

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

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	95,114
-2014	4,748
-Passengers	3,097
-Checkpoint stops	0
Total number of cases deleted	7,721
Stops for analysis	87,393
Searches	3,779
Percent of stops leading to search (search rate)	4.01%

Figure 1. Number of Traffic Stops per Year

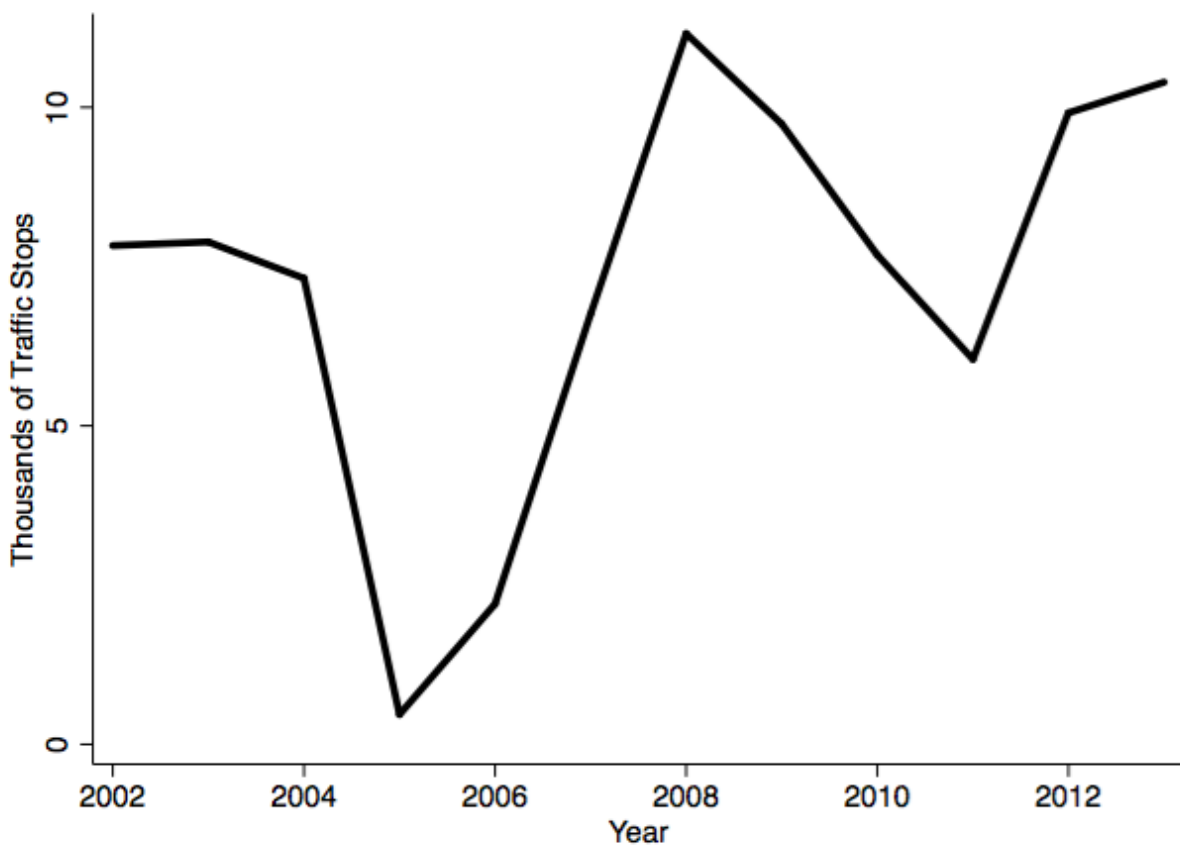


Figure 2. Racial Composition of Traffic Stops by Year

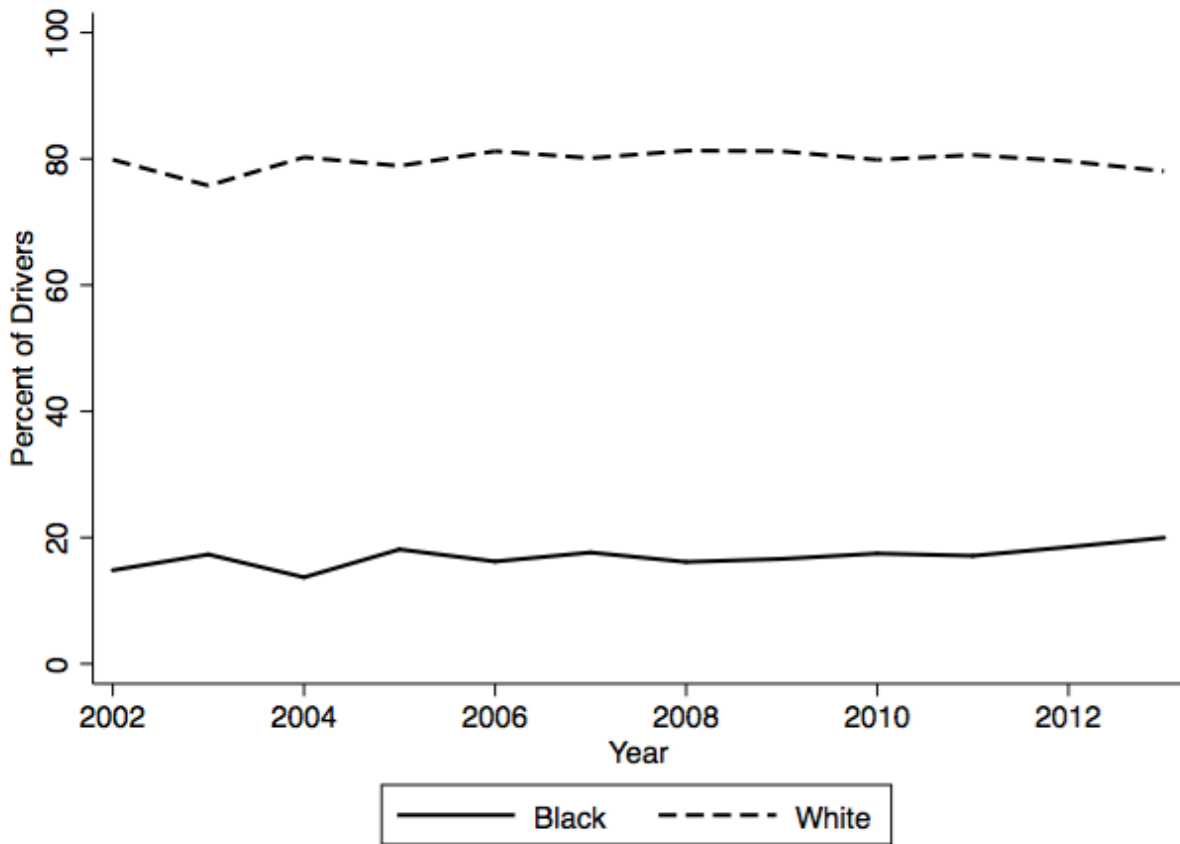


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	87,393	79.72	17.01
Speed Limit	29,297	83.42	13.63
Stop Light/Sign	8,561	79.15	16.91
Driving Impaired	631	78.92	13.31
Safe Movement	6,746	82.54	14.08
Vehicle Equipment	12,119	76.14	18.88
Vehicle Regulatory	13,662	78.68	18.80
Seat Belt	5,343	78.36	19.18
Investigation	5,752	73.16	24.25
Other Vehicle	5,282	75.96	21.01

Note: Includes only drivers. Excludes 0 checkpoint stops. Excludes 3,097 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	87,393	-	79.72	17.01	-
Total Searches	3,779	4.32	3.69	7.42	2.01
Speed Limit	29,297	1.69	1.38	3.51	2.54
Stop Light/Sign	8,561	2.83	2.35	5.59	2.38
Driving Impaired	631	39.30	39.76	38.10	0.96
Safe Movement	6,746	6.42	5.82	10.53	1.81
Vehicle Equipment	12,119	4.78	4.26	7.04	1.65
Vehicle Regulatory	13,662	3.67	3.12	6.19	1.98
Seat Belt	5,343	2.71	2.20	5.07	2.30
Investigation	5,752	13.49	12.17	17.49	1.44
Other Vehicle	5,282	6.78	5.43	12.07	2.22

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

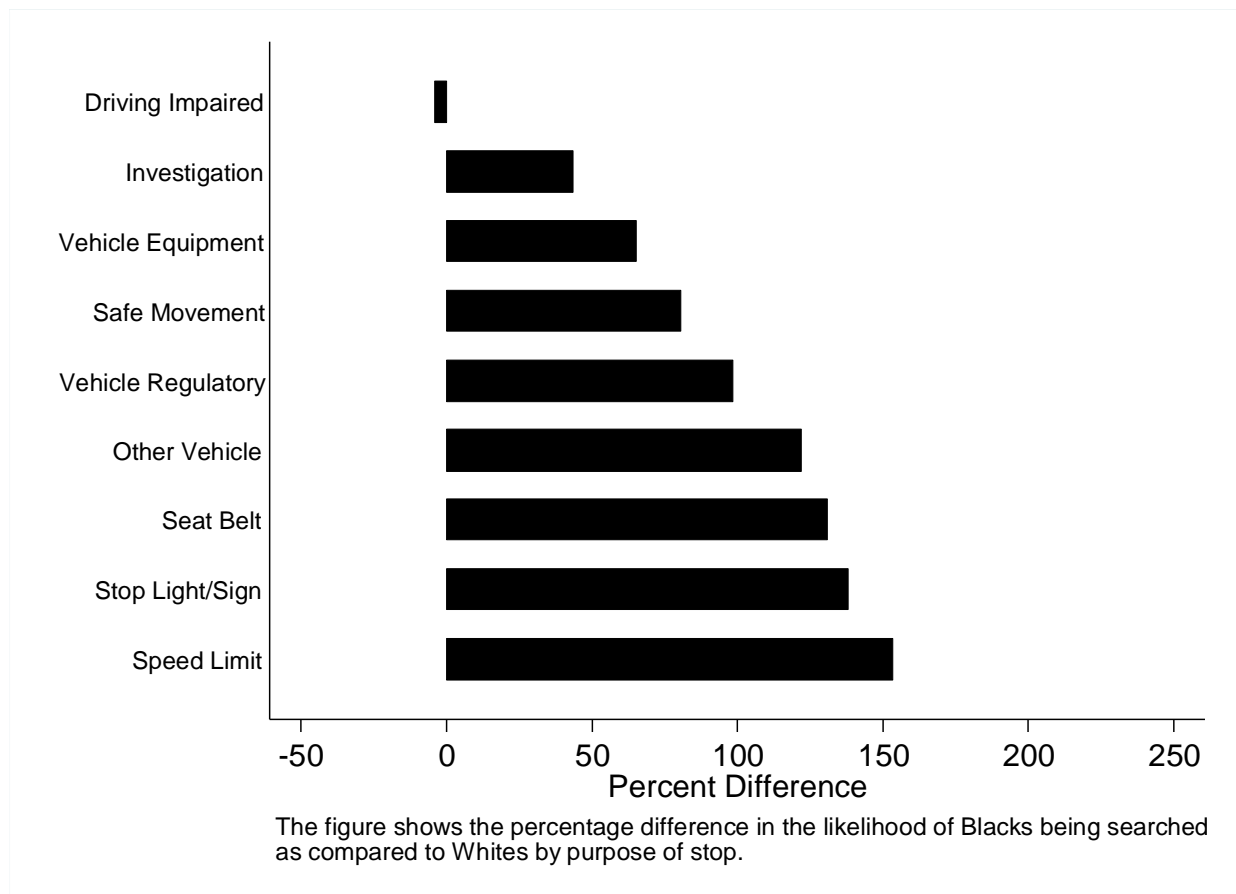
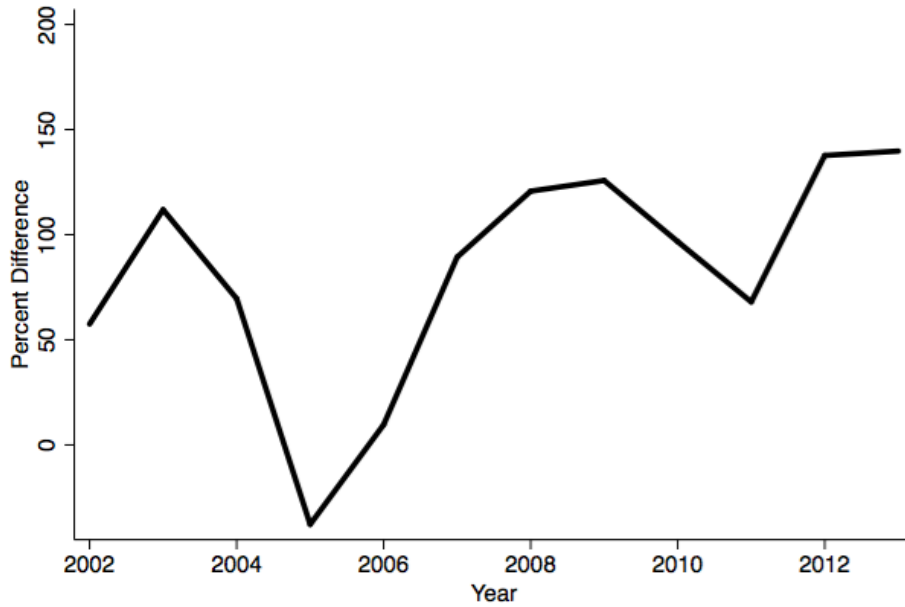
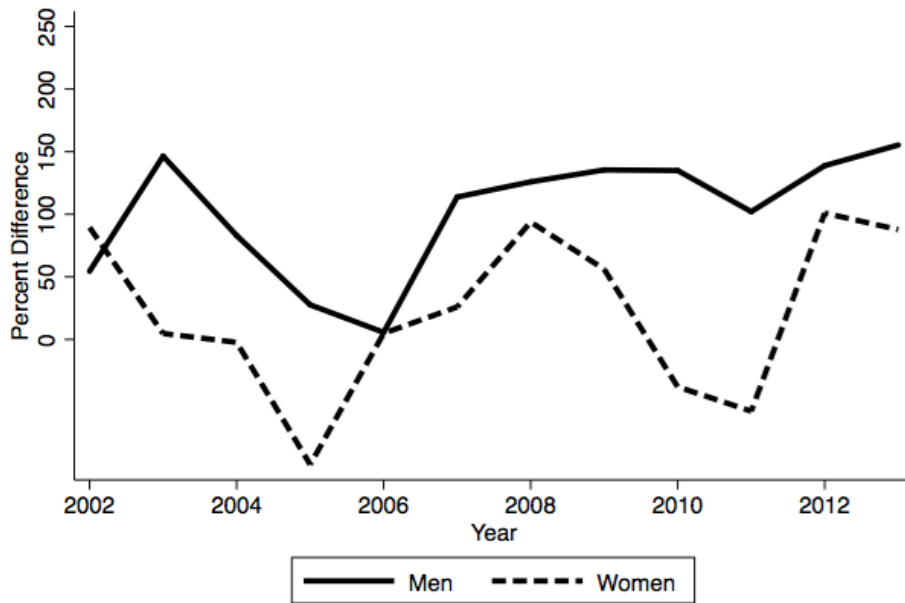


Figure 4. Racial Differences in the Likelihood of Search



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

Figure 5. Racial Differences in the Likelihood of Search by Gender



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

Figure 6. Racial Differences in the Likelihood of Search by Gender, for Drivers Under 30

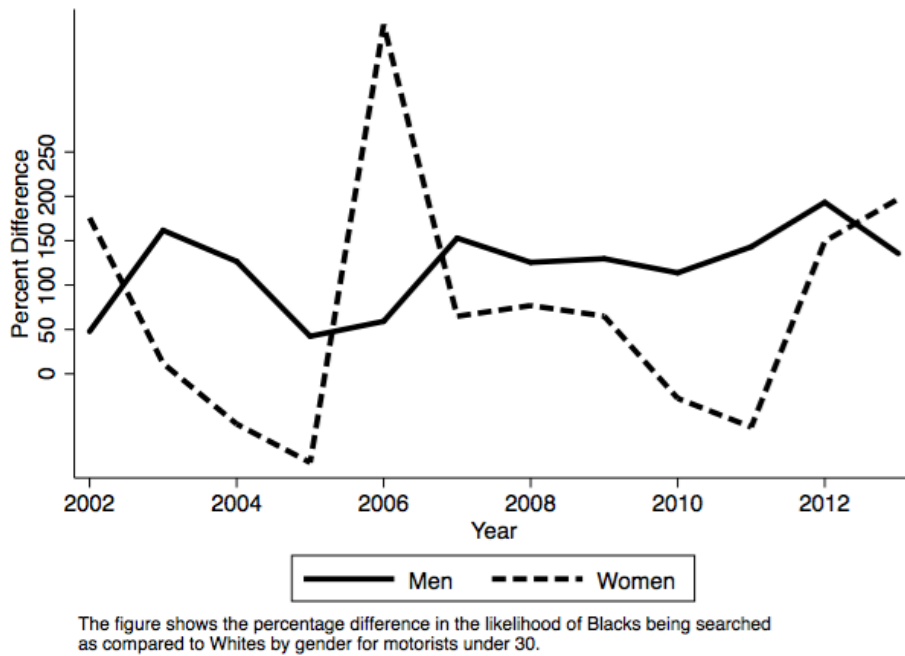
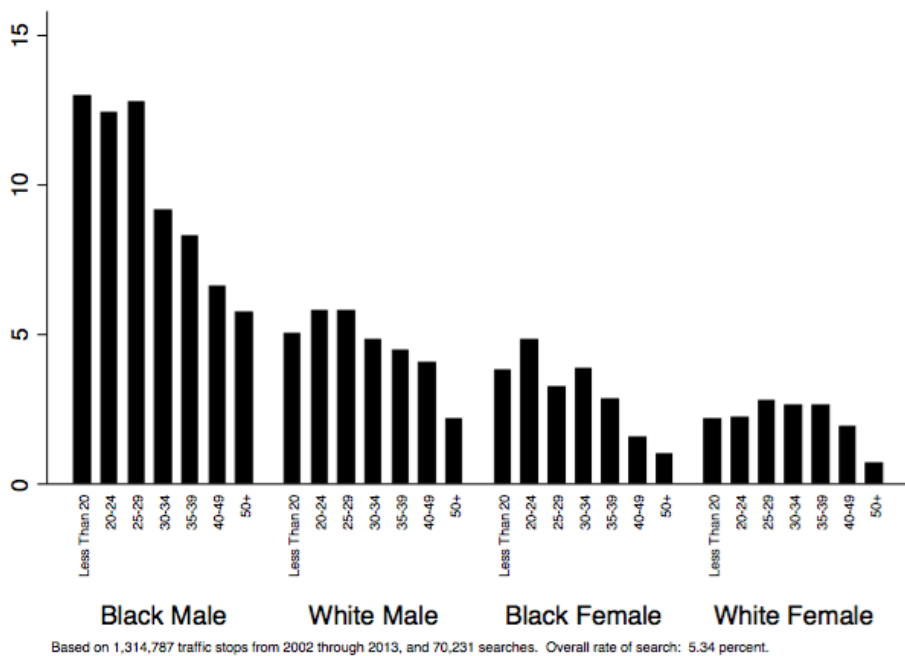


Figure 7. Search Rates by Race, Gender, and Age Group



Black men under the age of 30 are searched at rates of about 12 percent whereas white men of that age see rates of about 6 percent, and women in general are typically below 5 percent. The figure makes clear how race, gender, and age combine to indicate where searches are most likely.

The patterns in Figure 7 are highly consistent over time. Figures 8 and 9 show the number of stops, then searches, by the four race/gender groups.

Figure 8. Number of Stops, by Race and Gender

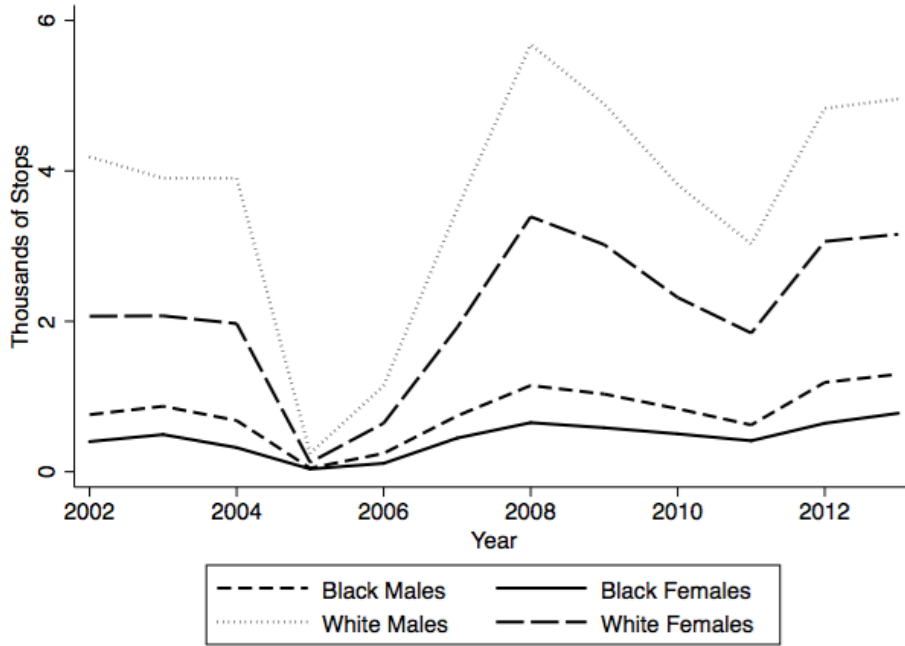


Figure 9. Percent of Stops Resulting in a Search, by Race and Gender

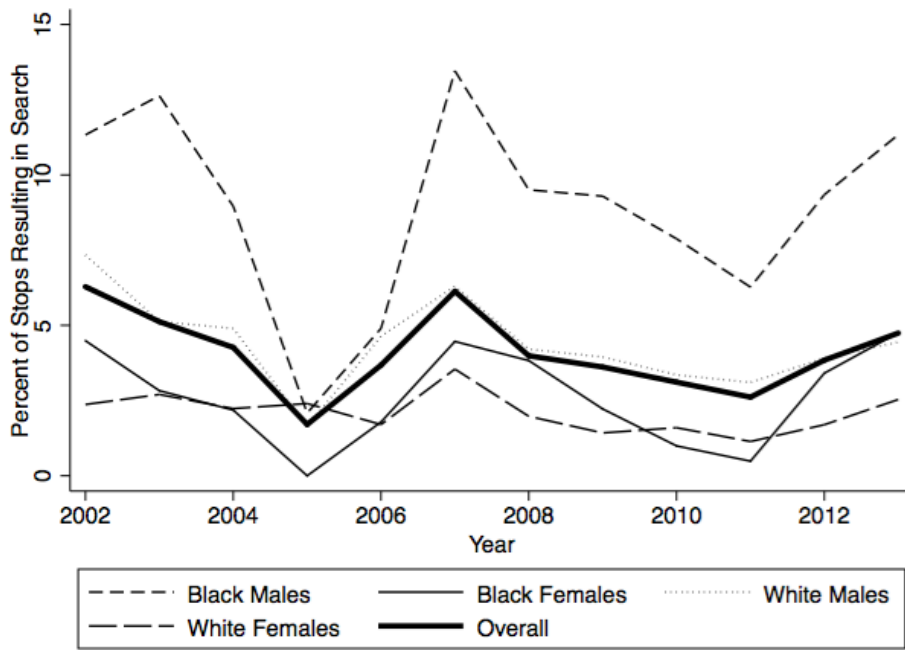


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	87,393	-	79.72	17.01	-
Total Searches	3,779	4.32	3.69	7.42	2.01
Consent	1,859	2.13	1.86	3.49	1.88
Search Warrant	11	0.01	0.01	0.03	-
Probable Cause	849	0.97	0.75	2.09	2.79
Incident to Arrest	1,010	1.16	1.02	1.72	1.69
Protective Frisk	50	0.06	0.05	0.09	1.80

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	498	58.25	58.25	0.57	0.57
2 – 10	139	16.26	74.50	0.54	1.11
11 - 100	65	7.60	82.11	3.18	4.29
101 – 1,000	131	15.32	97.43	52.26	56.55
1,001 +	22	2.57	100.00	43.46	100.00
Total		100	-	100	-



Figure 10. Number of Black and White Motorists Stopped, by Officer

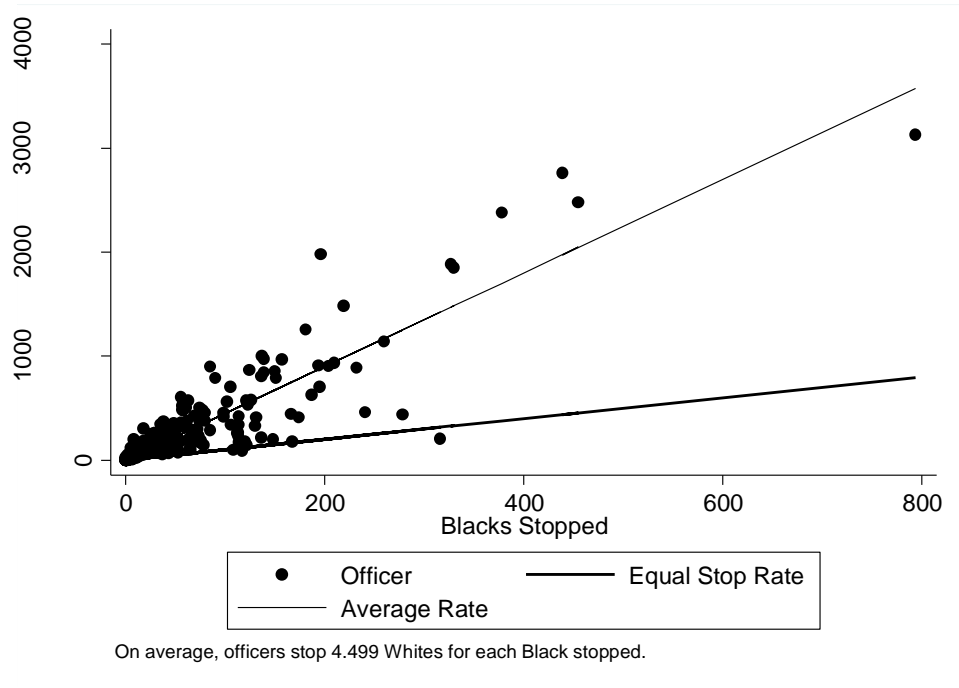


Figure 11. Number of Black and White Motorists Searched, by Officer

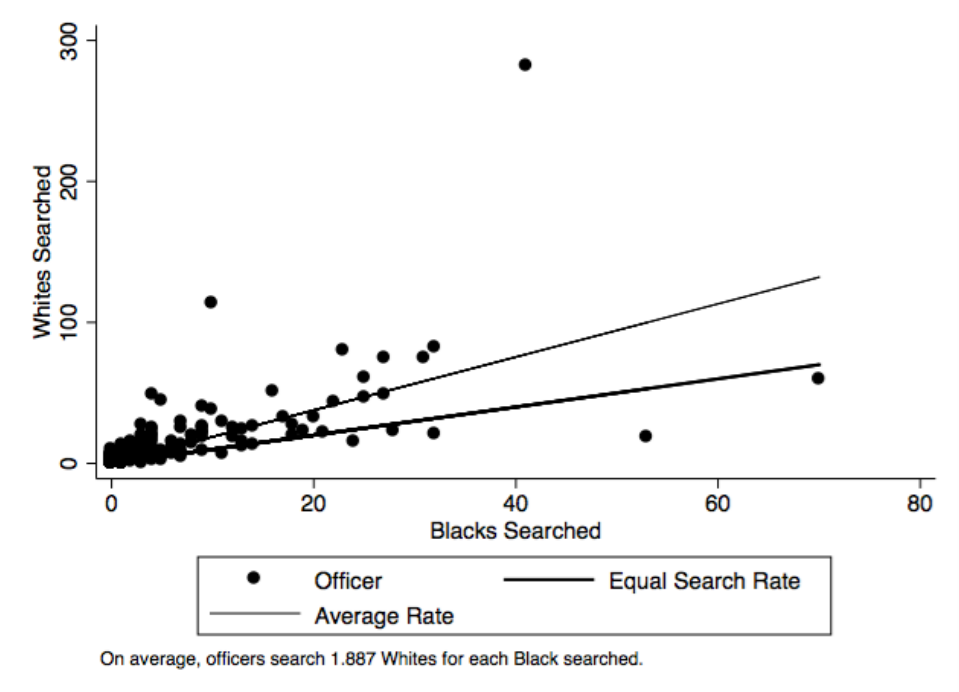


Figure 12. Percent of White and Black Drivers Searched, by Officer

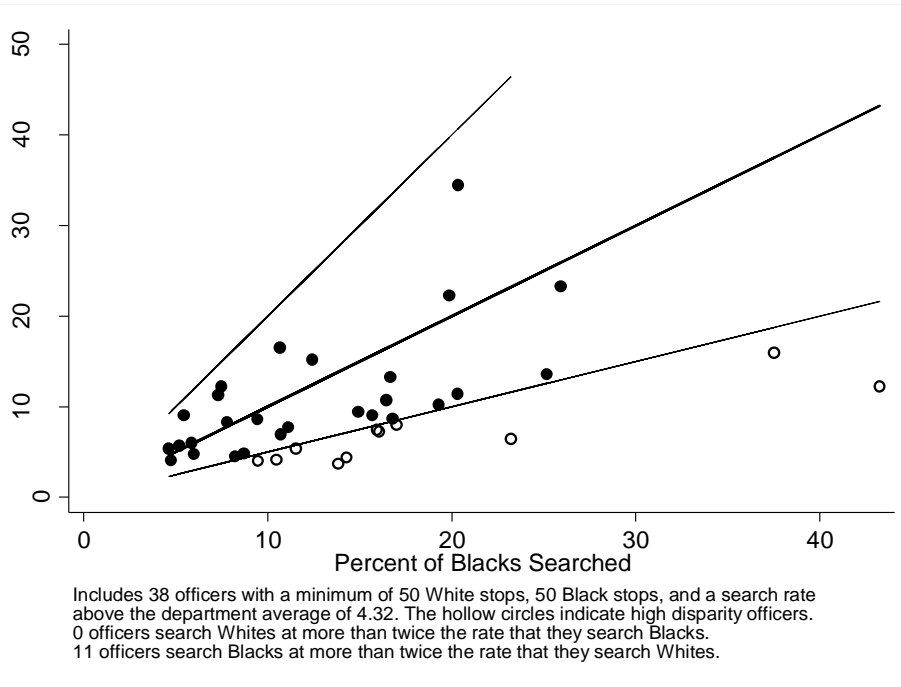


Table 6. Predicting the Occurrence of a Search, Male Drivers

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Demographics</b>					
Race	2.44*(0.10)	2.44*(0.10)	2.26*(0.10)	2.26*(0.10)	2.17*(0.10)
Hispanic	1.69*(0.10)	1.58*(0.09)	1.39*(0.09)	1.38*(0.08)	1.40*(0.09)
Age	-	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.65*(0.15)	1.69*(0.15)	1.59*(0.14)
Impaired	-	-	29.92*(3.31)	29.95*(3.32)	22.15*(2.58)
Movement	-	-	3.09*(0.24)	3.09*(0.24)	2.75*(0.21)
Equipment	-	-	2.14*(0.15)	2.13*(0.15)	1.88*(0.14)
Regulatory	-	-	2.10*(0.15)	2.08*(0.15)	2.10*(0.16)
Seat Belt	-	-	1.24 (0.14)	1.19 (0.13)	1.33*(0.15)
Investigation	-	-	6.24*(0.43)	6.18*(0.42)	5.37*(0.38)
Other	-	-	2.97*(0.24)	2.88*(0.23)	2.70*(0.22)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	1.80*(0.11)	2.01*(0.12)
White Disparity <sup>†</sup>	-	-	-	Omitted	Omitted
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.04*(0.00)	0.09*(0.01)	0.04*(0.00)	0.04*(0.00)	0.04*(0.00)
<b>N</b>	53,546	53,546	53,546	53,546	52,944
<b>Pseudo R<sup>2</sup></b>	0.019	0.029	0.088	0.092	0.103

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	1.45*(0.13)	1.41*(0.13)	1.27*(0.12)	1.26*(0.12)	1.26*(0.12)
Hispanic	0.45*(0.12)	0.42*(0.11)	0.36*(0.10)	0.36*(0.10)	0.36*(0.10)
Age	-	0.97*(0.00)	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)
<b>Stop Purpose</b>					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.62*(0.32)	1.65*(0.33)	1.56*(0.32)
Impaired	-	-	62.82*(13.66)	63.38*(13.80)	42.14*(9.85)
Movement	-	-	5.82*(0.92)	5.79*(0.92)	5.18*(0.85)
Equipment	-	-	3.96*(0.58)	3.92*(0.57)	3.30*(0.50)
Regulatory	-	-	2.47*(0.36)	2.44*(0.36)	2.43*(0.37)
Seat Belt	-	-	2.84*(0.59)	2.74*(0.57)	3.05*(0.64)
Investigation	-	-	15.91*(2.17)	15.74*(2.14)	12.54*(1.79)
Other	-	-	4.97*(0.89)	4.91*(0.88)	4.59*(0.84)
<b>Officer Type</b>					
Black Disparity <sup>†</sup>	-	-	-	1.72*(0.20)	1.95*(0.23)
White Disparity <sup>†</sup>	-	-	-	Omitted	Omitted
<b>Time</b>					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
<b>Constant</b>	0.02*(0.00)	0.05*(0.01)	0.02*(0.00)	0.01*(0.00)	0.02*(0.00)
<b>N</b>	30,983	30,983	30,983	30,983	30,645
<b>Pseudo R<sup>2</sup></b>	0.004	0.015	0.111	0.114	0.132

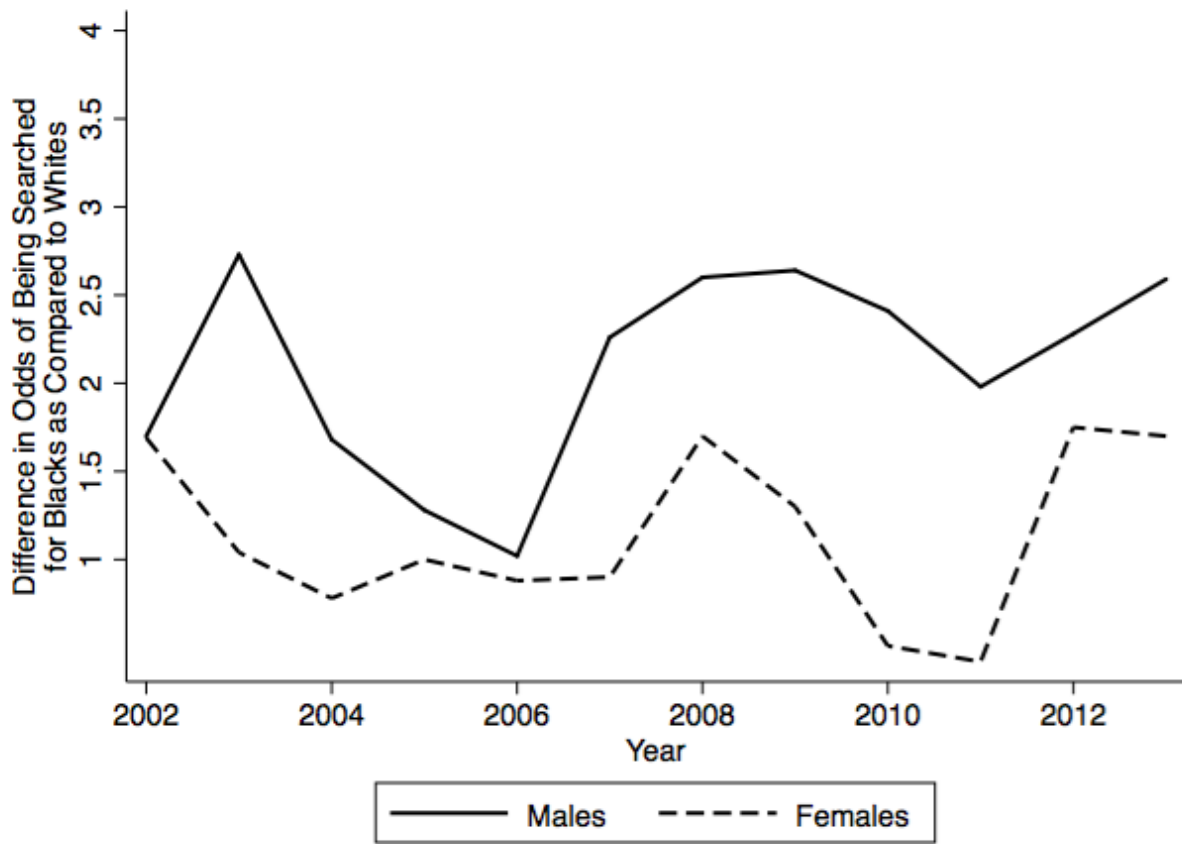
Note: Entries are odds-ratios, with standard errors in parenthesis.

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.

Figure 14. Increased Odds of Search for Blacks, by Gender, 2002-2013



## Appendix

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

Purpose	Number	Percent	
		White	Black
Total Stops	3,097	60.22	37.91
Speed Limit	310	63.23	33.23
Stop Light/Sign	207	57.49	38.65
Driving Impaired	68	79.41	17.65
Safe Movement	341	63.34	33.14
Vehicle Equipment	545	62.94	36.33
Vehicle Regulatory	418	60.29	39.23
Seat Belt	156	54.49	44.87
Investigation	739	56.29	41.81
Other Vehicle	313	58.79	39.94

Table A2. Percent of Men Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	55,737	-	79.07	16.99	-
Total Searches	3,073	5.51	4.62	9.90	2.14
Speed Limit	16,799	2.42	1.96	5.15	2.63
Stop Light/Sign	5,338	3.84	3.20	7.79	2.43
Driving Impaired	497	41.05	42.15	38.57	0.92
Safe Movement	4,814	7.42	6.60	12.88	1.95
Vehicle Equipment	8,441	5.54	4.80	9.23	1.92
Vehicle Regulatory	8,011	5.02	4.30	8.34	1.94
Seat Belt	3,789	2.96	2.22	6.66	3.00
Investigation	4,202	14.56	12.74	19.83	1.56
Other Vehicle	3,846	7.98	6.20	14.61	2.36

Table A3. Percent of Women Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	31,656	-	80.84	17.03	-
Total Searches	706	2.23	2.07	3.06	1.48
Speed Limit	12,498	0.72	0.63	1.29	2.05
Stop Light/Sign	3,223	1.15	0.94	2.14	2.28
Driving Impaired	134	32.84	31.90	35.71	1.12
Safe Movement	1,932	3.93	3.93	4.49	1.14
Vehicle Equipment	3,678	3.02	3.00	3.15	1.05
Vehicle Regulatory	5,651	1.77	1.48	3.06	2.07
Seat Belt	1,554	2.12	2.13	2.01	0.94
Investigation	1,550	10.58	10.70	10.54	0.99
Other Vehicle	1,436	3.55	3.46	4.36	1.26

Table A4. Type of Search by Race: Men

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	55,737	-	79.07	16.99	-
Total Searches	3,073	5.51	4.62	9.90	2.14
Consent	1,495	2.68	2.29	4.71	2.06
Search Warrant	8	0.01	0.01	0.04	-
Probable Cause	704	1.26	0.96	2.85	2.97
Incident to Arrest	821	1.47	1.31	2.16	2.26
Protective Frisk	45	0.08	0.07	0.14	2

Table A5. Type of Search by Race: Women

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	31,656	-	80.84	17.03	-
Total Searches	706	2.23	2.07	3.06	1.48
Consent	364	1.15	1.12	1.34	1.20
Search Warrant	3	0.01	0.01	0.00	-
Probable Cause	145	0.46	0.40	0.76	1.90
Incident to Arrest	189	0.60	0.52	0.95	1.83
Protective Frisk	5	0.02	0.02	0.02	1.00

Figure A6. Stops by Day of the Week

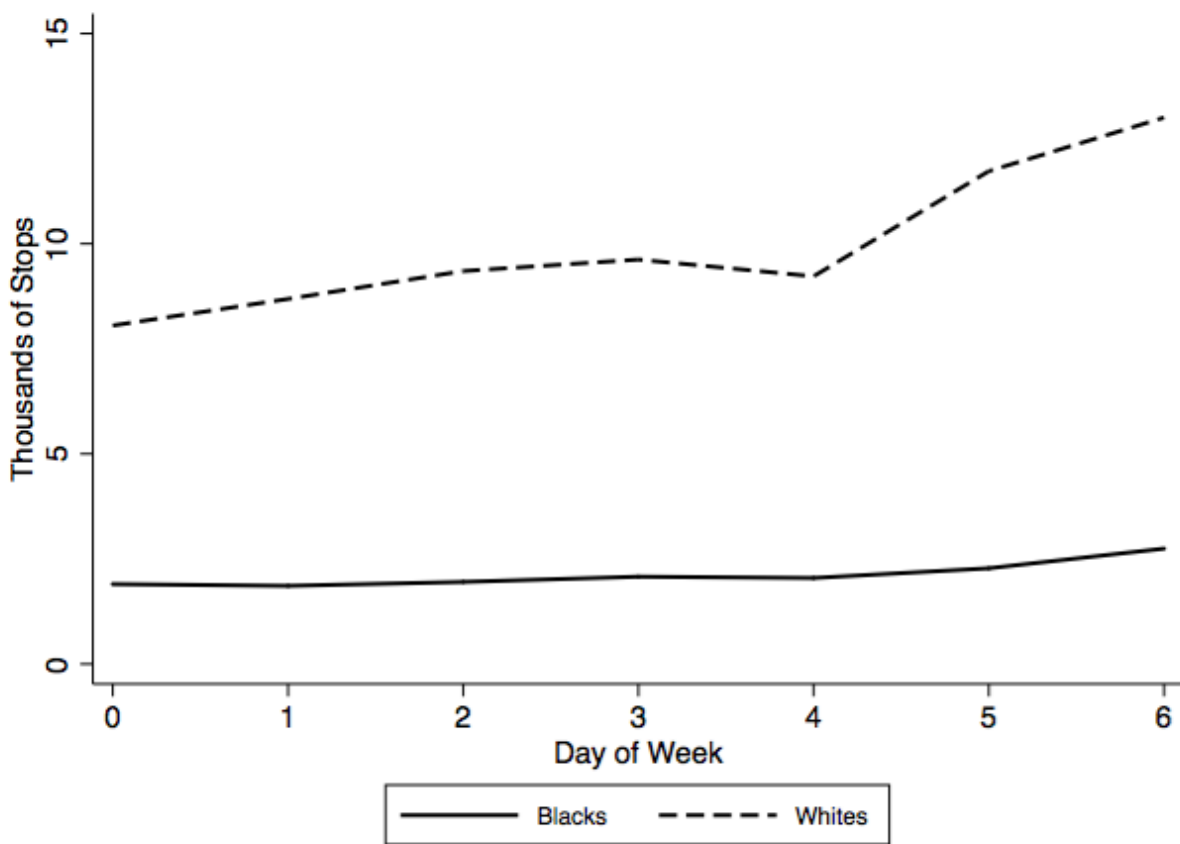




Figure A7. Searches by Day of the Week

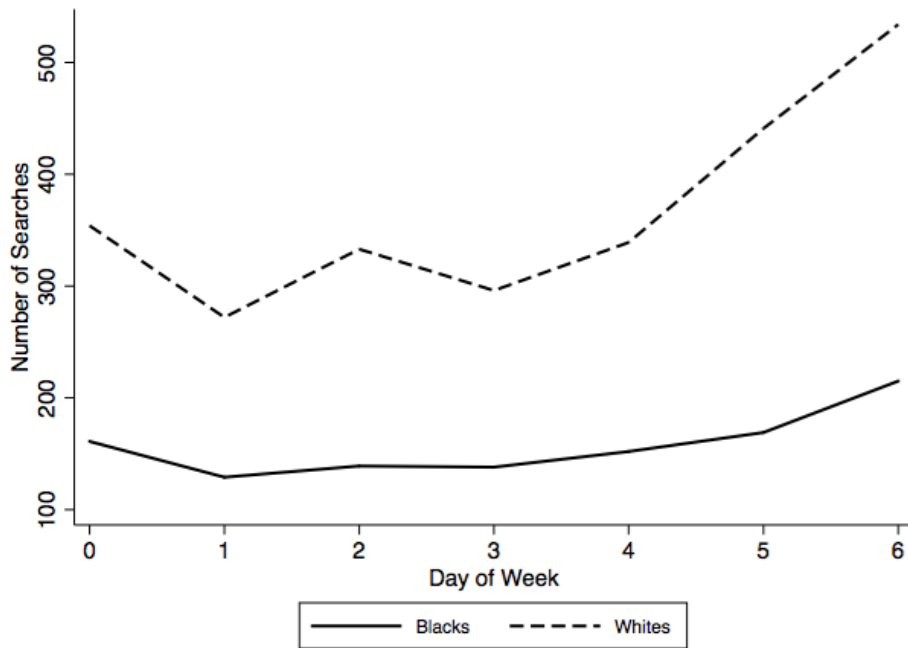
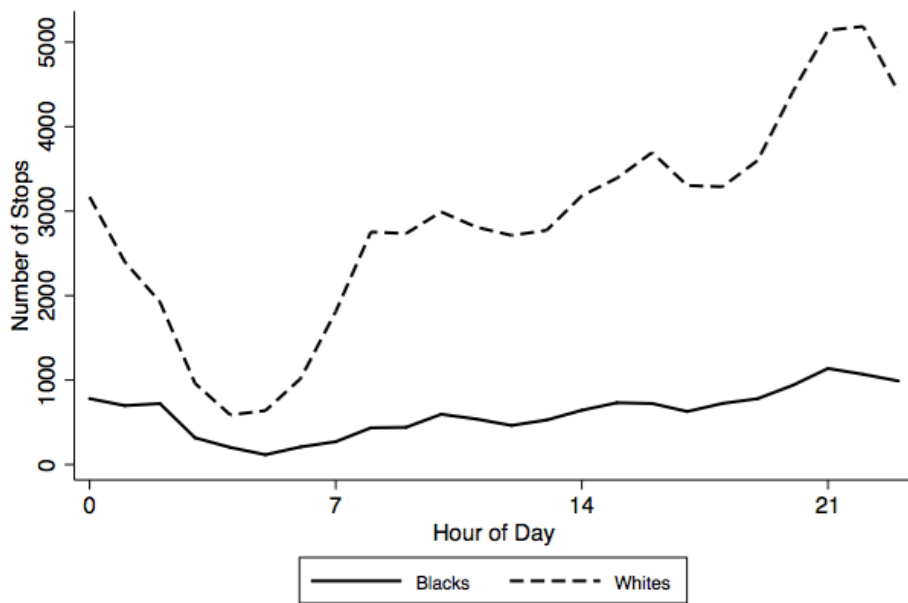


Figure A8. Stops by Hour of the Day



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

Figure A9. Searches by Hour of the Day

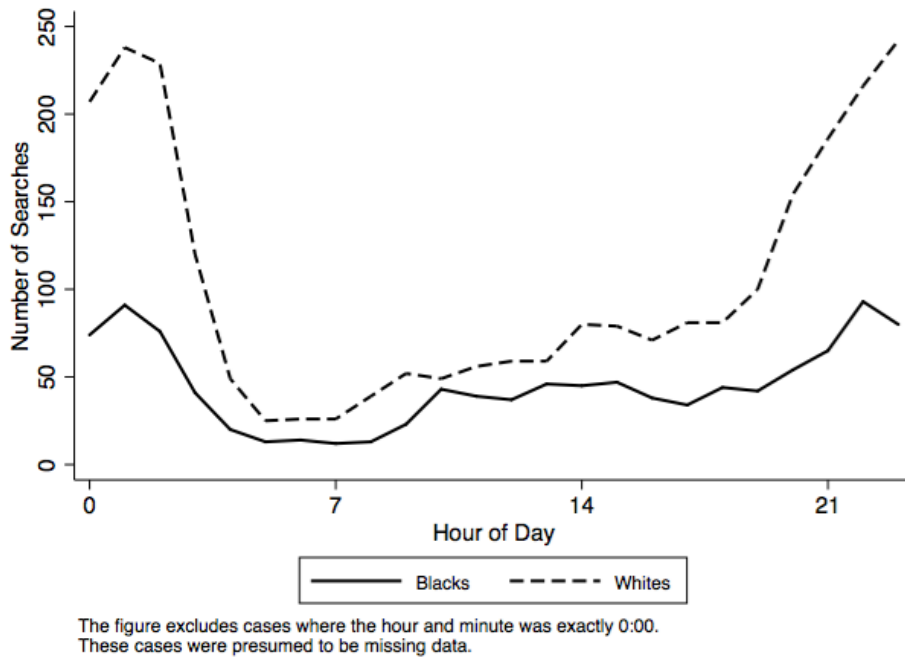


Figure A10. Correlation Between Percent Difference in Likelihood of Black Men being Searched as Compared to Whites and Odds-Ratios from Logistic Regression

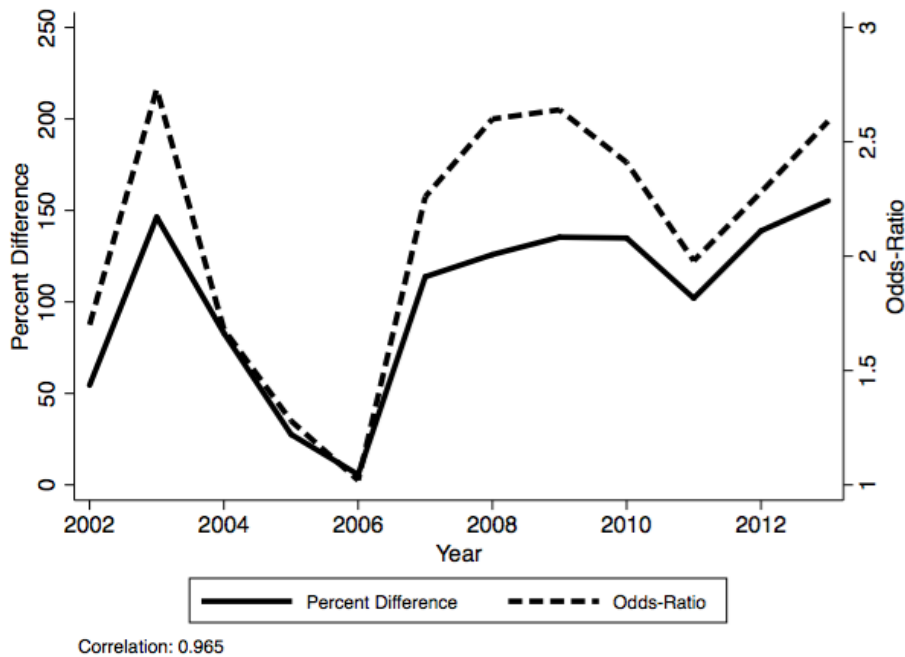


Figure A11. Correlation Between Percent Difference in Likelihood of Black Women being Searched as Compared to Whites and Odds-Ratios from Logistic Regression

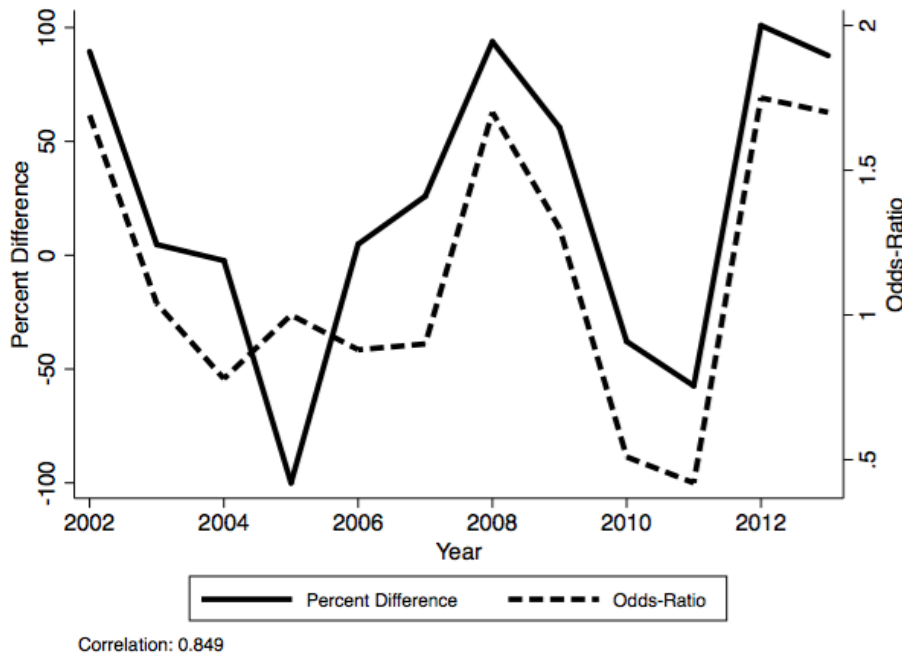


Figure A12. Racial Differences in the Likelihood of Search: Consent Searches Only

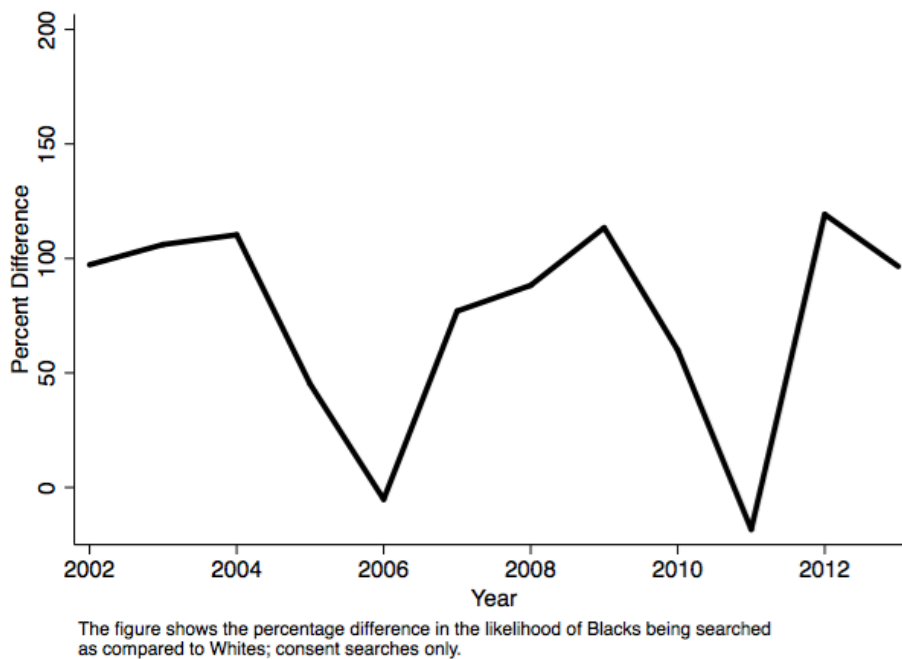


Table A6. Likelihood of Finding Contraband Given a Search, by Race

Contraband	Number	% Total	% White	% Black
Yes	893	23.63	24.25	23.12
No	2,886	76.37	75.75	76.88
Total	3,779	100.00	100.00	100.00

Table A7. 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	67,097	3.12	30.68	5.93	59.72	0.55	100.0
Black	No	13,760	4.85	35.12	5.44	53.60	0.99	100.0
Total	No	83,614	3.42	31.26	5.84	58.87	0.61	100.0
White	Yes	2,569	2.80	13.90	2.92	41.49	38.89	100.0
Black	Yes	1,103	2.72	13.69	3.45	46.96	33.18	100.0
Total	Yes	3,779	2.73	13.73	3.02	42.95	37.58	100.0