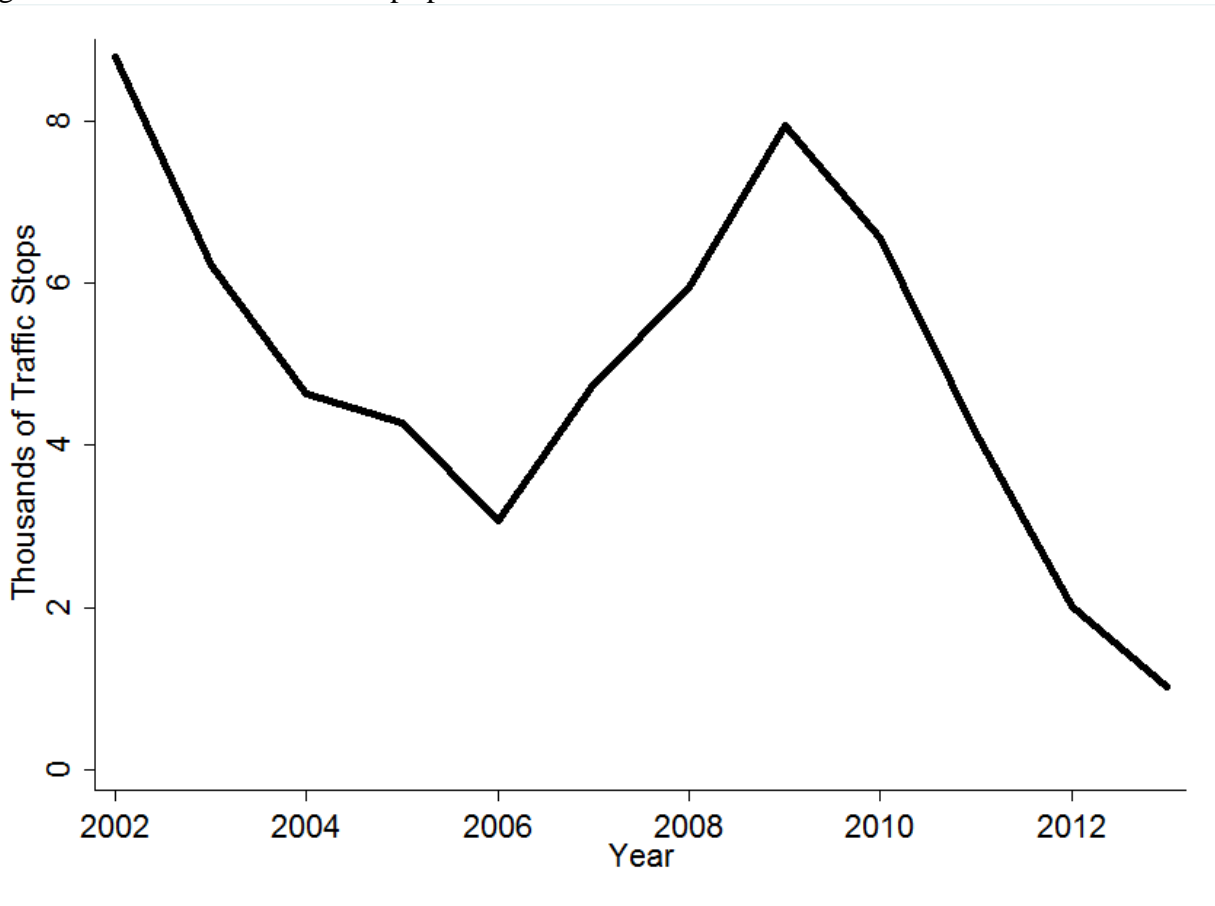


Figure 2. Racial Composition of Traffic Stops by Year

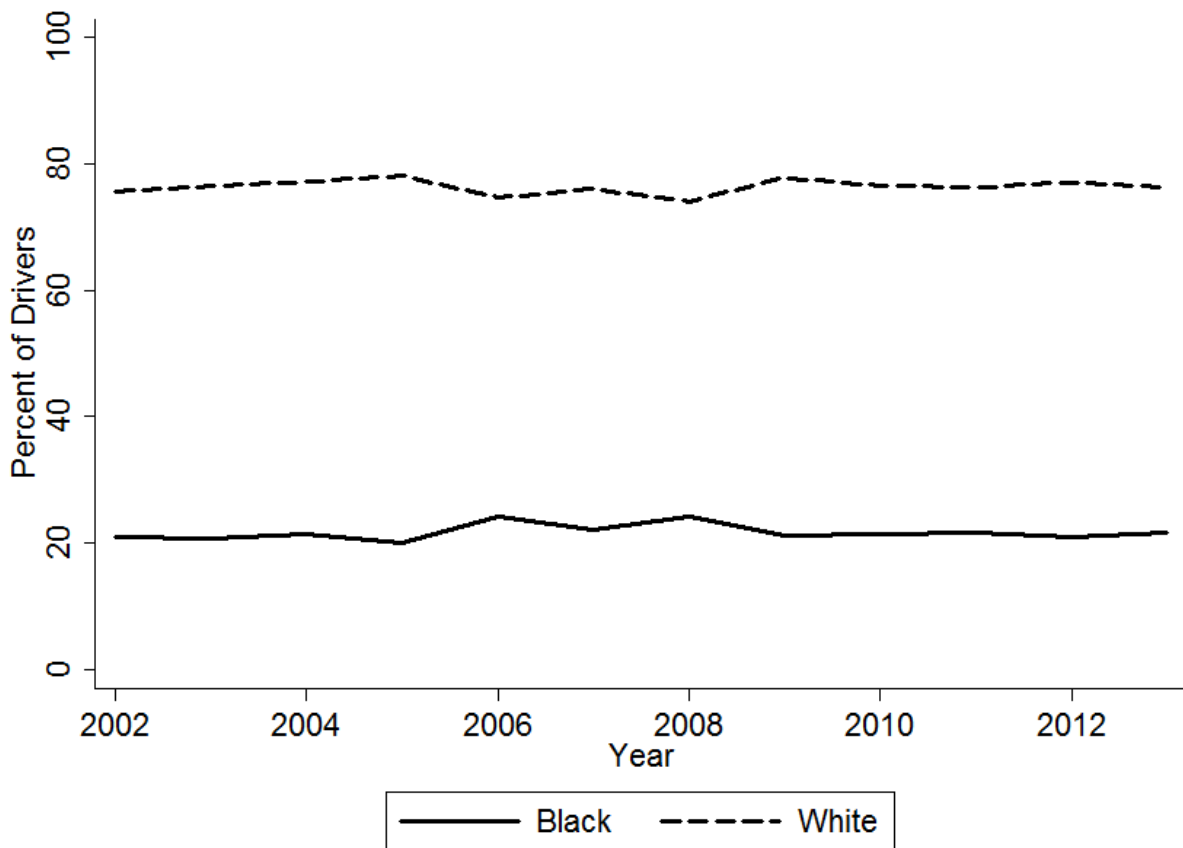


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	59,362	76.38	21.61
Speed Limit	18,255	79.09	18.73
Stop Light/Sign	3,905	75.24	22.07
Driving Impaired	494	73.08	23.28
Safe Movement	5,496	74.00	23.34
Vehicle Equipment	10,213	73.94	24.38
Vehicle Regulatory	8,845	75.48	23.01
Seat Belt	6,591	82.37	15.93
Investigation	3,368	69.74	28.56
Other Vehicle	2,195	69.89	27.84

Note: Includes only drivers. Excludes 2,332 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	59,362	-	76.38	21.61	-
Total Searches	3,454	5.82	5.37	7.37	1.37
Speed Limit	18,255	2.19	1.90	3.25	1.71
Stop Light/Sign	3,905	5.48	4.66	8.82	1.89
Driving Impaired	494	41.50	42.38	38.26	0.90
Safe Movement	5,496	9.52	9.52	9.90	1.04
Vehicle Equipment	10,213	6.77	6.53	7.39	1.13
Vehicle Regulatory	8,845	5.81	5.48	6.93	1.26
Seat Belt	6,591	3.34	2.97	4.57	1.54
Investigation	3,368	12.95	13.03	13.10	1.01
Other Vehicle	2,195	11.44	10.30	14.40	1.40

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

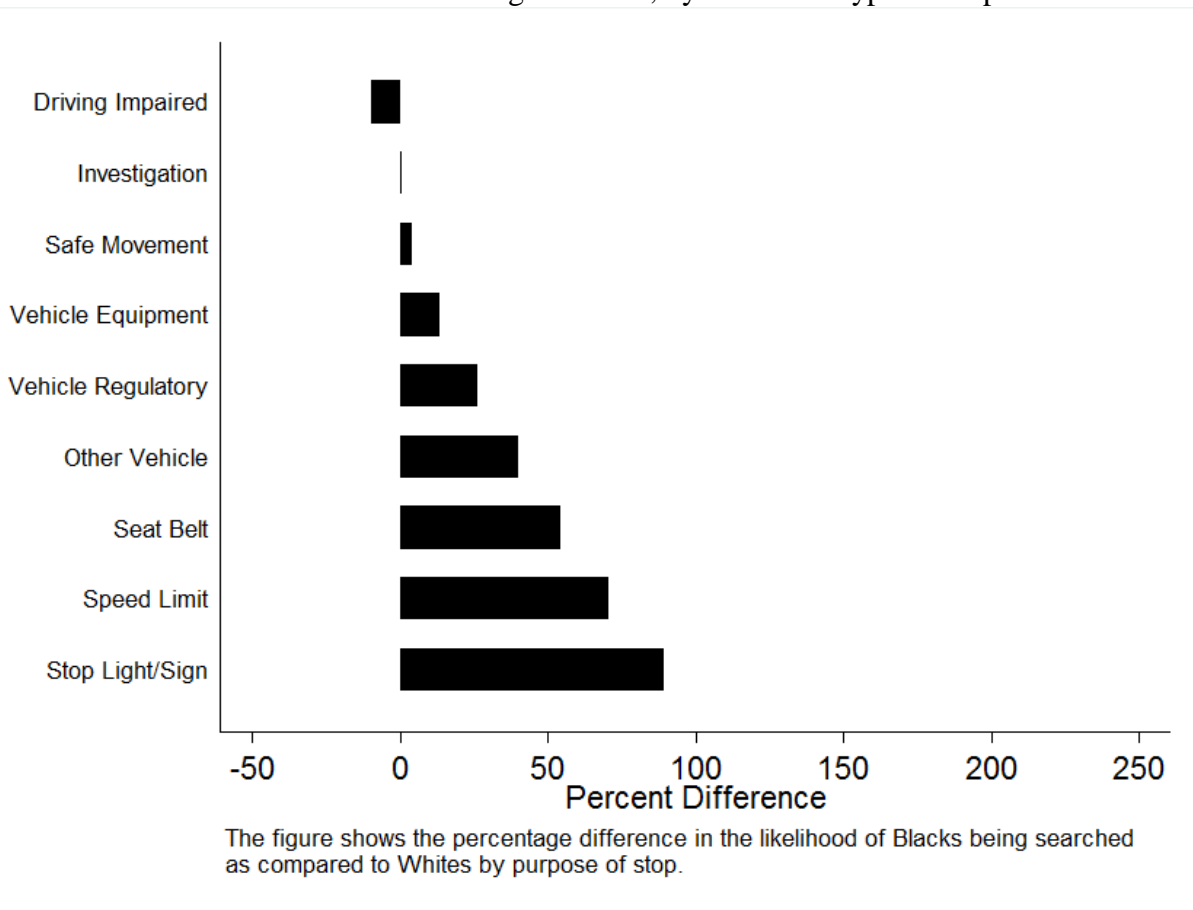
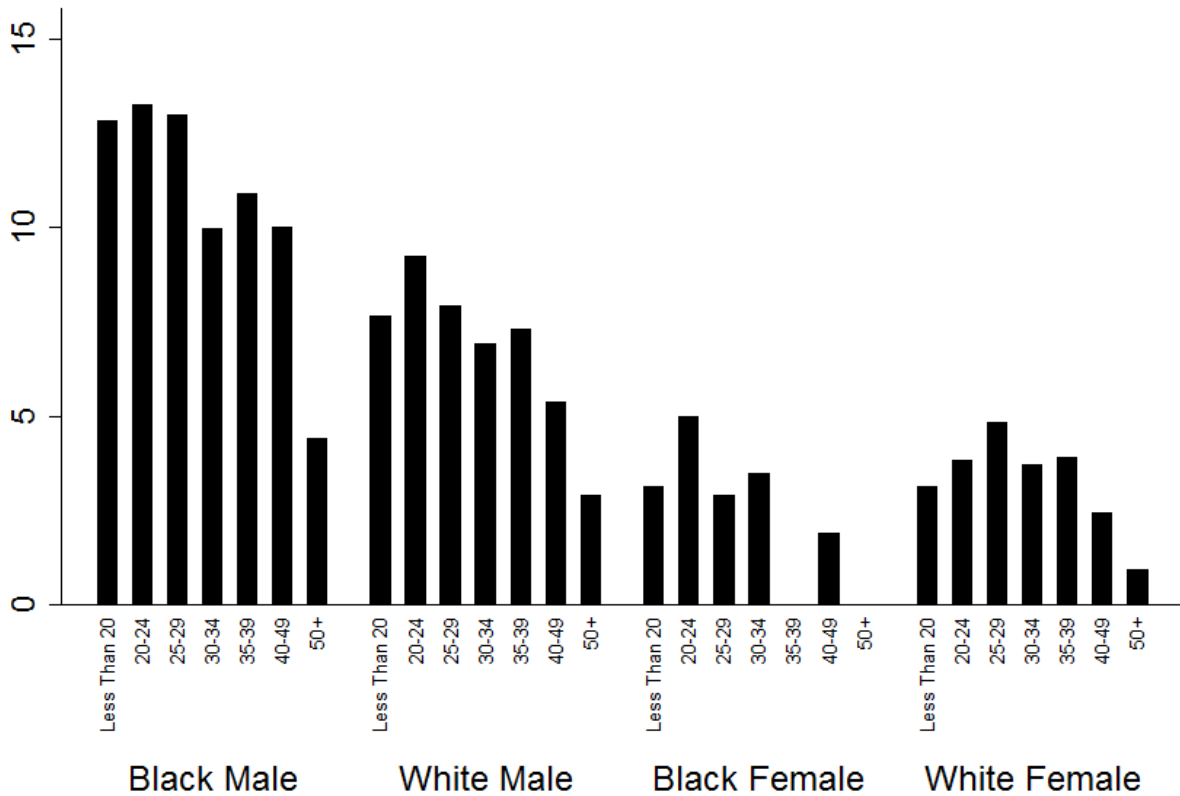
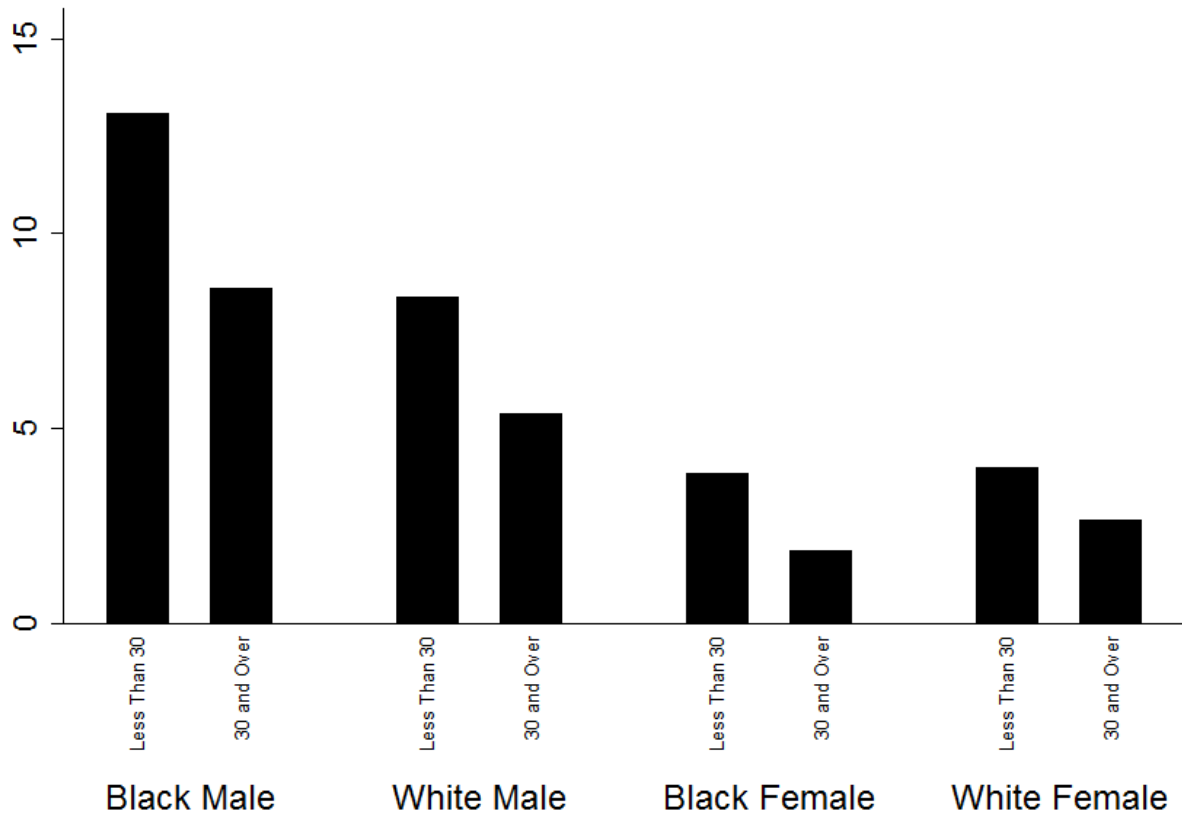


Figure 4a. Percentage Searched by Race, Gender, and Age



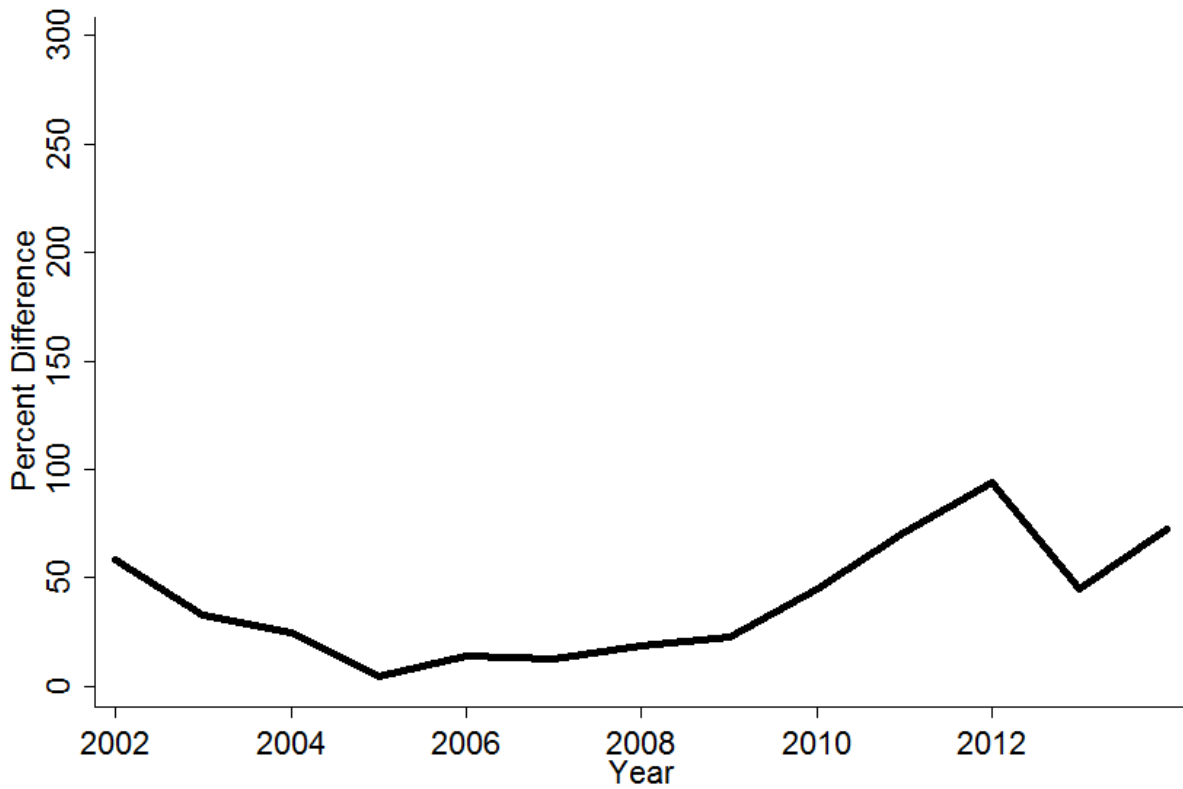
Based on 59,362 traffic stops from 2002 through 2013, and 3,454 searches. Overall rate of search: 5.82 percent. No data are presented for categories with fewer than 10 searches.

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



Based on 59,362 traffic stops from 2002 through 2013, and 3,454 searches. Overall rate of search: 5.82 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

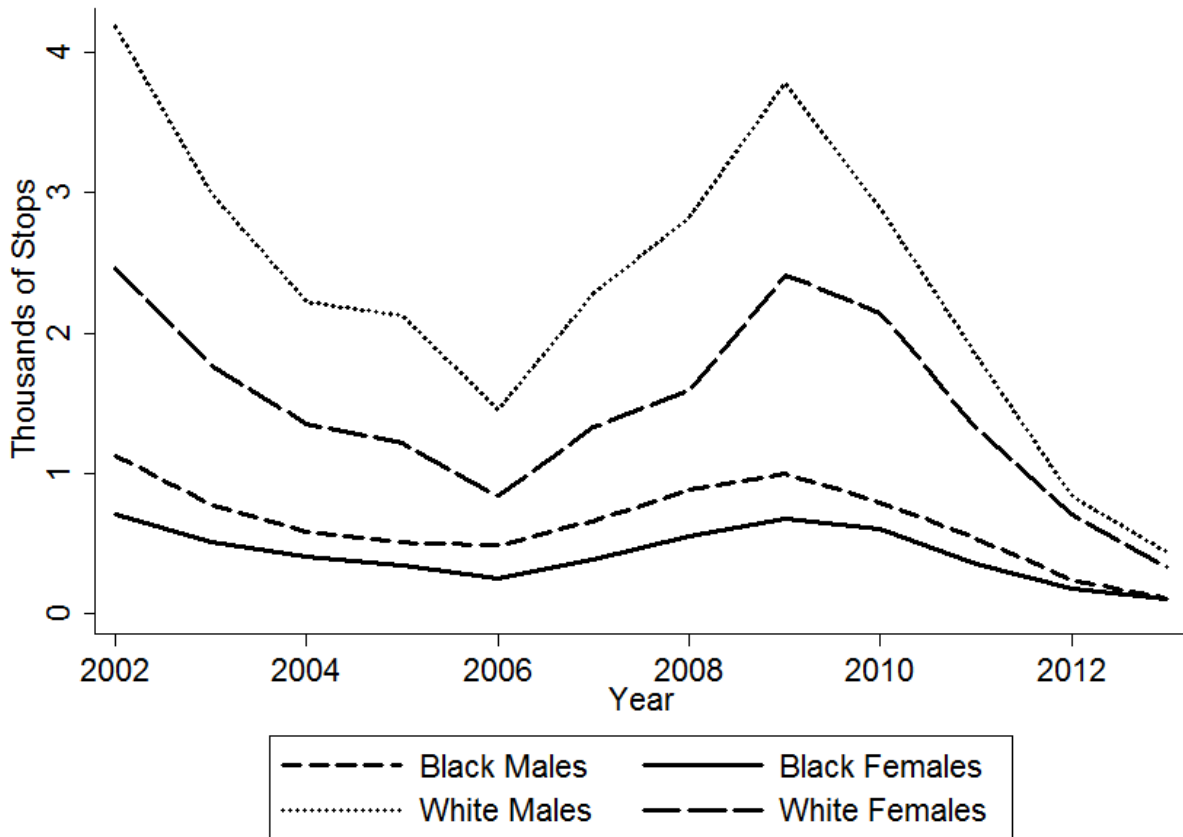
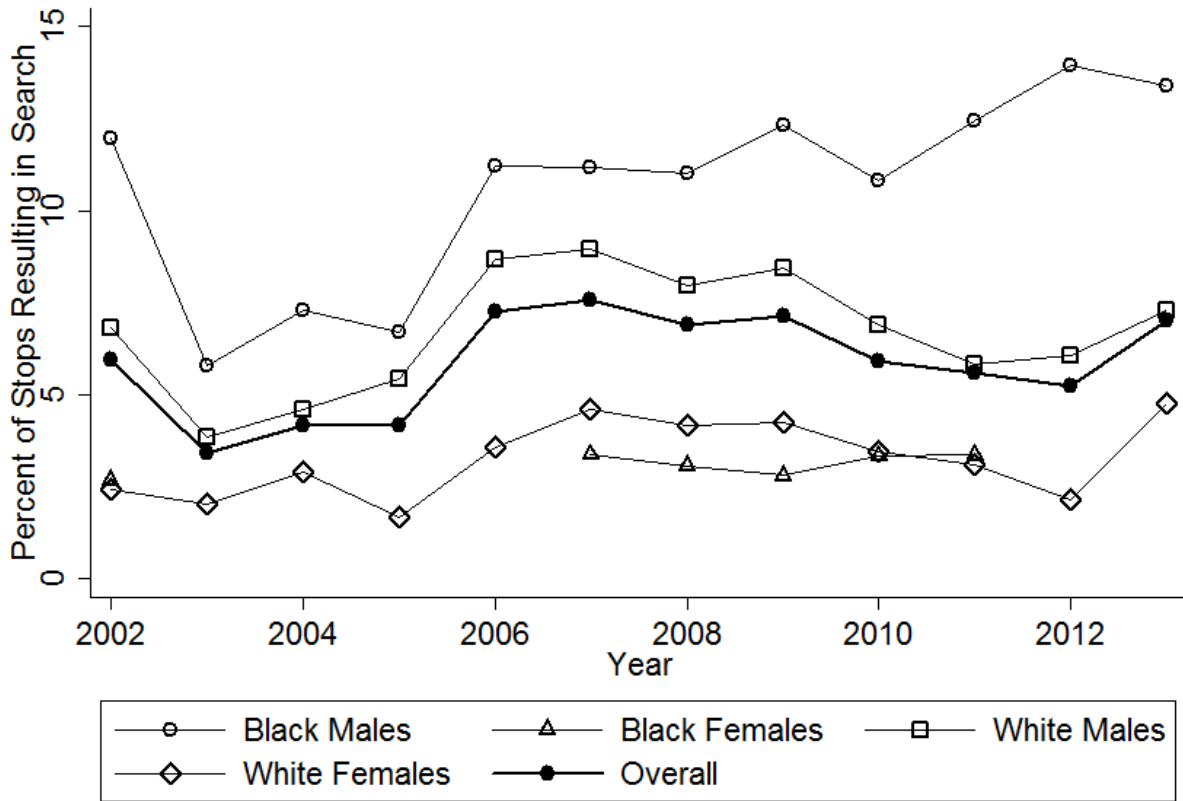




Figure 7. Percent Searched, by Race and Gender



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

Table 4. Type of Search by Race

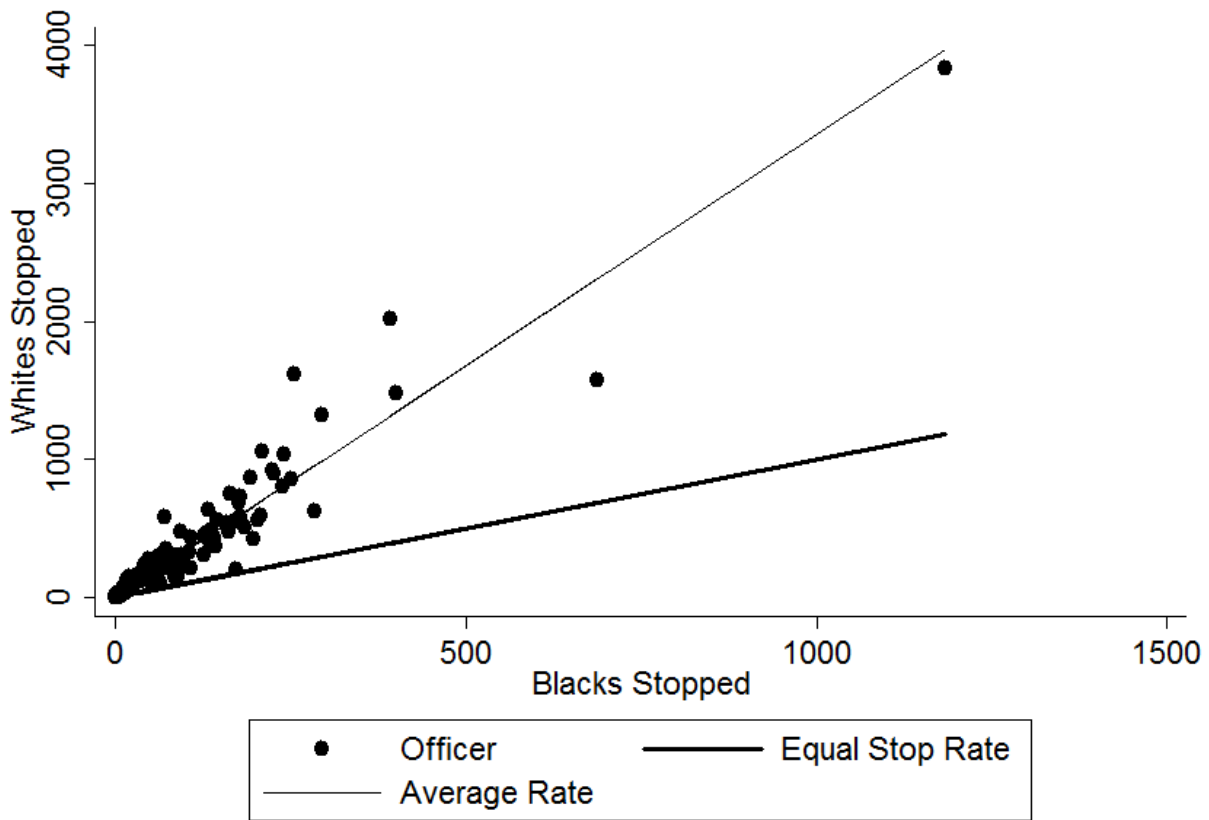
Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	59,362	-	76.38	21.61	-
Total Searches	3,454	5.82	5.37	7.37	1.37
Consent	2,136	3.60	3.52	3.85	1.09
Search Warrant	10	0.02	0.02	0.01	0.50
Probable Cause	359	0.60	0.44	1.19	2.70
Incident to Arrest	905	1.52	1.32	2.21	1.67
Protective Frisk	44	0.07	0.07	0.10	1.43

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

Table 5. Distribution of Officer IDs by Stop

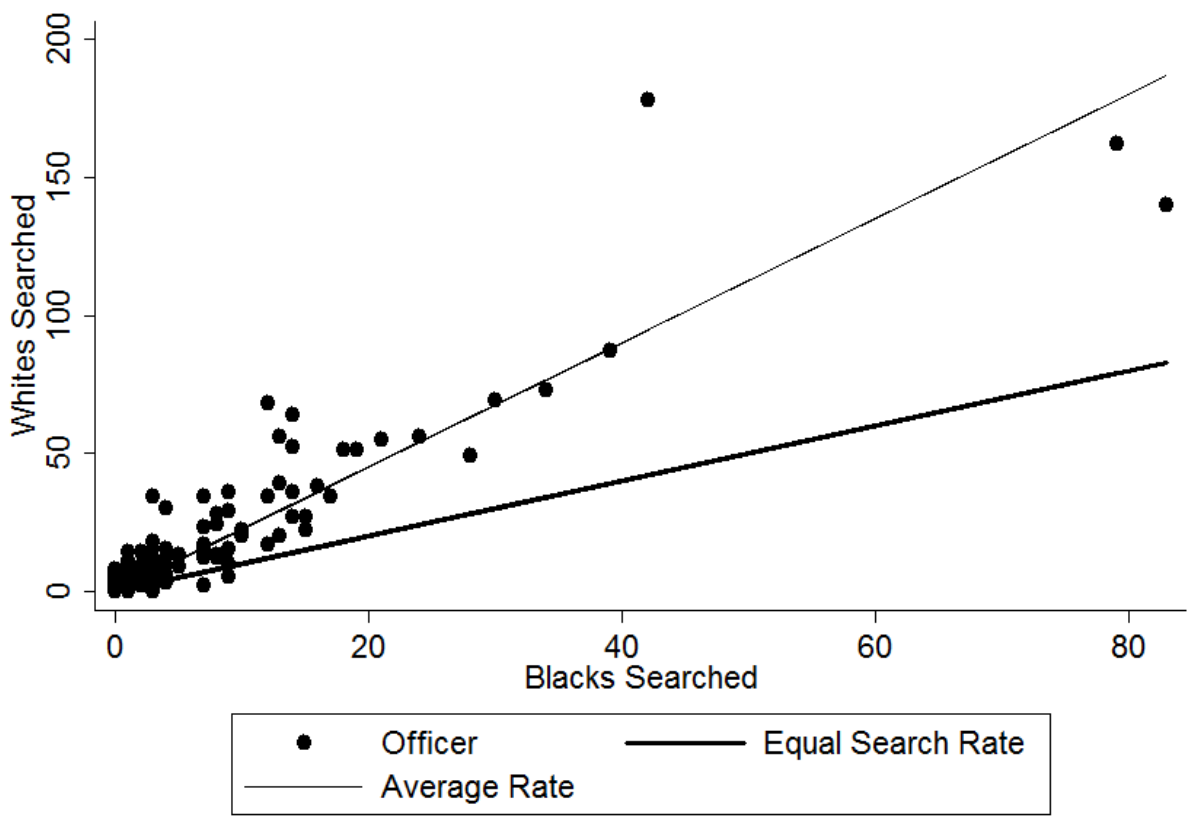
Number of Stops	Officers w/ this many Stops	Percent of Officers	Cumulative Percent	Percent of Stops	Cumulative Percent
1	137	39.71	39.71	0.23	0.23
2 – 10	61	17.68	57.39	0.36	0.59
11 - 100	51	14.78	72.17	3.77	4.36
101 – 1,000	83	24.06	96.23	55.99	60.35
1,001 +	13	3.77	100.00	39.65	100.00
Total	345	100.00	-	100.00	-

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



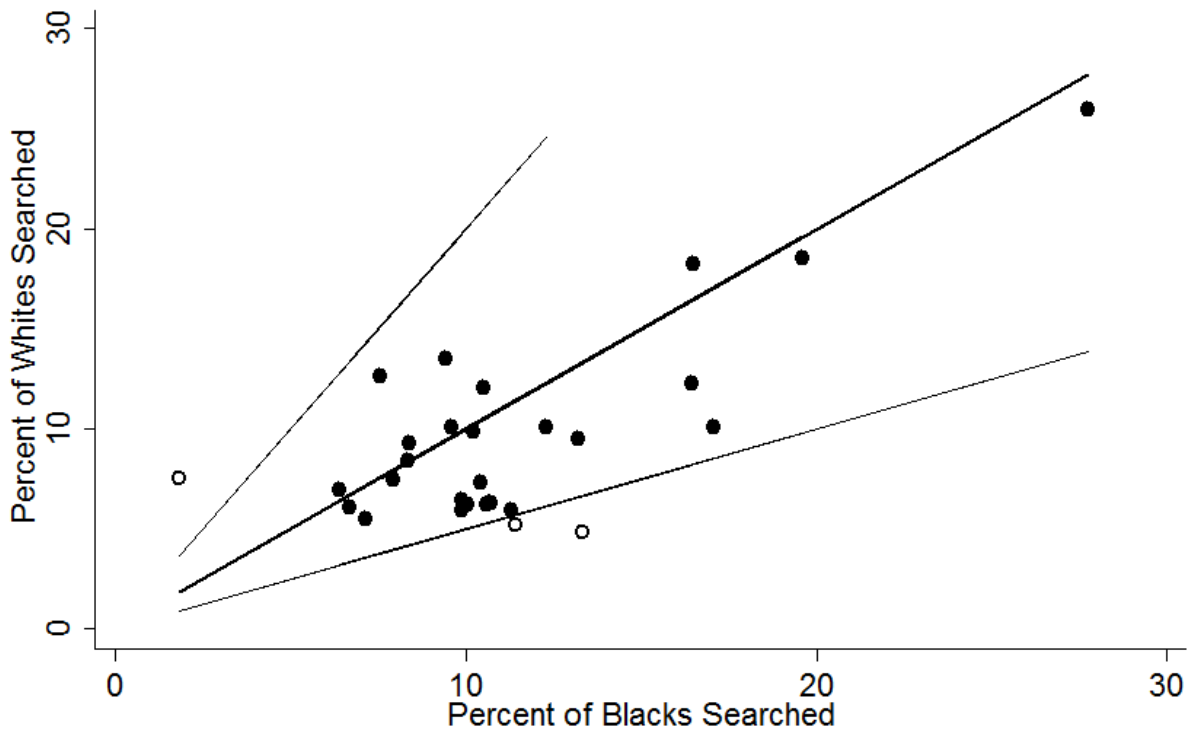
On average, officers stop 3.36 Whites for each Black stopped.

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



On average, officers search 2.25 Whites for each Black searched.

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



Includes 29 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 5.82. The hollow circles indicate high disparity officers.  
1 officer searches Whites at more than twice the rate that they search Blacks.  
2 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	1.87*(0.09)	1.89*(0.09)	1.66*(0.08)	1.66*(0.08)	1.64*(0.08)
Hispanic	2.08*(0.11)	1.90*(0.10)	1.43*(0.08)	1.44*(0.08)	1.48*(0.09)
Age	-	0.98*(0.00)	0.97*(0.00)	0.97*(0.00)	0.98*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.56*(0.25)	2.55*(0.25)	2.45*(0.24)
Impaired	-	-	25.18*(3.04)	25.16*(3.04)	21.48*(2.68)
Movement	-	-	3.48*(0.27)	3.48*(0.27)	3.31*(0.26)
Equipment	-	-	2.69*(0.20)	2.69*(0.20)	2.43*(0.18)
Regulatory	-	-	2.44*(0.19)	2.44*(0.19)	2.44*(0.19)
Seat Belt	-	-	1.19(0.12)	1.19(0.12)	1.27(0.13)
Investigation	-	-	4.56*(0.39)	4.57*(0.39)	4.28*(0.37)
Other	-	-	4.14*(0.40)	4.14*(0.40)	3.92*(0.38)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	1.13(0.19)	1.14(0.20)
White Disparity <sup>†</sup>	-	-	-	0.81(0.24)	0.82(0.25)
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.06*(0.00)	0.14*(0.01)	0.07*(0.01)	0.07*(0.01)	0.08*(0.01)
<b>N</b>	35,585	35,585	35,585	35,585	35,366
<b>Pseudo R<sup>2</sup></b>	0.01	0.01	0.08	0.08	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.

\*  $p < 0.05$

† 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	0.82*(0.08)	0.81*(0.08)	0.68*(0.07)	0.69*(0.07)	0.67*(0.07)
Hispanic	0.68(0.14)	0.62*(0.12)	0.41*(0.08)	0.41*(0.08)	0.45*(0.09)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	3.05*(0.60)	3.05*(0.60)	2.81*(0.55)
Impaired	-	-	46.40*(12.19)	46.92*(12.34)	29.00*(7.99)
Movement	-	-	6.57*(1.09)	6.58*(1.09)	5.51*(0.93)
Equipment	-	-	4.05*(0.58)	4.05*(0.58)	3.05*(0.46)
Regulatory	-	-	3.99*(0.59)	3.99*(0.58)	3.87*(0.57)
Seat Belt	-	-	2.28*(0.42)	2.28*(0.42)	2.50*(0.47)
Investigation	-	-	13.02*(1.98)	13.02*(1.98)	10.55*(1.64)
Other	-	-	7.99*(1.57)	3.02*(1.58)	6.62*(1.32)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	0.90(0.33)	0.92(0.34)
White Disparity <sup>†</sup>	-	-	-	0.63(0.47)	0.65(0.48)
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.03*(0.00)	0.09*(0.01)	0.03*(0.00)	0.03*(0.00)	0.04*(0.01)
<b>N</b>	22,585	22,585	22,585	22,585	22,452
<b>Pseudo R<sup>2</sup></b>	0.00	0.02	0.09	0.09	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	2,332	69.94	27.57
Speed Limit	295	68.57	28.14
Stop Light/Sign	135	63.70	34.07
Driving Impaired	51	68.63	25.49
Safe Movement	241	76.76	21.99
Vehicle Equipment	444	65.09	33.11
Vehicle Regulatory	347	70.32	25.36
Seat Belt	234	78.73	18.38
Investigation	397	74.06	25.69
Other Vehicle	159	61.64	34.59

Figure A1. Stops by Day of the Week

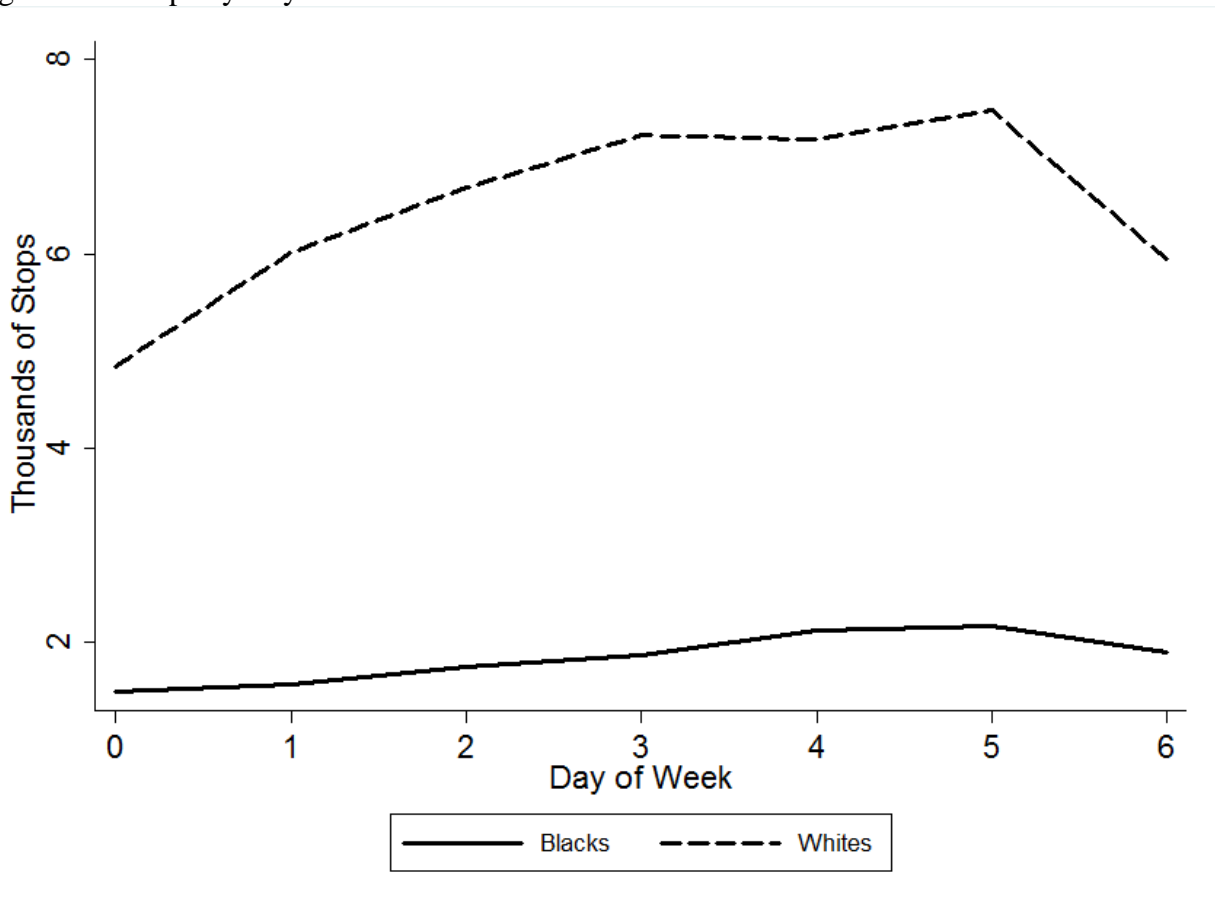




Figure A2. Searches by Day of the Week

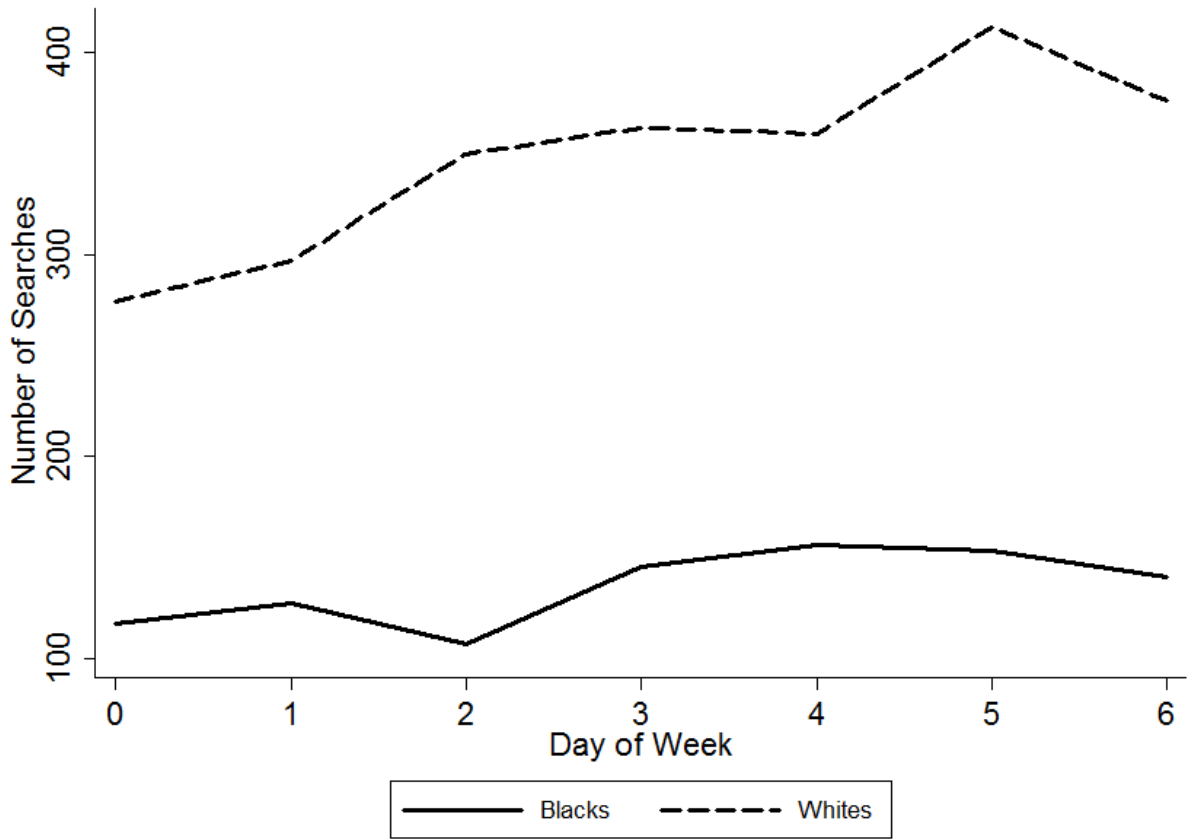
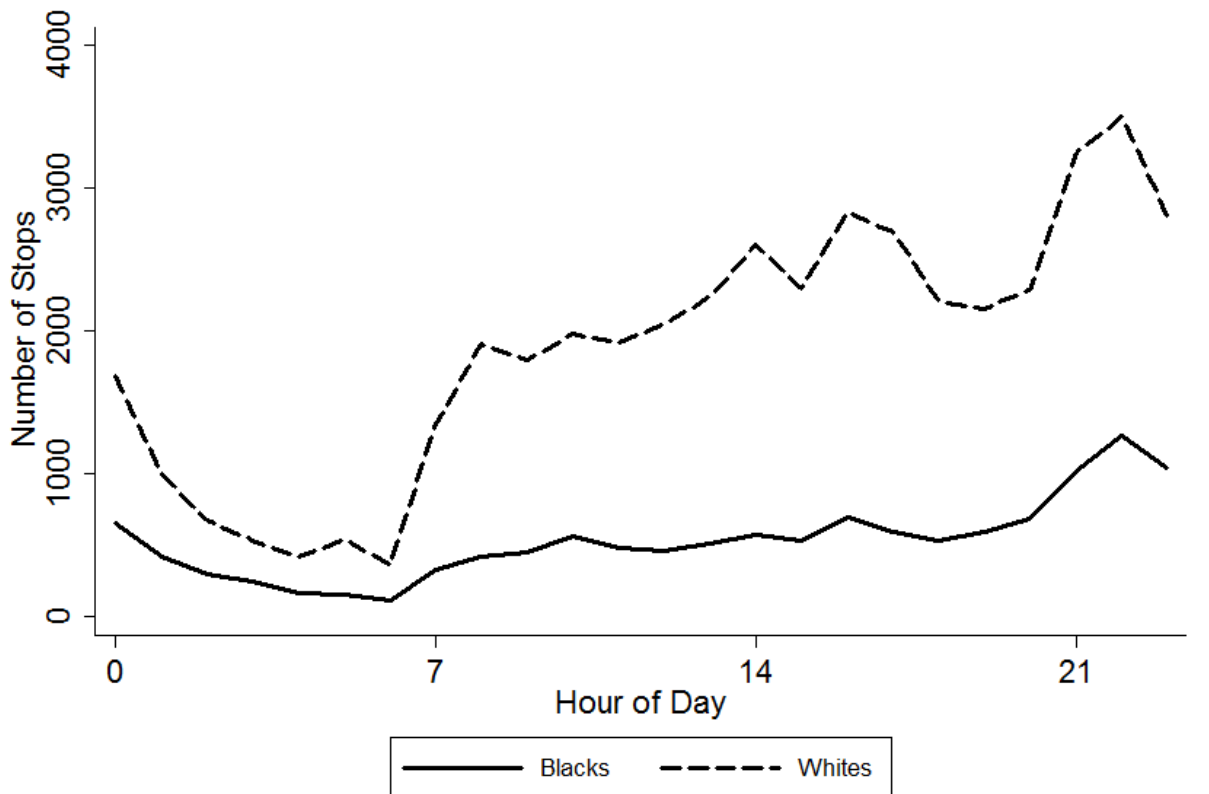
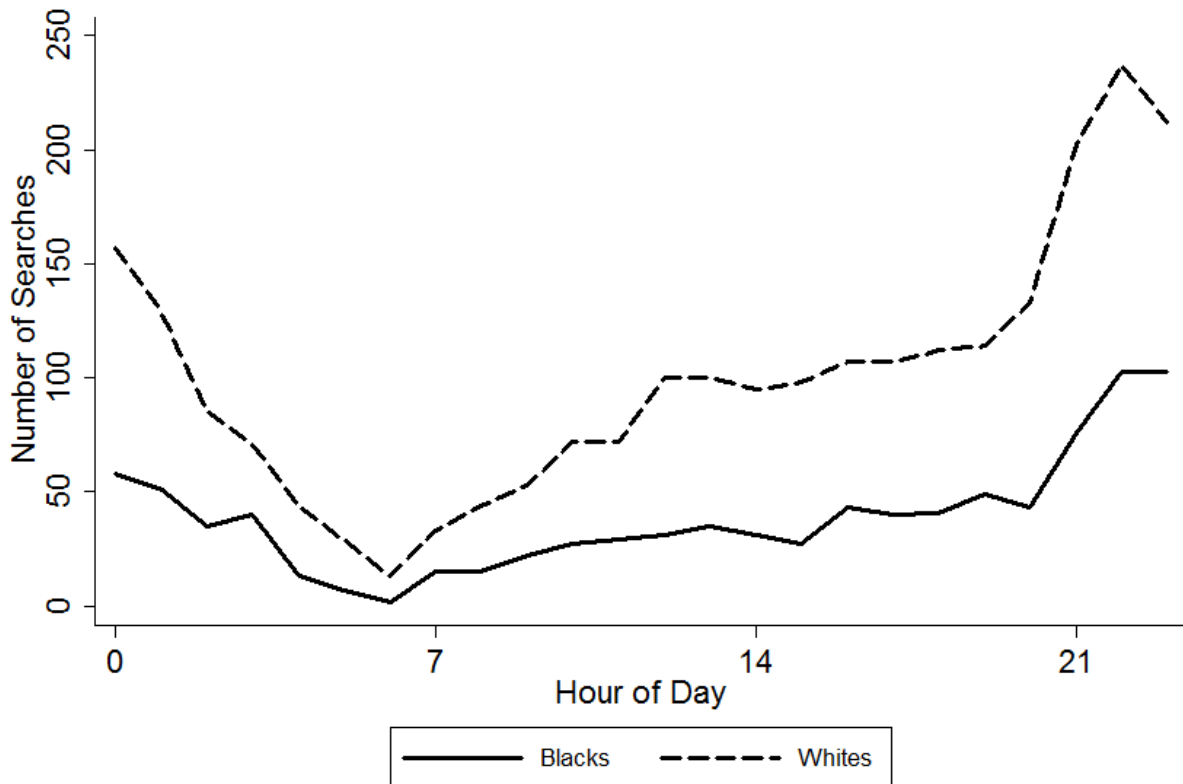


Figure A3. Stops by Hour of the Day



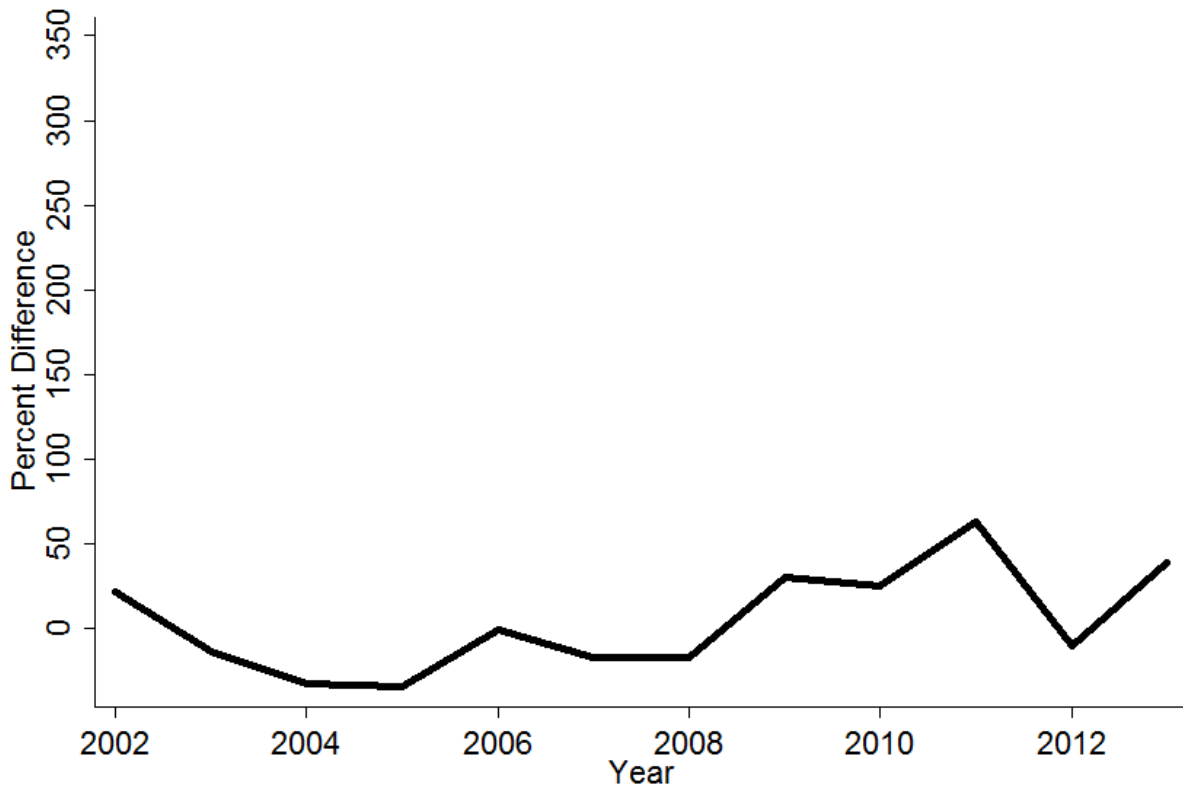
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

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	775	22.44	22.21	23.49
No	2,679	77.56	77.79	76.51
Total	3,454	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	42,907	2.39	29.81	17.33	49.64	0.83	100.00
Black	No	11,882	2.48	33.82	15.72	46.81	1.16	100.00
Total	No	55,908	2.41	30.70	16.89	49.09	0.90	100.00
White	Yes	2,436	1.40	17.90	10.88	36.54	33.29	100.00
Black	Yes	945	1.38	14.18	10.90	34.71	38.84	100.00
Total	Yes	3,454	1.36	16.85	10.94	35.90	34.94	100.00