

# **Analysis of Black-White Differences in Traffic Stops and Searches in Kinston, NC, 2002-2013**

8 December 2014

Frank R. Baumgartner, Derek Epp, and Kelsey Shoub<sup>1</sup>  
University of North Carolina at Chapel Hill  
Department of Political Science  
<http://www.unc.edu/~fbaum/traffic.htm>

Contact: [Frankb@unc.edu](mailto:Frankb@unc.edu)

[report prepared by Katherine Elliott]

---

<sup>1</sup> 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	35,326
-2014	201
-Passengers	577
-Checkpoint stops	2
Total number of cases deleted	775
Stops remaining for analysis	34,551
Searches	1,074
Percent of stops leading to search (search rate)	3.11

Figure 1. Number of Traffic Stops per Year

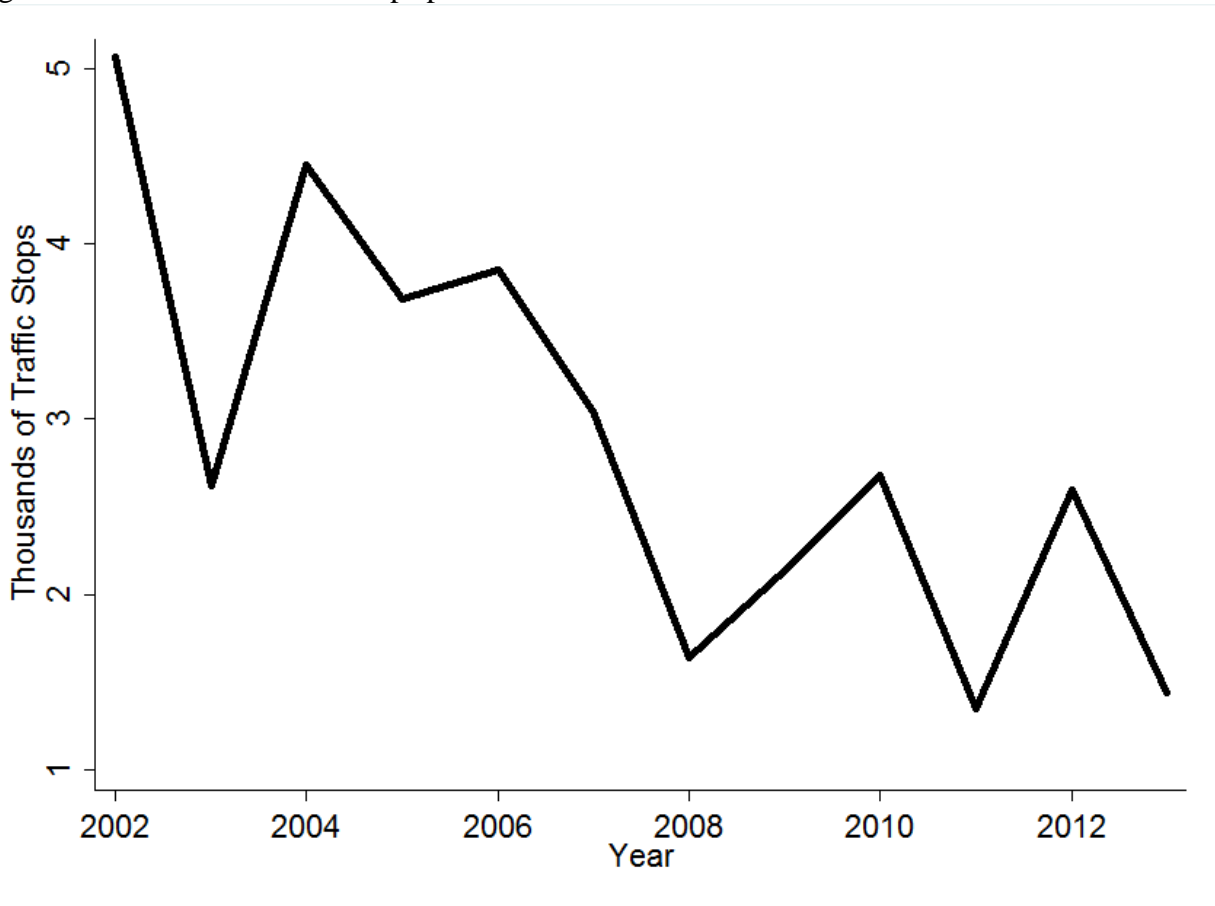


Figure 2. Racial Composition of Traffic Stops by Year

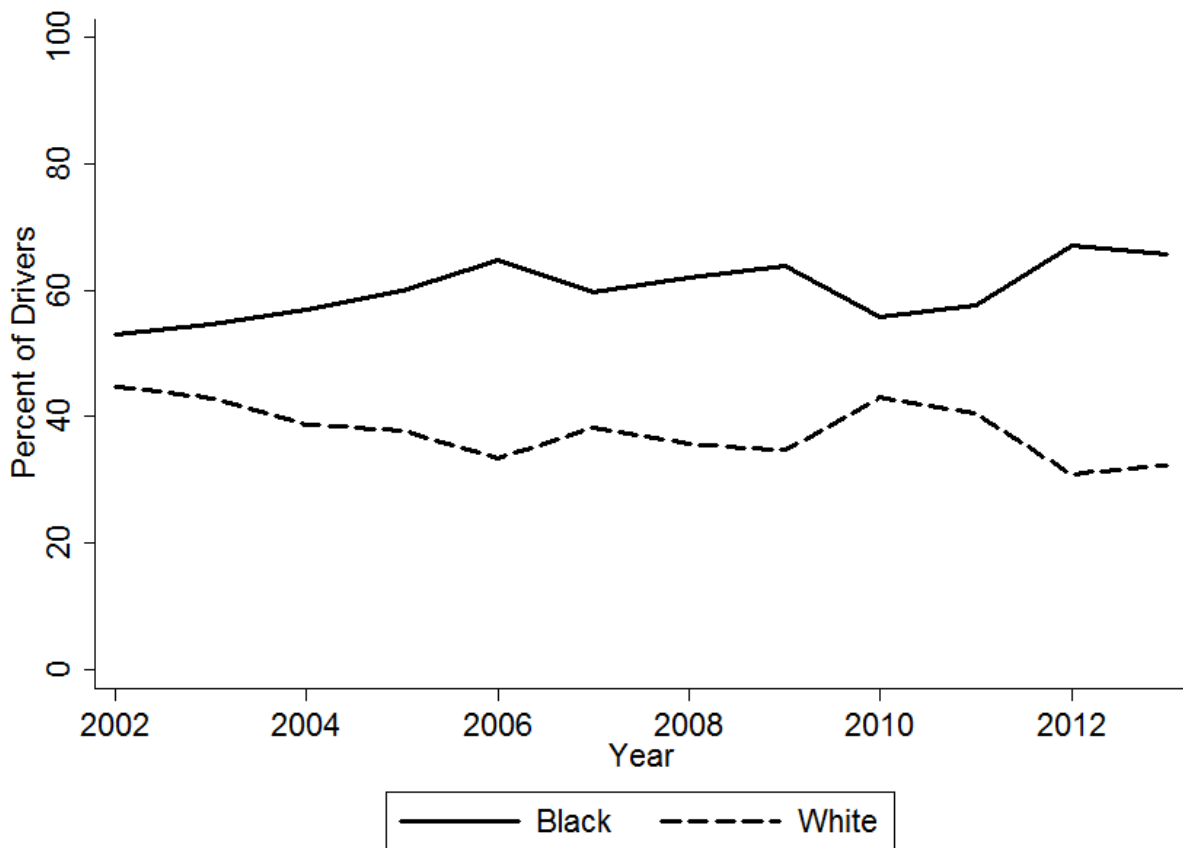


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

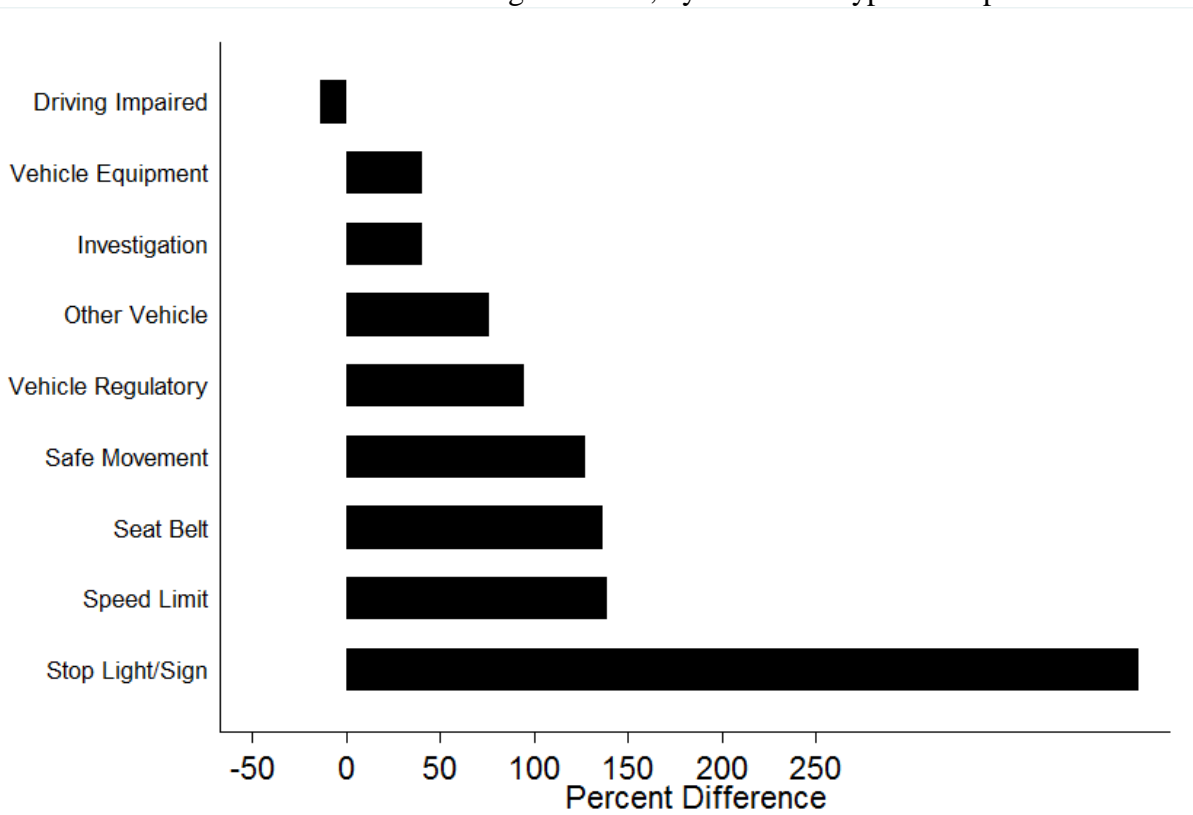
Purpose	Number	Percent	
		White	Black
Total Stops	34,551	38.38	59.36
Speed Limit	9,080	49.04	48.41
Stop Light/Sign	2,006	35.00	62.96
Driving Impaired	561	34.22	62.21
Safe Movement	2,168	43.82	53.51
Vehicle Equipment	6,106	27.42	70.75
Vehicle Regulatory	6,287	38.57	59.84
Seat Belt	2,958	37.83	59.84
Investigation	3,119	32.29	64.73
Other Vehicle	2,266	32.57	64.92

Note: Includes only drivers. Excludes 577 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

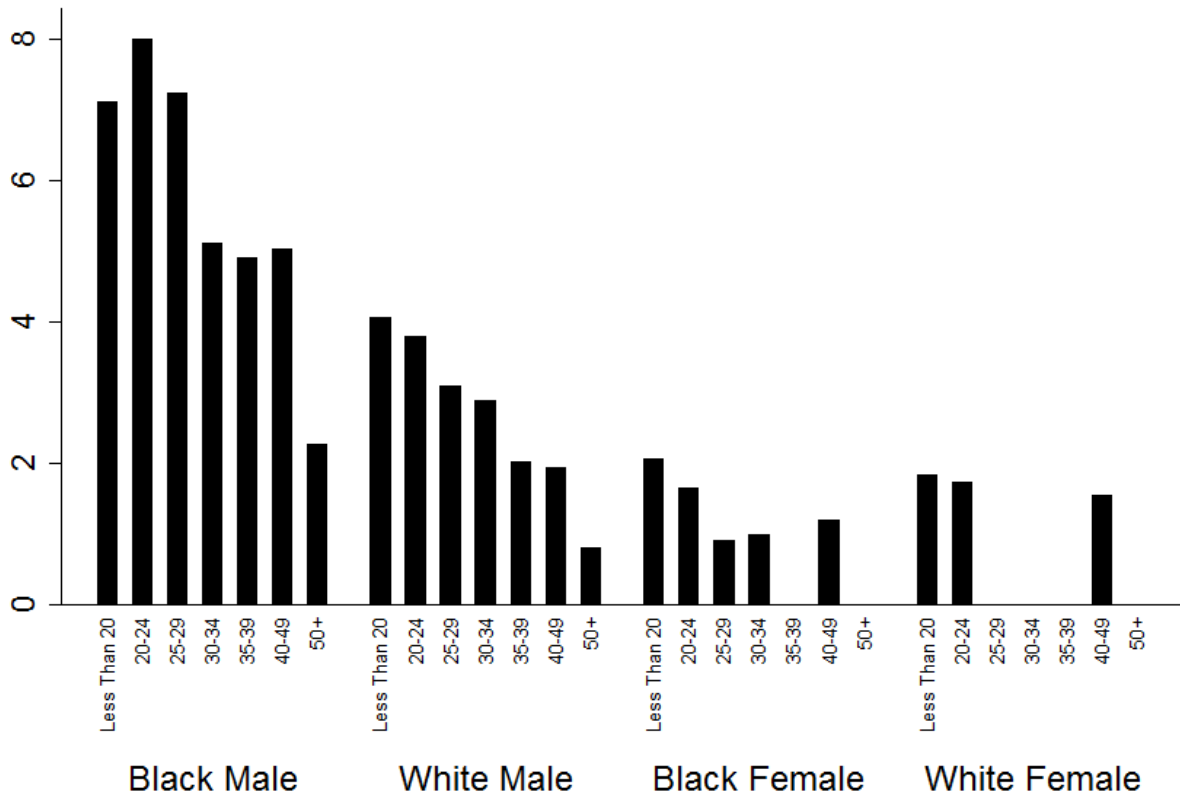
Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	34,551	-	38.38	59.36	-
Total Searches	33,477	3.11	2.02	3.84	1.90
Speed Limit	9,080	0.97	0.56	1.34	2.39
Stop Light/Sign	2,006	2.59	0.71	3.72	5.24
Driving Impaired	561	19.43	21.88	18.91	0.86
Safe Movement	2,168	3.18	1.89	4.31	2.28
Vehicle Equipment	6,106	2.83	2.21	3.10	1.40
Vehicle Regulatory	6,287	2.56	1.65	3.22	1.95
Seat Belt	2,958	1.39	0.71	1.69	2.38
Investigation	3,119	8.27	6.55	9.21	1.41
Other Vehicle	2,266	5.43	3.66	6.46	1.77

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



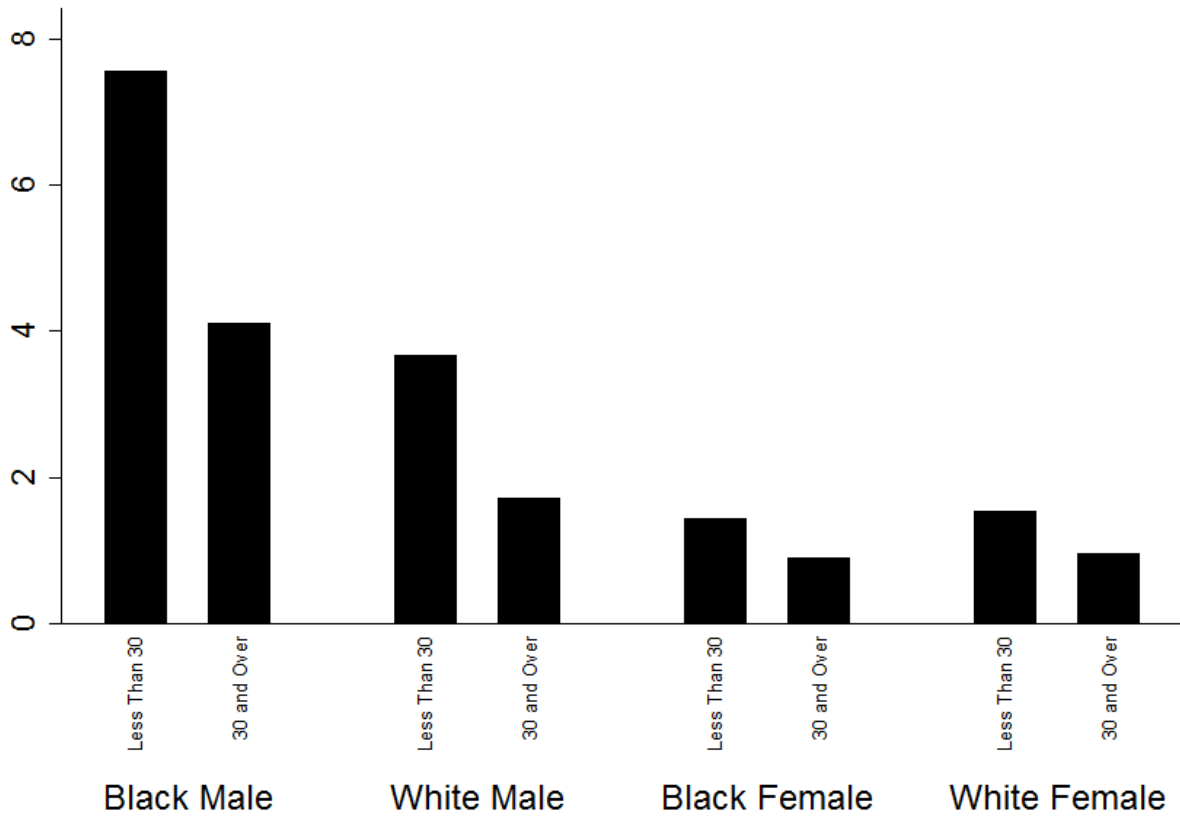
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by purpose of stop.

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



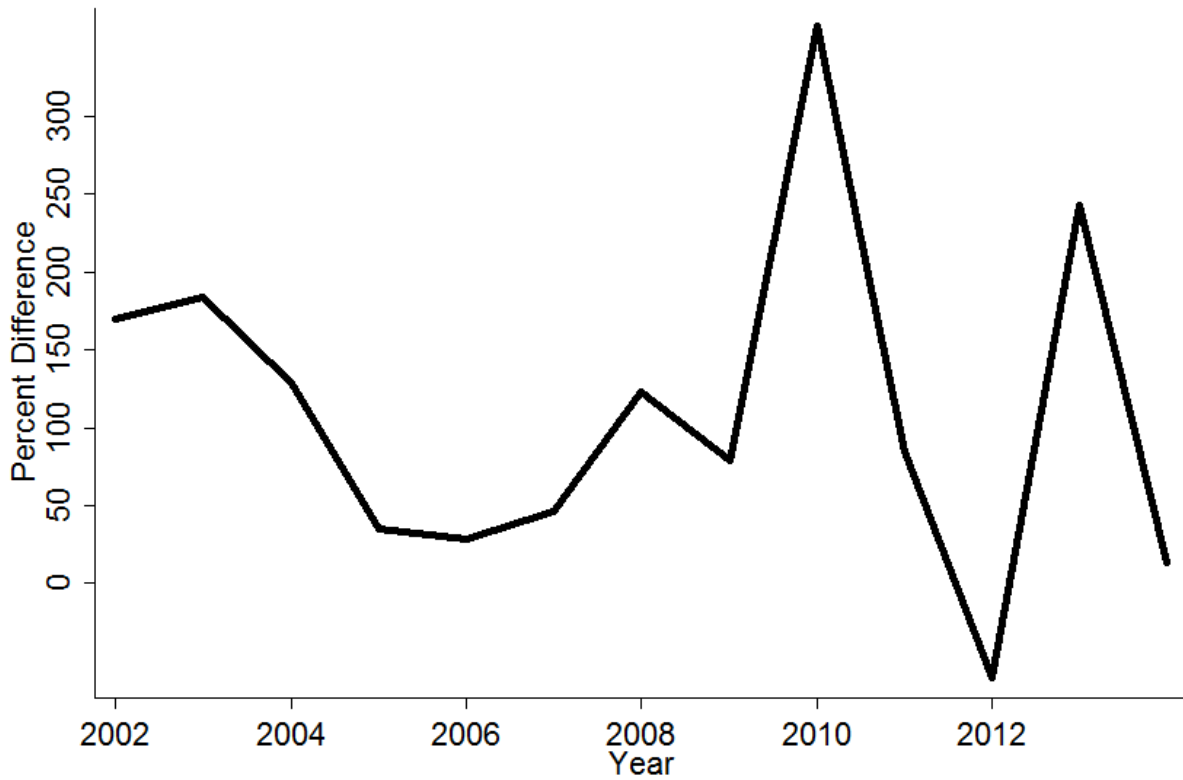
Based on 34,551 traffic stops from 2002 through 2013, and 1,074 searches. Overall rate of search: 3.11 percent. No data are presented for categories with fewer than 10 searches.

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



Based on 34,551 traffic stops from 2002 through 2013, and 1,074 searches. Overall rate of search: 3.11 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

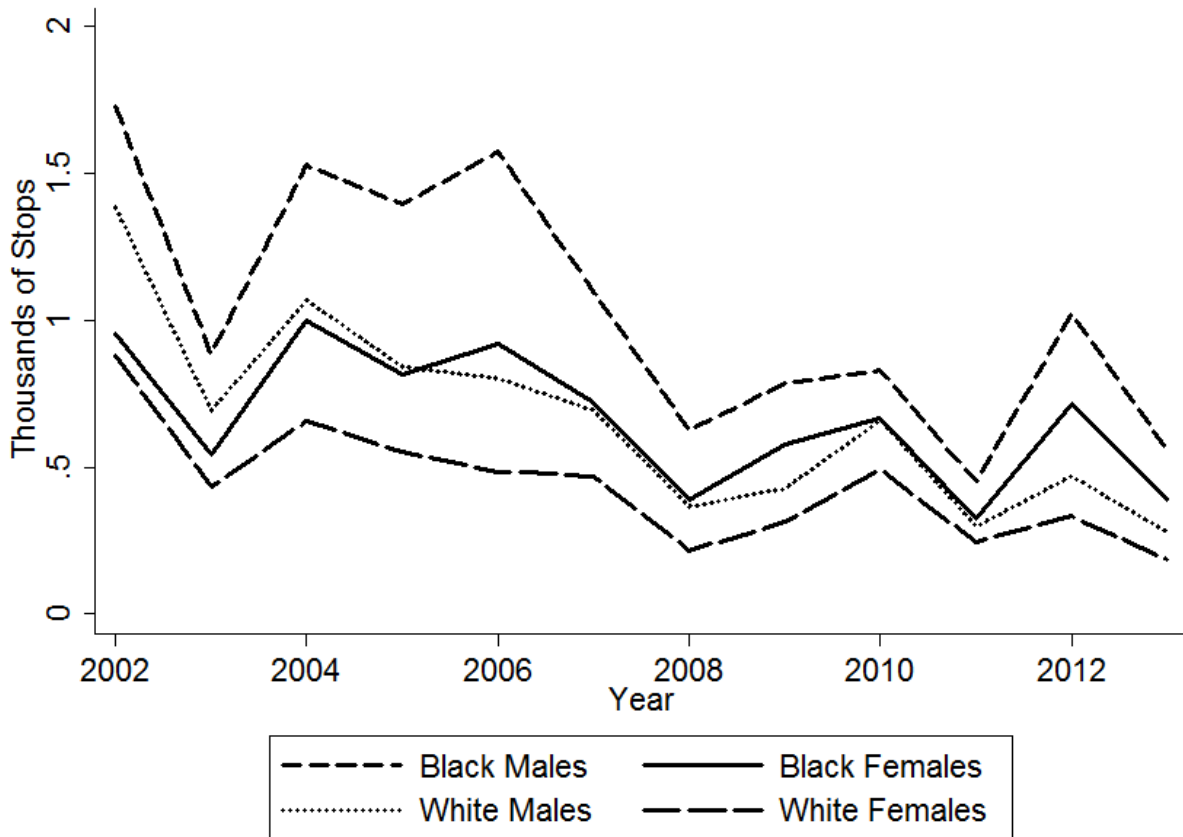
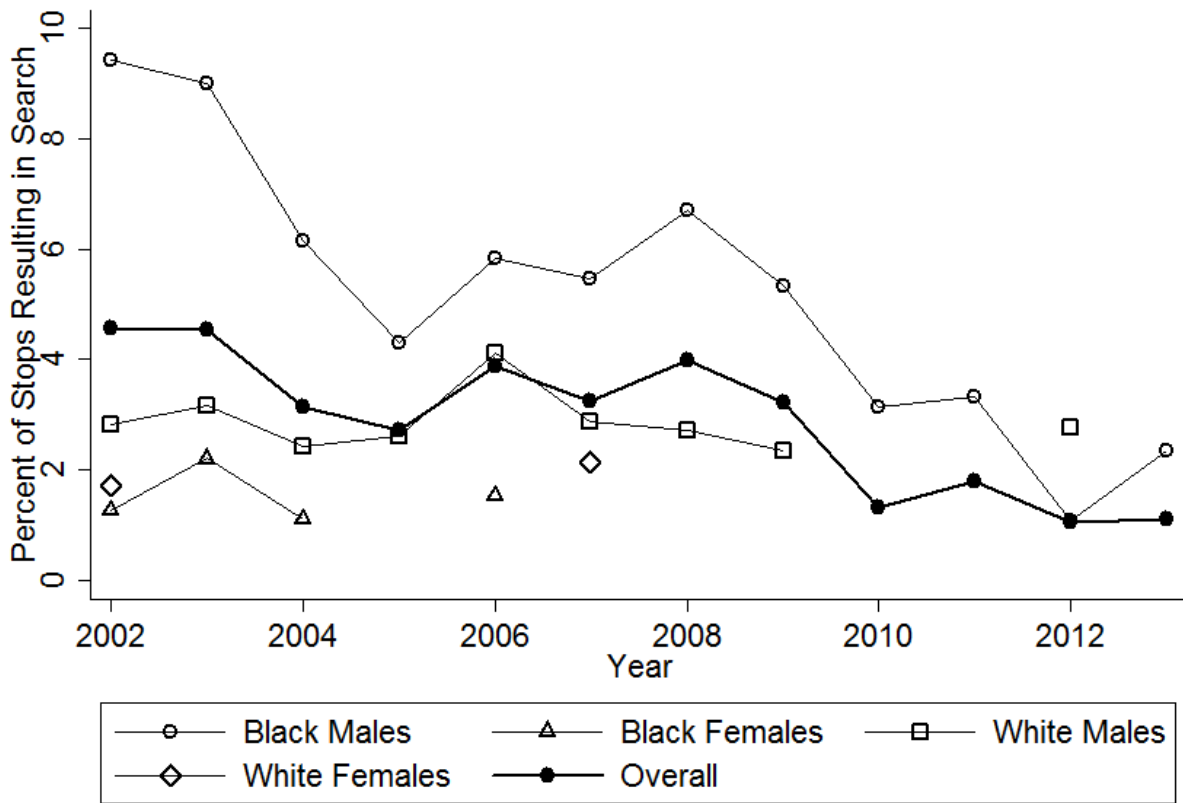




Figure 7. Percent Searched, by Race and Gender



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

Table 4. Type of Search by Race

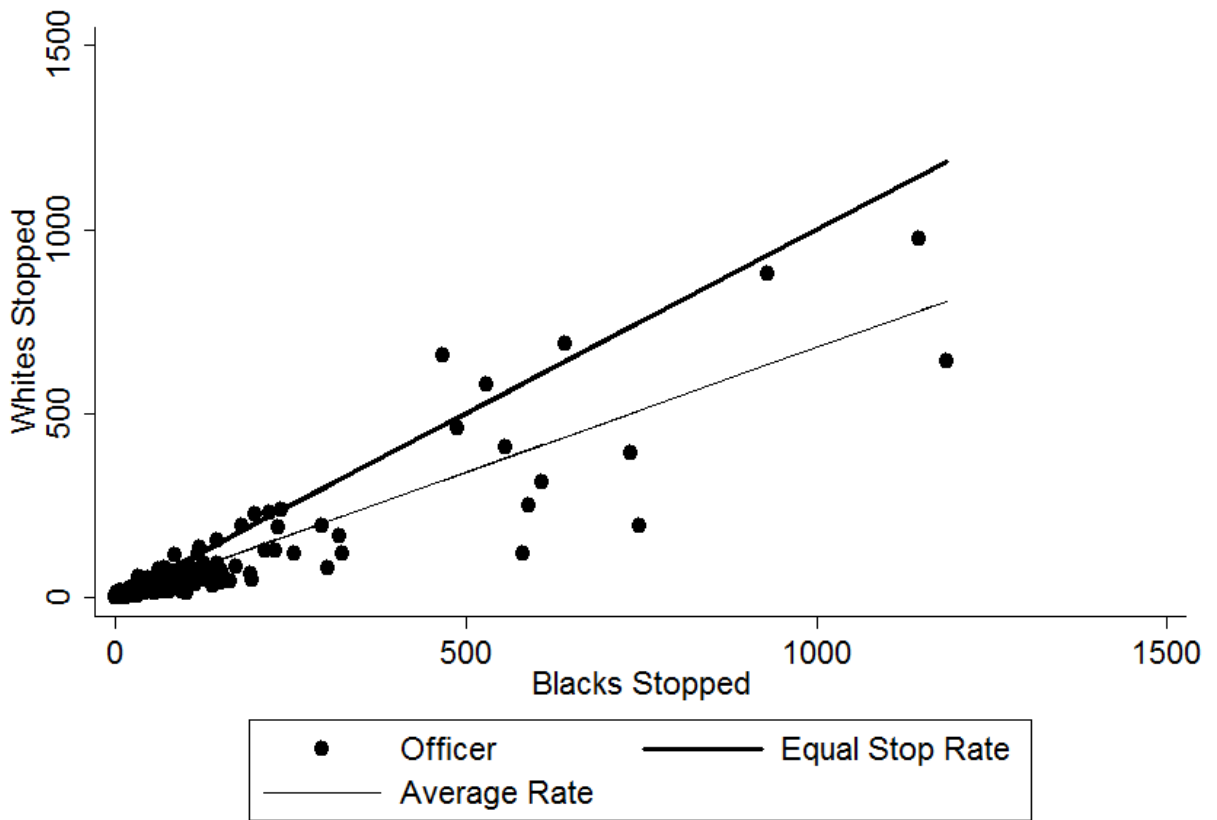
Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	34,551	-	38.38	59.36	-
Total Searches	33,477	3.11	2.02	3.84	1.90
Consent	363	1.05	0.89	1.16	1.30
Search Warrant	5	0.01	0.00	0.02	-
Probable Cause	106	0.31	0.22	0.38	1.73
Incident to Arrest	586	1.70	0.89	2.23	2.51
Protective Frisk	14	0.04	0.02	0.05	2.50

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

Table 5. Distribution of Officer IDs by Stop

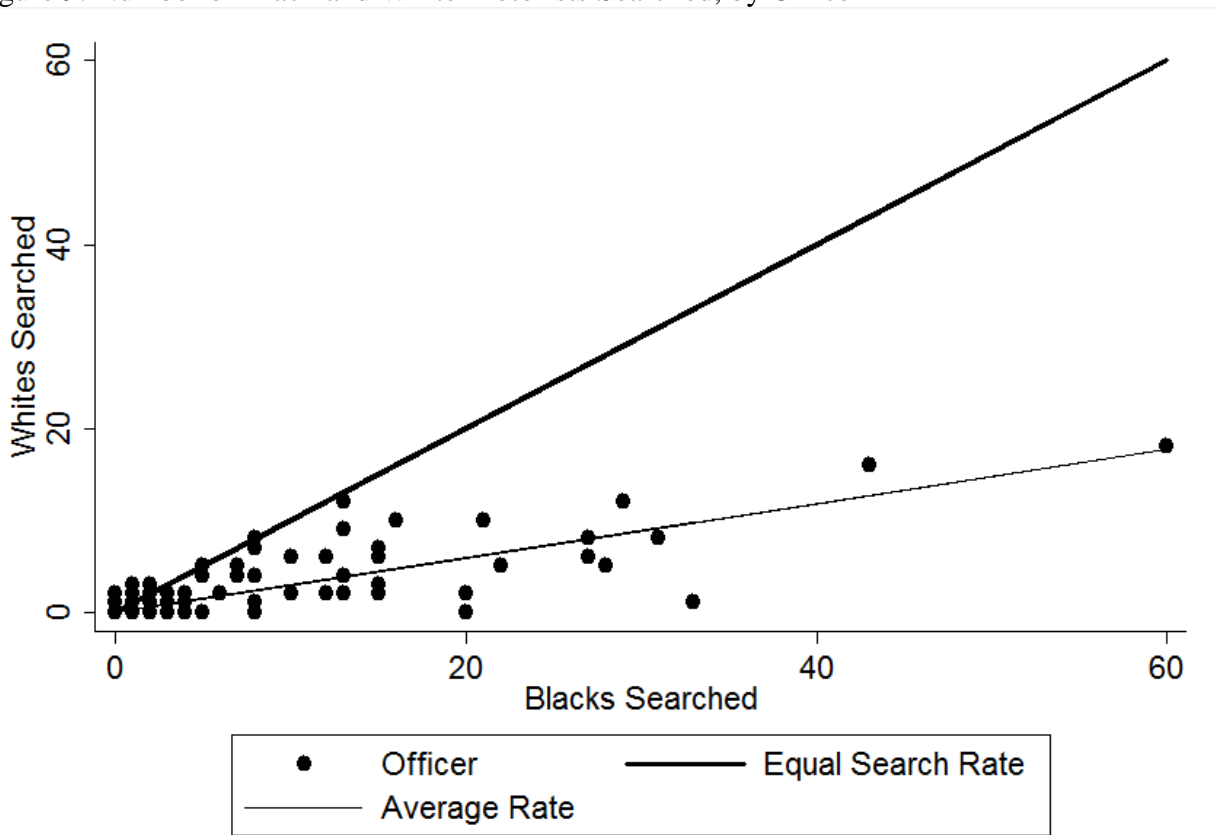
Number of Stops	Officers w/ this many Stops	Percent of Officers	Cumulative Percent	Percent of Stops	Cumulative Percent
1	217	34.94	34.94	0.63	0.63
2 – 10	220	35.43	70.37	2.52	3.15
11 - 100	111	17.87	88.24	11.63	14.78
101 – 1,000	65	10.47	98.71	51.40	66.18
1,001 +	8	1.29	100.00	33.82	100.00
Total	621	100.00	-	100.00	-

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



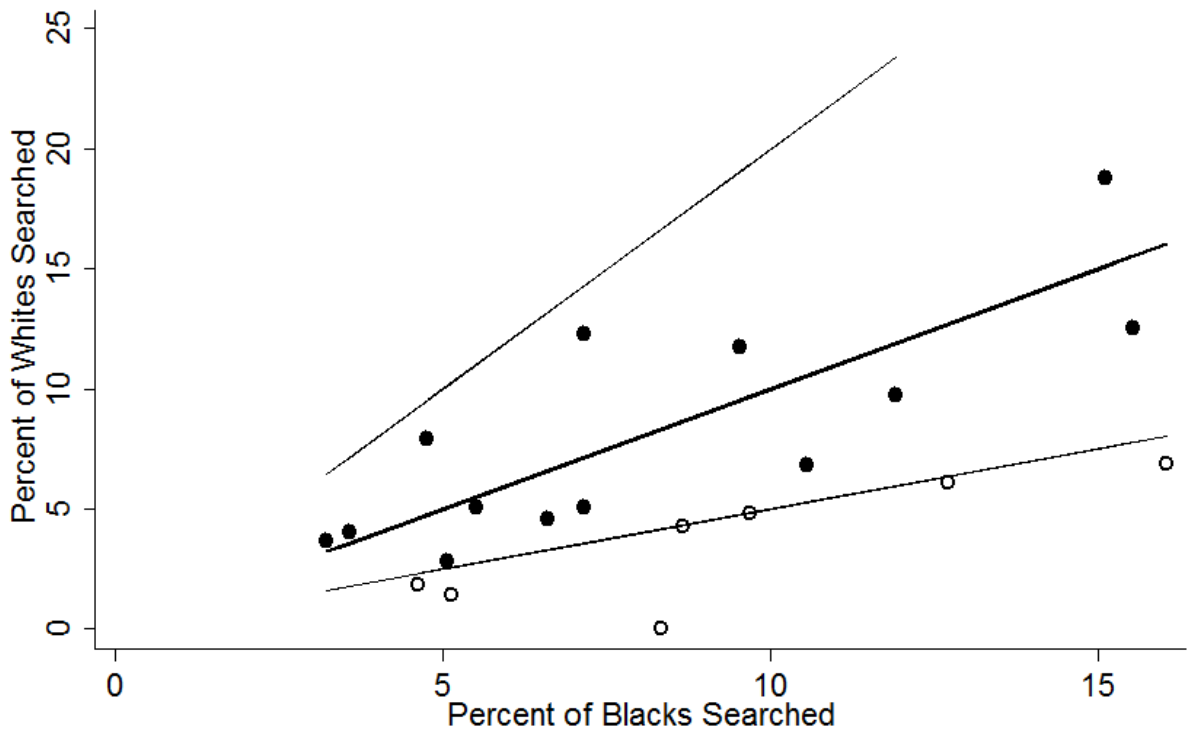
On average, officers stop 0.68 Whites for each Black stopped.

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



On average, officers search 0.29 Whites for each Black searched.

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



Includes 19 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 3.11. The hollow circles indicate high disparity officers. 0 officer searches Whites at more than twice the rate that they search Blacks. 7 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	2.28*(0.19)	2.30*(0.19)	2.06*(0.18)	2.08*(0.18)	-
Hispanic	1.31(0.31)	1.18(0.28)	0.93(0.22)	0.92(0.22)	-
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	-
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.62*(0.50)	2.51*(0.48)	-
Impaired	-	-	18.07*(3.06)	17.21*(2.93)	-
Movement	-	-	3.24*(0.57)	3.22*(0.57)	-
Equipment	-	-	2.27*(0.33)	2.22*(0.33)	-
Regulatory	-	-	2.64*(0.39)	2.47*(0.37)	-
Seat Belt	-	-	1.14(0.24)	1.11(0.23)	-
Investigation	-	-	6.50*(0.91)	6.35*(0.89)	-
Other	-	-	4.42*(0.69)	4.24*(0.67)	-
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	2.05*(0.19)	-
White Disparity <sup>†</sup>	-	-	-	Omitted	-
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.03*(0.00)	0.07*(0.01)	0.03*(0.00)	0.03*(0.00)	-
<b>N</b>	20,478	20,478	20,478	20,478	135
<b>Pseudo R<sup>2</sup></b>	0.02	0.03	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.

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	0.94(0.16)	0.92(0.15)	0.78(0.13)	0.78(0.13)	-
Hispanic	0.47(0.48)	0.44(0.44)	0.40(0.41)	0.40(0.41)	-
Age	-	0.97*(0.01)	0.97*(0.01)	0.97*(0.01)	-
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.29(0.84)	1.29(0.83)	-
Impaired	-	-	64.70*(25.89)	64.47*(25.80)	-
Movement	-	-	2.68*(1.35)	2.68*(1.35)	-
Equipment	-	-	4.05*(1.42)	4.02*(1.41)	-
Regulatory	-	-	3.37*(1.17)	3.33*(1.16)	-
Seat Belt	-	-	1.14(0.74)	1.14(0.74)	-
Investigation	-	-	15.99*(5.29)	15.97*(5.28)	-
Other	-	-	7.41*(2.86)	7.41*(2.86)	-
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	1.16*(0.31)	-
White Disparity <sup>†</sup>	-	-	-	Omitted	-
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.01*(0.00)	0.03*(0.01)	0.01*(0.00)	0.01*(0.00)	-
<b>N</b>	13,292	13,292	13,292	13,292	4
<b>Pseudo R<sup>2</sup></b>	0.00	0.01	0.11	0.11	-

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	577	21.66	76.43
Speed Limit	33	30.30	63.64
Stop Light/Sign	18	22.22	77.78
Driving Impaired	28	28.57	64.29
Safe Movement	41	12.20	85.37
Vehicle Equipment	129	19.38	79.84
Vehicle Regulatory	90	21.11	77.78
Seat Belt	13	38.46	53.85
Investigation	183	19.13	79.78
Other Vehicle	42	33.33	64.29

Figure A1. Stops by Day of the Week

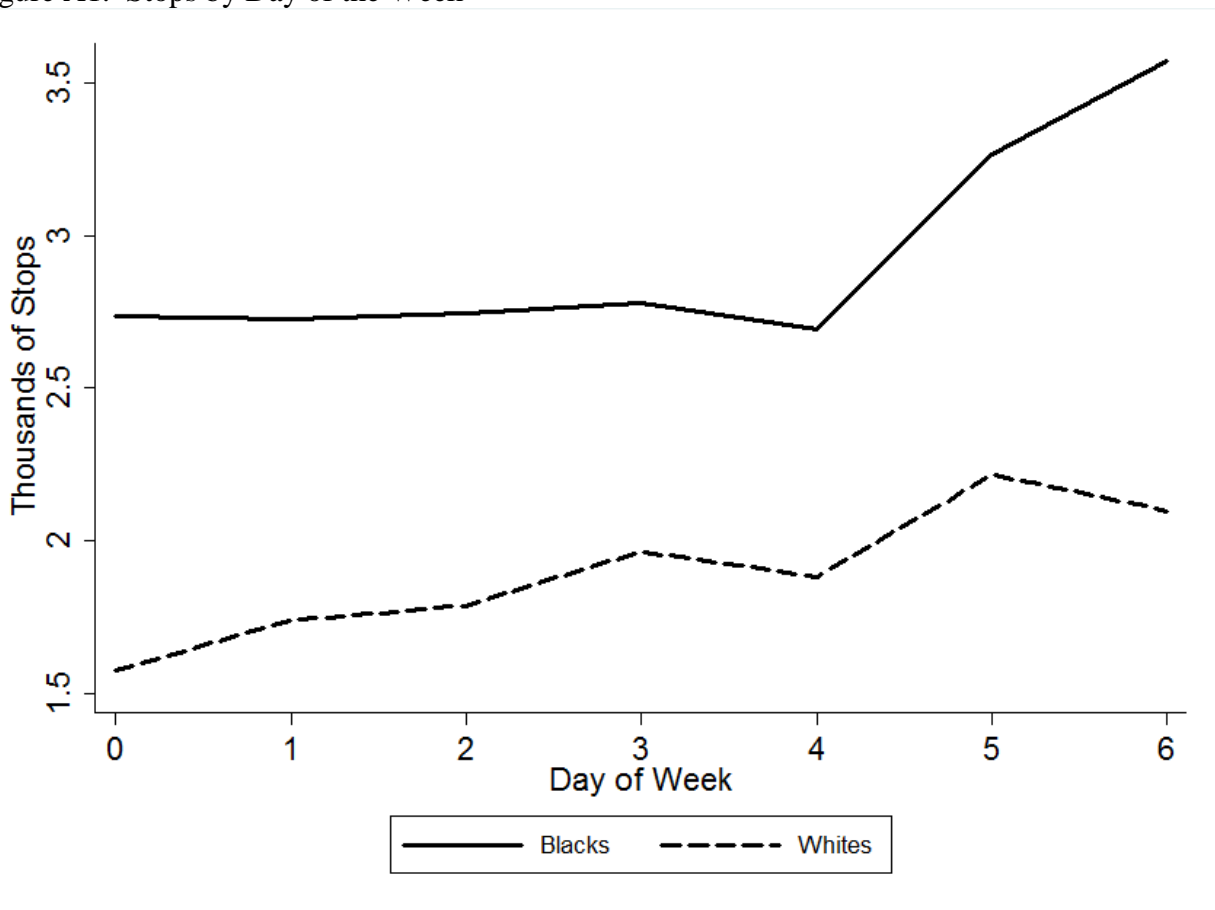




Figure A2. Searches by Day of the Week

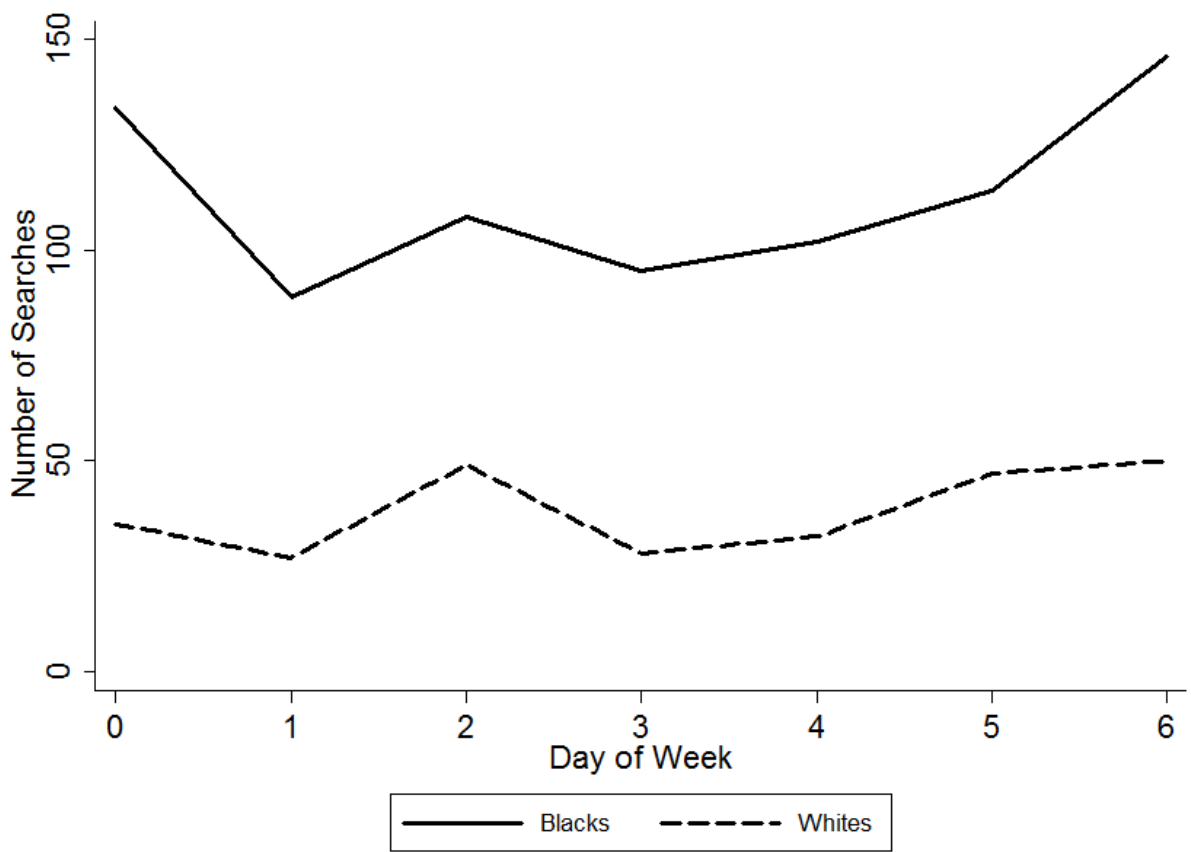
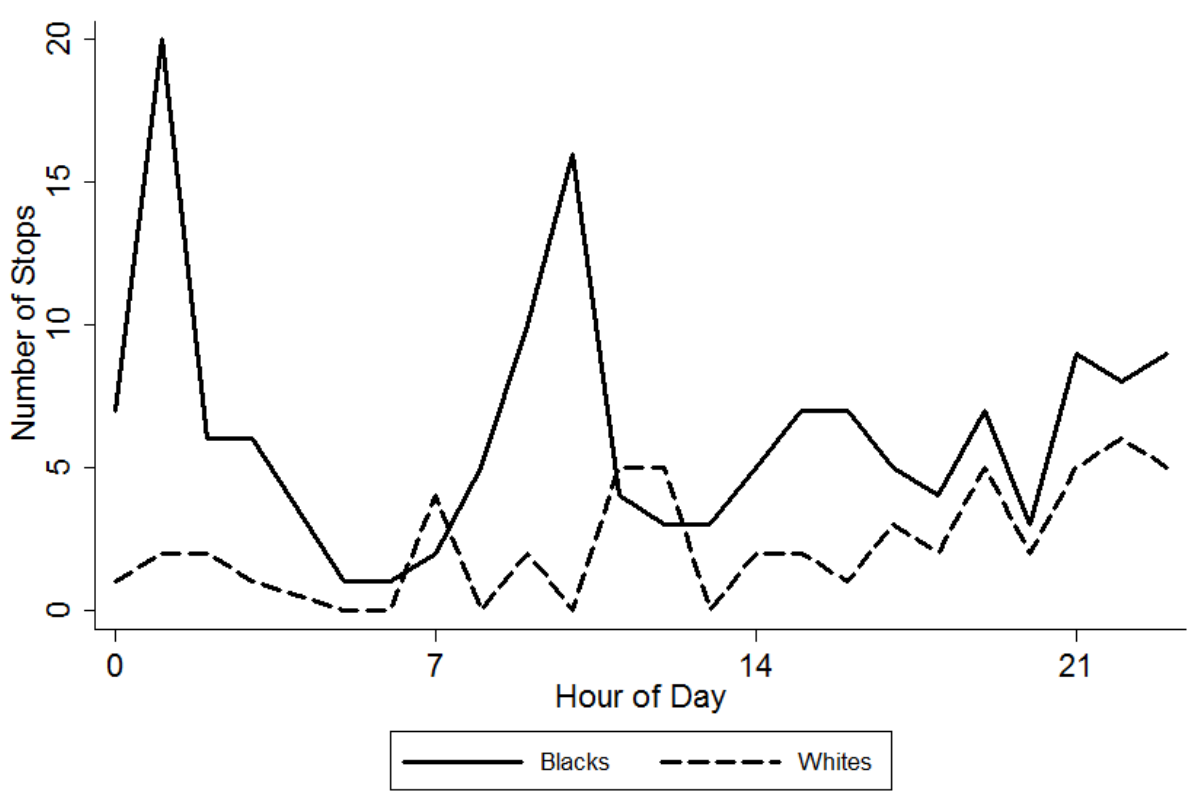
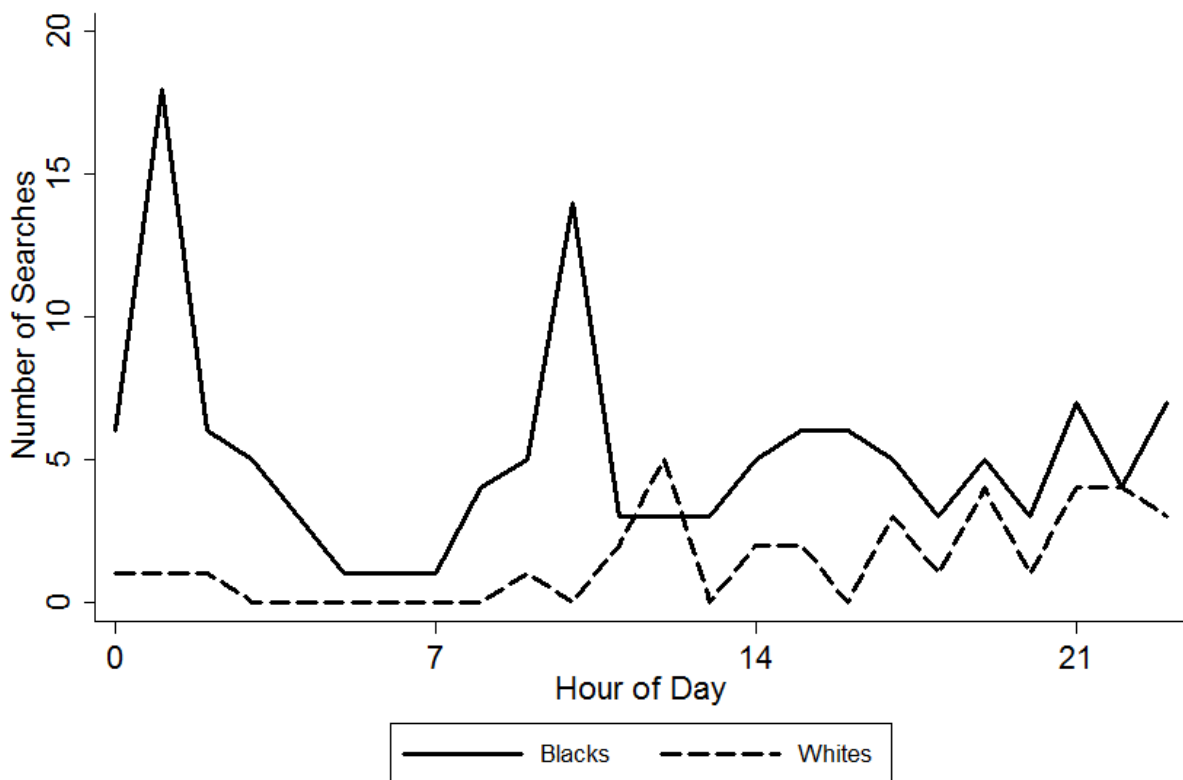


Figure A3. Stops by Hour of the Day



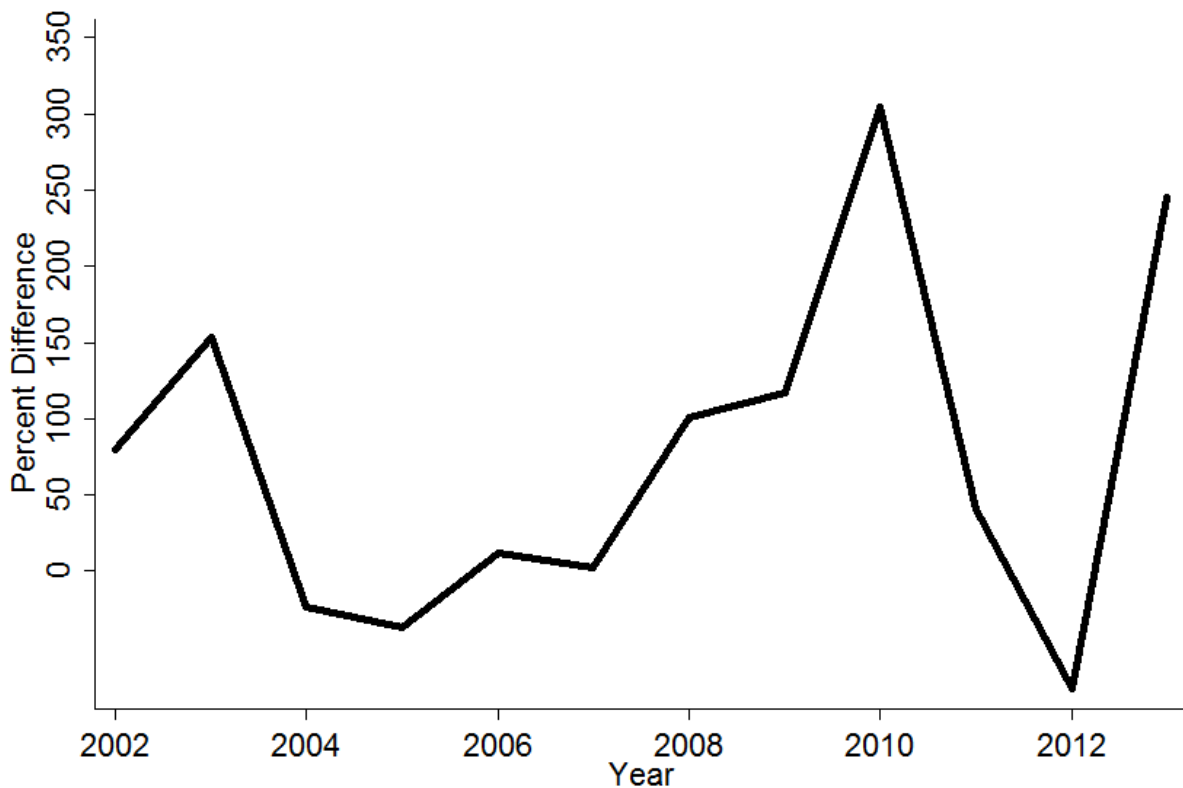
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

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	368	34.26	38.81	32.99
No	706	65.74	61.19	67.01
Total	1,074	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	12,992	4.13	17.96	19.68	55.99	2.24	100.00
Black	No	19,722	5.08	20.84	17.93	52.05	4.10	100.00
Total	No	33,477	4.67	19.71	18.52	53.70	3.39	100.00
White	Yes	268	4.10	8.58	5.22	27.24	54.85	100.00
Black	Yes	788	2.66	5.84	3.93	20.94	66.62	100.00
Total	Yes	1,074	3.17	6.52	4.19	22.53	63.59	100.00