

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

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	159,759
-2014	5
-Passengers	3,012
-Checkpoint stops	217
Total number of cases deleted	3,230
Stops for analysis	156,529
Searches	6,164
Percent of stops leading to search (search rate)	3.94%

Figure 1. Number of Traffic Stops per Year

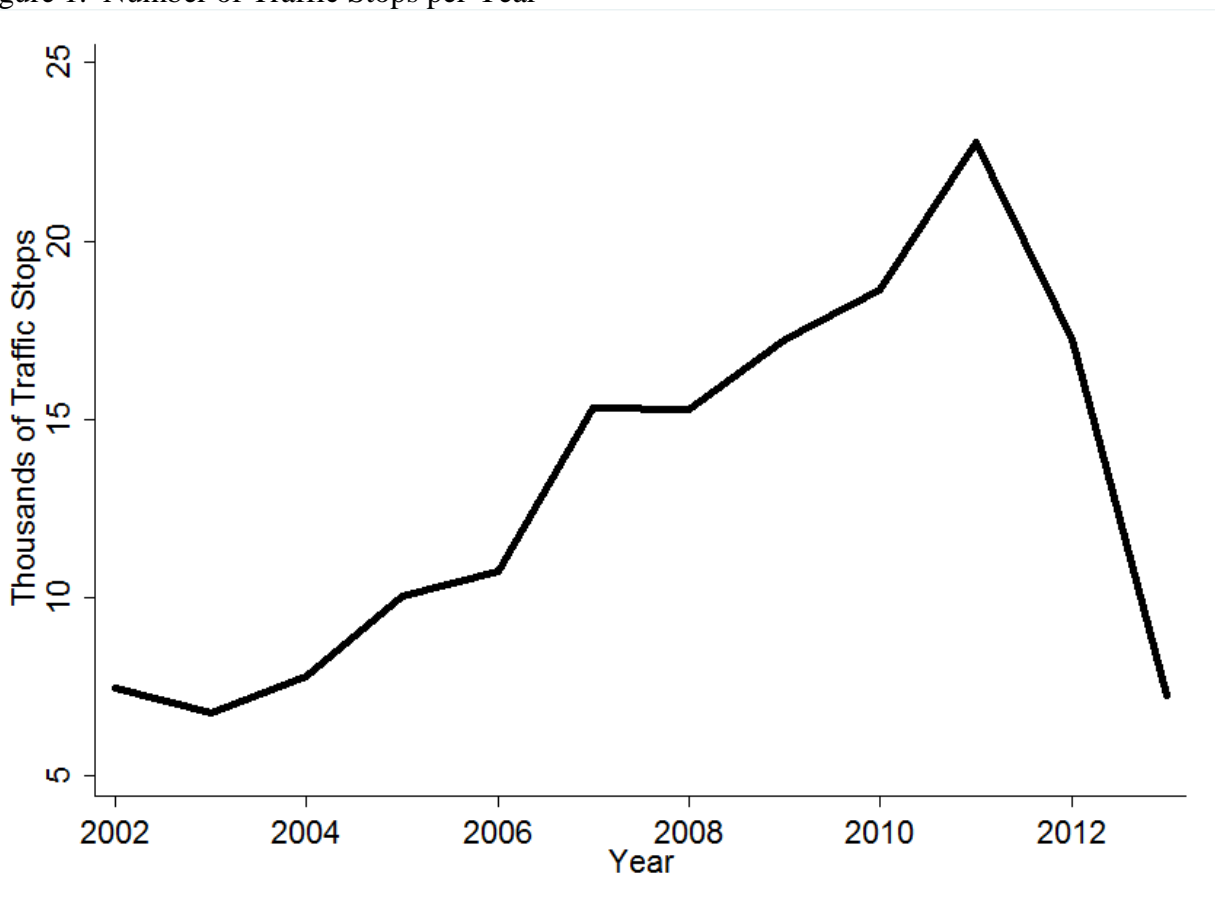


Figure 2. Racial Composition of Traffic Stops by Year

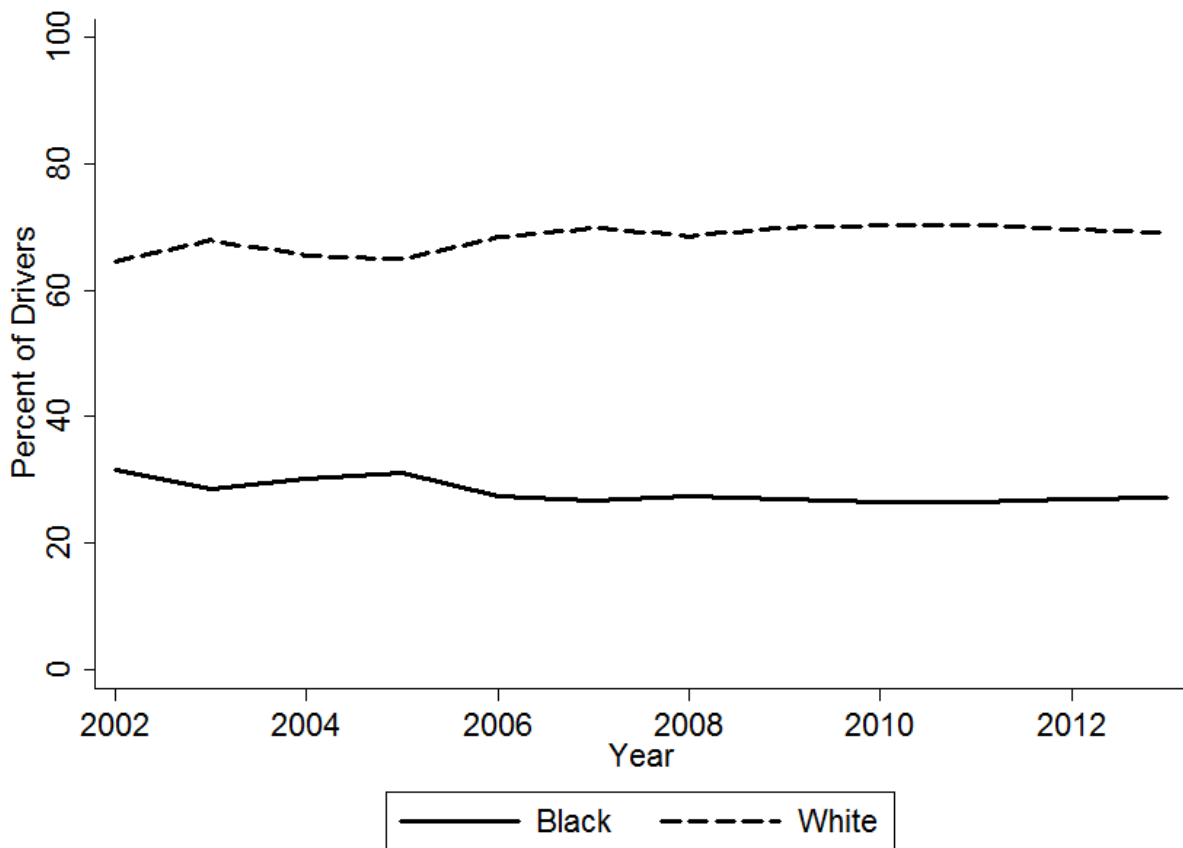


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	156,529	68.85	27.58
Speed Limit	78,528	74.27	22.32
Stop Light/Sign	15,112	67.30	28.20
Driving Impaired	1,124	67.44	27.58
Safe Movement	9,421	69.60	26.52
Vehicle Equipment	14,249	57.38	39.10
Vehicle Regulatory	16,416	63.93	32.95
Seat Belt	6,261	63.76	33.27
Investigation	5,934	53.51	42.87
Other Vehicle	9,484	64.60	31.27

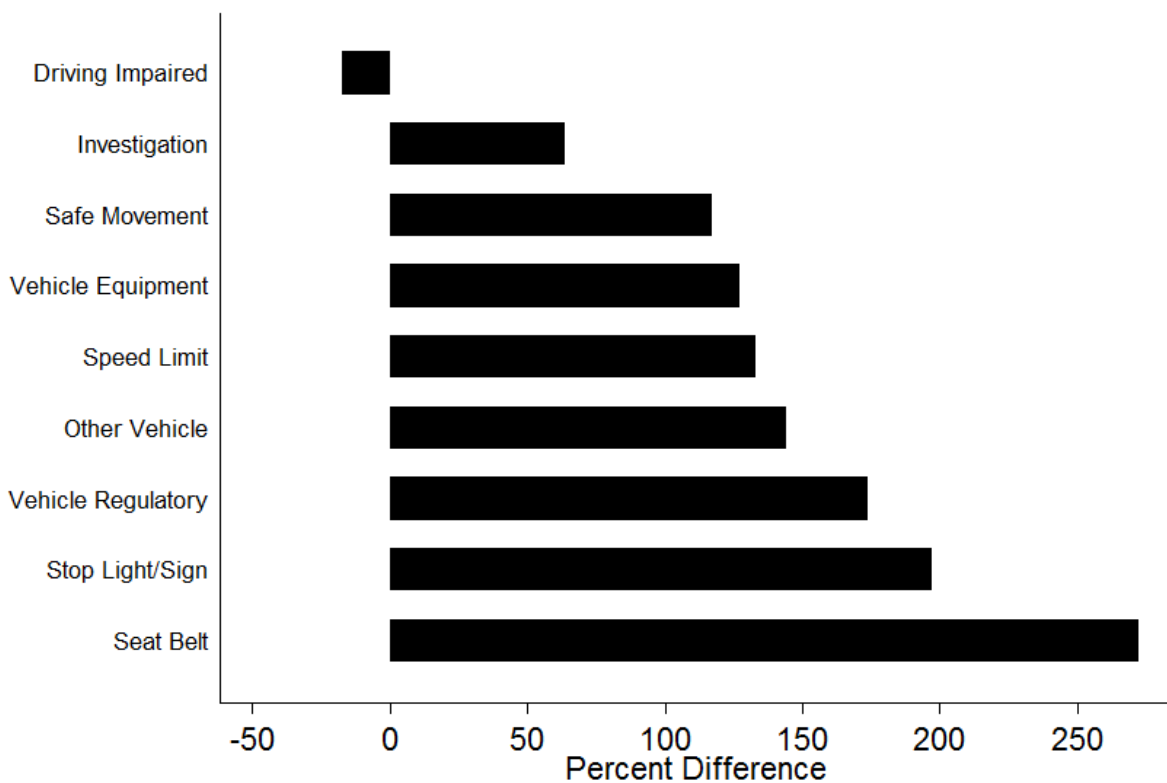
Note: Includes only drivers. Excludes 217 checkpoint stops. Excludes 3,012 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	156,529	-	68.85	27.58	-
Total Searches	6,164	3.94	2.64	7.23	2.74
Speed Limit	78,528	1.55	1.18	2.76	2.34
Stop Light/Sign	15,112	2.47	1.56	4.65	2.98
Driving Impaired	1,124	32.38	34.30	28.39	0.83
Safe Movement	9,421	4.03	3.08	6.69	2.17
Vehicle Equipment	14,249	7.07	4.70	10.66	2.27
Vehicle Regulatory	16,416	5.18	3.26	8.93	2.74
Seat Belt	6,261	5.99	3.11	11.57	3.72
Investigation	5,934	19.25	15.06	24.65	1.64
Other Vehicle	9,484	4.77	3.30	8.06	2.44

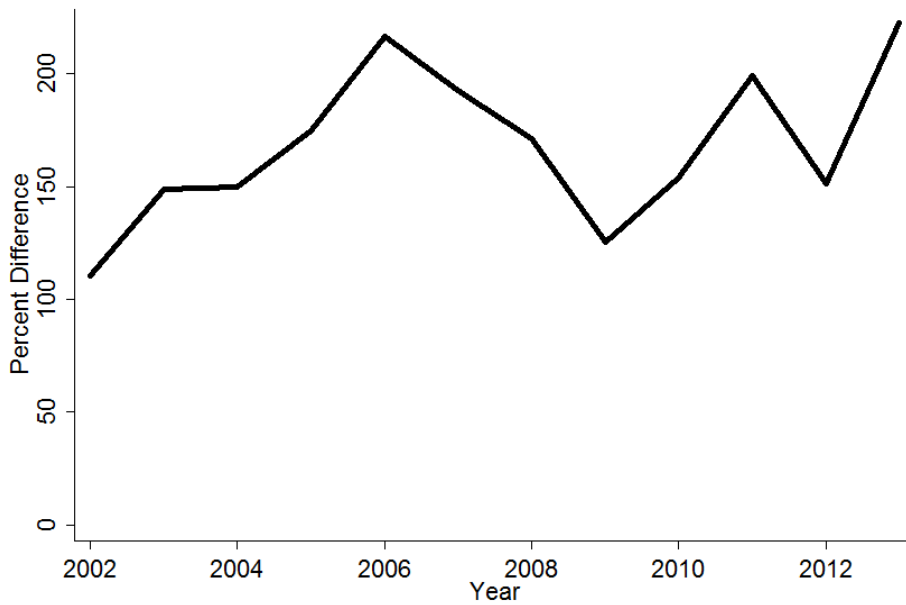
Note: See the appendix for this same table broken down for Men and Women.

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



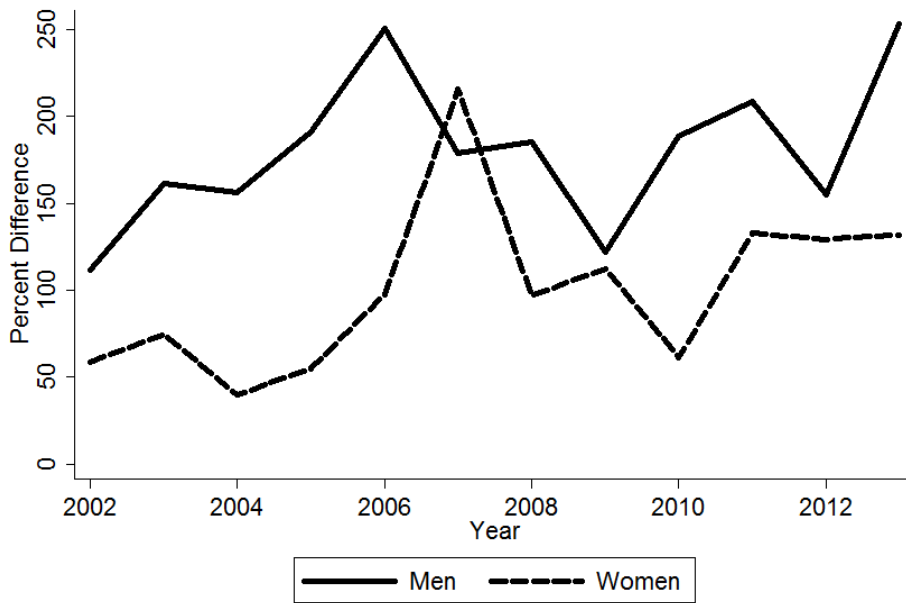
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by purpose of stop.

Figure 4. Racial Differences in the Likelihood of Search



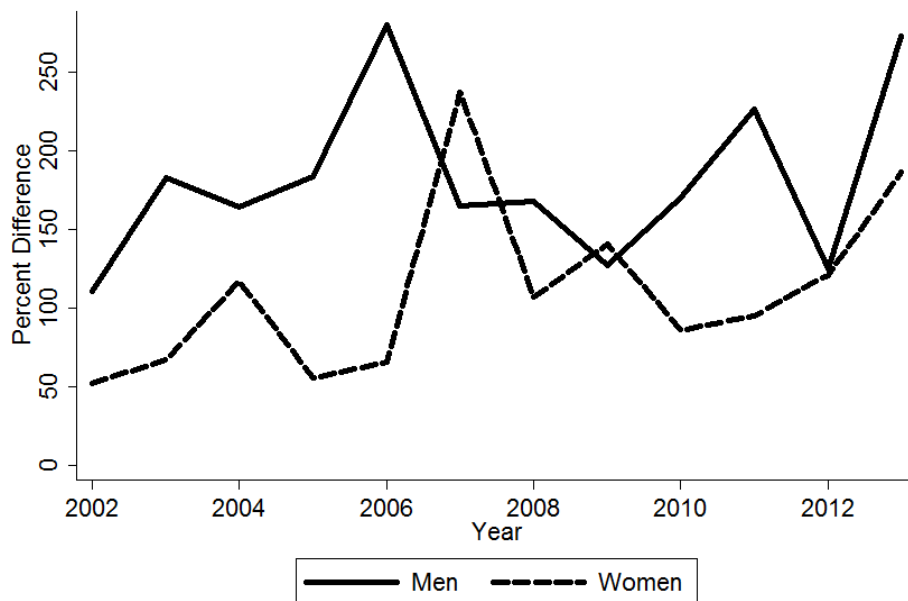
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites.

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



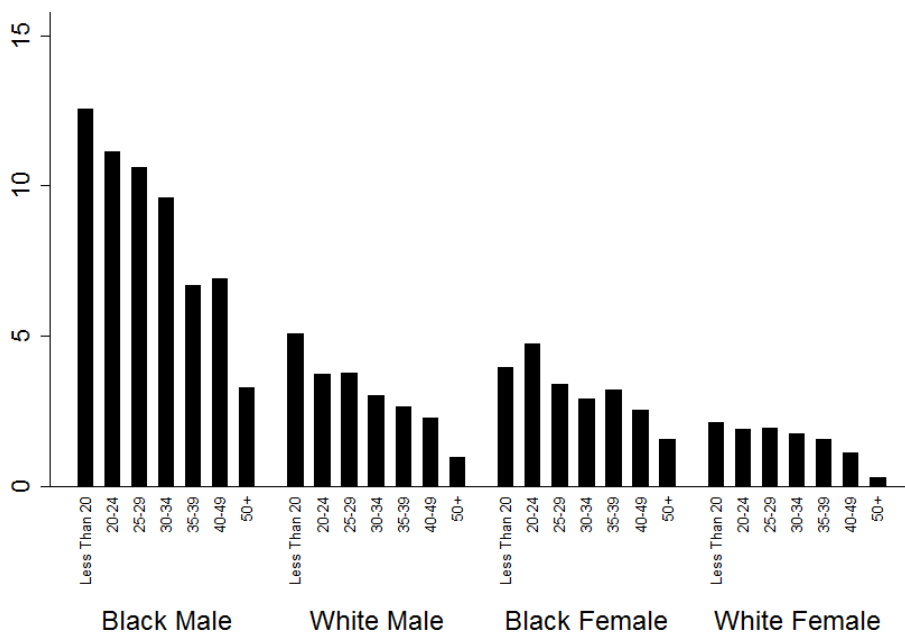
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by gender.

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



The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by gender for motorists under 30.

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



Based on 156,529 traffic stops from 2002 through 2013, and 6,164 searches. Overall rate of search: 3.94 percent.

Black men under the age of 30 are searched at rates of about 11 percent whereas white men of that age see rates of about 4 percent, and women in general are typically below 4 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

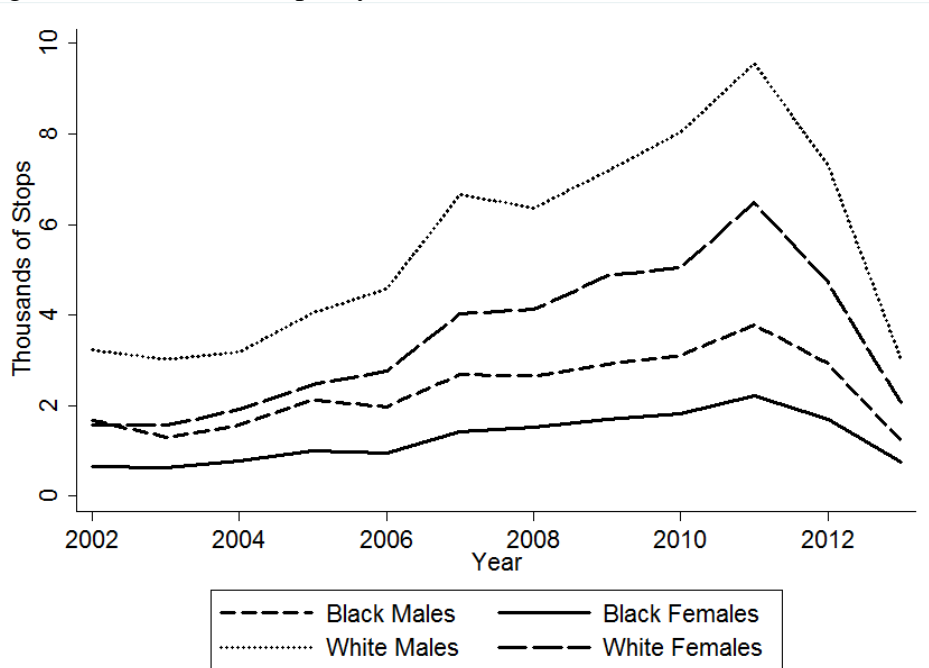
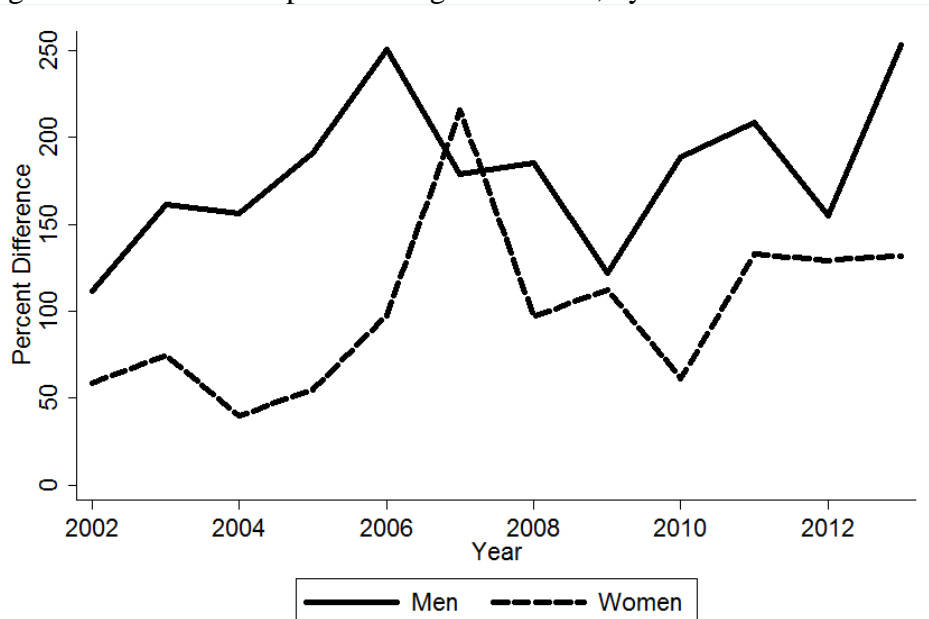


Figure 9. Percent of Stops Resulting in a Search, by Race and Gender



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

Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	156,529	-	68.85	27.58	-
Total Searches	6,164	3.94	2.64	7.23	2.74
Consent	2,604	1.66	1.11	3.09	2.78
Search Warrant	29	-	-	-	-
Probable Cause	897	0.57	0.32	1.20	3.75
Incident to Arrest	2,532	1.62	1.14	2.80	2.46
Protective Frisk	102	0.07	0.05	0.11	2.20

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	200	40.40	40.40	0.13	0.13
2 – 10	74	14.95	55.35	0.17	0.30
11 - 100	45	9.09	64.44	1.35	1.65
101 – 1,000	130	26.26	90.71	34.41	36.06
1,001 +	46	9.29	100.00	63.94	100.00
Total	495	100	-	100	-

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

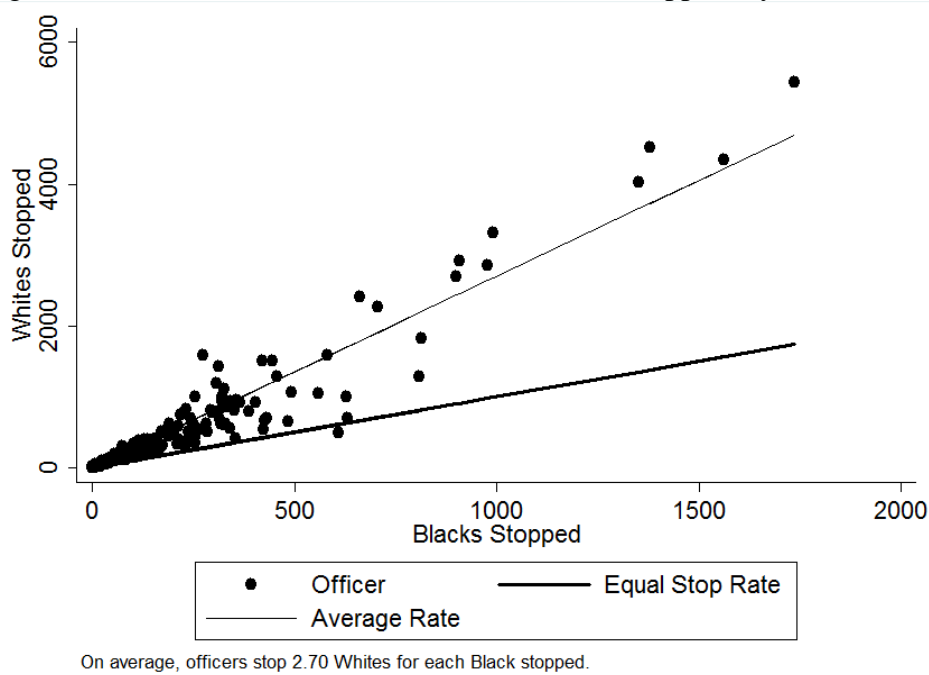


Figure 11. Number of Black and White Motorists Searched, by Officer

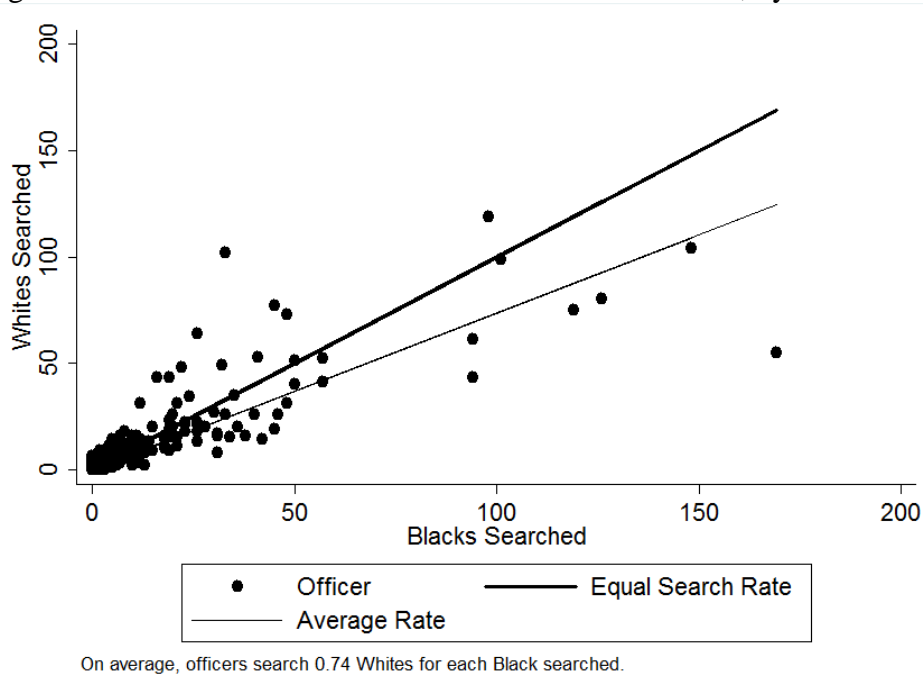
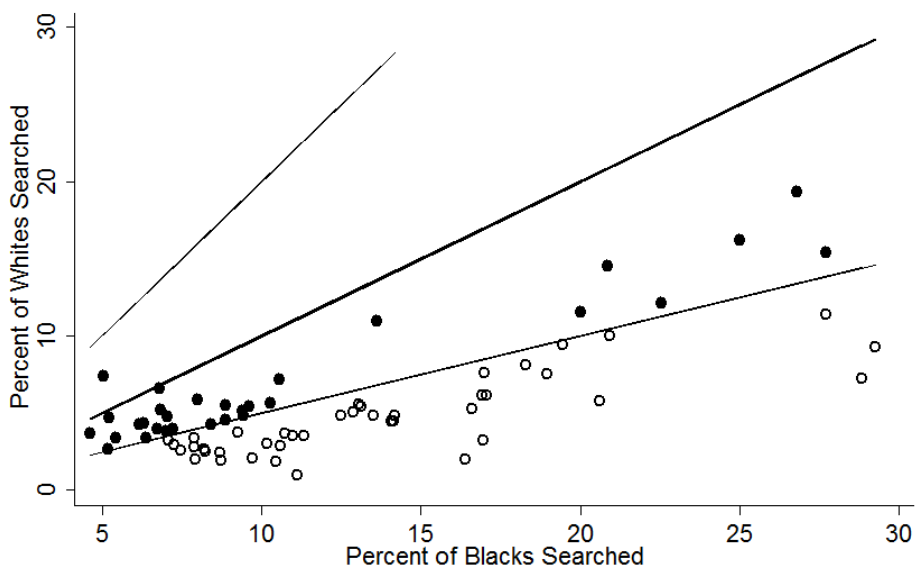


Figure 12. Percent of White and Black Drivers Searched, by Officer



Includes 71 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 3.94. The hollow circles indicate high disparity officers. 0 officers search Whites at more than twice the rate that they search Blacks. 41 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
Demographics					
Race	3.14*(0.10)	3.20*(0.10)	2.65*(0.08)	2.51*(0.08)	2.40*(0.08)
Hispanic	1.42*(0.09)	1.32*(0.08)	1.26*(0.08)	1.25*(0.08)	1.23*(0.08)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.43*(0.10)	1.43*(0.10)	1.35*(0.10)
Impaired	-	-	23.56*(1.98)	22.69*(1.92)	14.50*(1.31)
Movement	-	-	2.03*(0.14)	1.96*(0.14)	1.77*(0.12)
Equipment	-	-	3.71*(0.19)	3.23*(0.16)	2.61*(0.14)
Regulatory	-	-	3.13*(0.17)	2.87*(0.15)	2.80*(0.15)
Seat Belt	-	-	3.64*(0.25)	3.20*(0.22)	3.69*(0.26)
Investigation	-	-	10.32*(0.53)	9.01*(0.47)	7.29*(0.39)
Other	-	-	2.49*(0.16)	2.38*(0.15)	2.31*(0.15)
Officer Type					
Black Disparity [†]	-	-	-	2.20*(0.07)	2.23*(0.07)
White Disparity [†]	-	-	-	(omitted)	(omitted)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.03*(0.00)	0.08*(0.00)	0.04*(0.00)	0.03*(0.00)	
N	94,132	94,132	94,132	94,132	92,699
Pseudo R²	0.04	0.05	0.13	0.14	0.16

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
Demographics					
Race	2.11*(0.13)	2.18*(0.13)	1.77*(0.11)	1.71*(0.11)	1.70*(0.11)
Hispanic	0.95(0.14)	0.89(0.14)	0.79(0.12)	0.78(0.12)	0.74(0.12)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.98*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.02*(0.27)	2.03*(0.27)	1.83*(0.25)
Impaired	-	-	55.58*(8.54)	52.13*(8.07)	31.85*(5.30)
Movement	-	-	4.41*(0.59)	4.34*(0.58)	3.72*(0.50)
Equipment	-	-	5.32*(0.54)	4.81*(0.49)	3.68*(0.40)
Regulatory	-	-	4.11*(0.42)	3.90*(0.40)	3.74*(0.39)
Seat Belt	-	-	3.28*(0.52)	3.04*(0.49)	3.41*(0.56)
Investigation	-	-	20.45*(2.08)	18.48*(1.90)	14.61*(1.56)
Other	-	-	3.88*(0.53)	3.83*(0.52)	3.59*(0.50)
Officer Type					
Black Disparity [†]	-	-	-	1.84*(0.12)	1.82*(0.12)
White Disparity [†]	-	-	-	(omitted)	(omitted)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.02*(0.00)	0.04*(0.00)	0.01*(0.00)	0.01*(0.00)	0.02*(0.00)
N	56,811	56,811	56,811	56,811	56,102
Pseudo R²	0.01	0.01	0.13	0.14	0.15

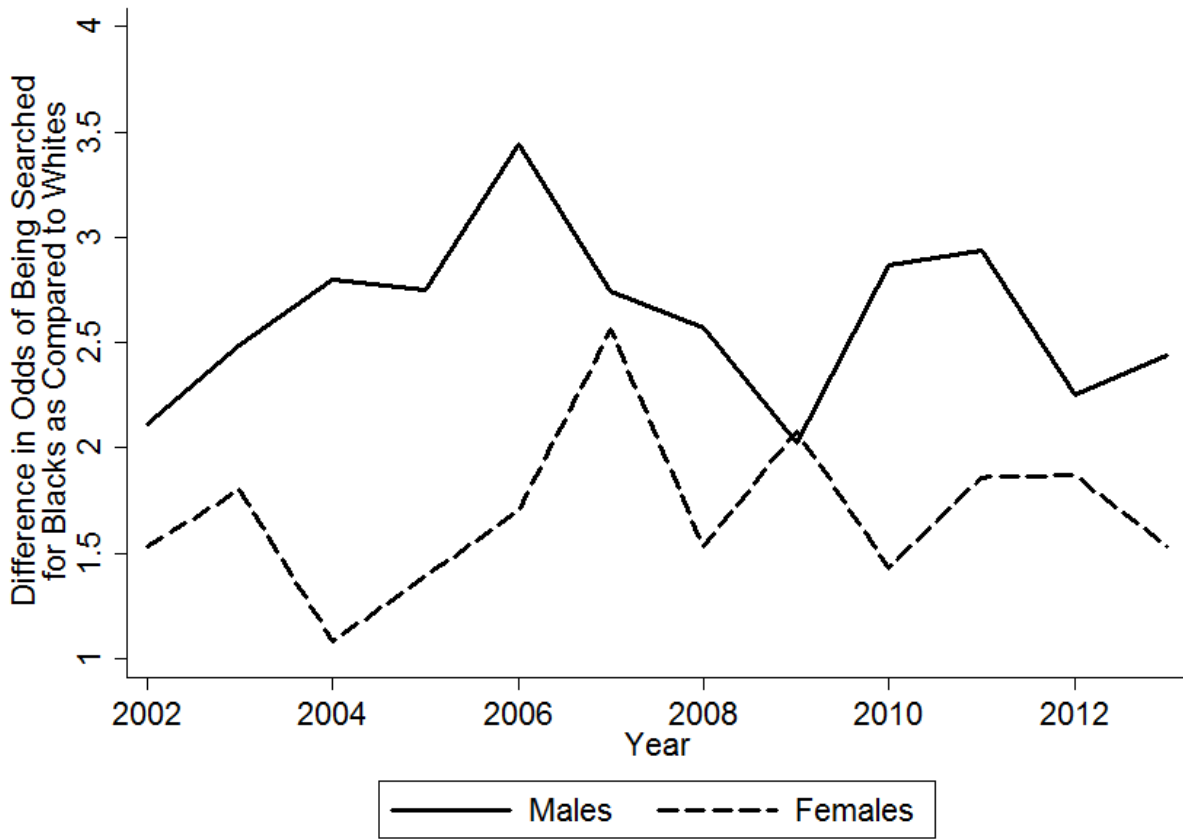
Note: Entries are odds-ratios, with standard errors in parenthesis.

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	3,012	39.77	57.04
Speed Limit	455	49.89	46.59
Stop Light/Sign	172	26.74	68.60
Driving Impaired	78	70.51	26.92
Safe Movement	171	46.78	50.29
Vehicle Equipment	566	33.92	63.96
Vehicle Regulatory	378	38.62	57.67
Seat Belt	208	28.37	68.27
Investigation	773	38.16	58.21
Other Vehicle	207	47.34	50.72

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	97,649	-	67.77	28.63	-
Total Searches	4,956	5.08	3.29	9.35	2.84
Speed Limit	47,408	2.13	1.59	3.82	2.40
Stop Light/Sign	9,230	3.14	1.88	6.11	3.25
Driving Impaired	839	34.21	35.73	30.95	0.87
Safe Movement	6,585	4.48	3.22	7.98	2.48
Vehicle Equipment	9,151	8.81	5.87	13.00	2.21
Vehicle Regulatory	9,580	6.88	4.12	11.85	2.88
Seat Belt	4,004	8.07	3.97	14.73	3.71
Investigation	4,260	21.41	16.27	27.70	1.70
Other Vehicle	6,592	5.67	3.63	10.13	2.79

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	58,880	-	70.64	25.84	-
Total Searches	1,208	2.05	1.61	3.33	2.07
Speed Limit	31,120	0.67	0.58	1.04	1.79
Stop Light/Sign	5,882	1.41	1.07	2.24	2.09
Driving Impaired	285	27.02	30.70	17.24	0.56
Safe Movement	2,836	3.00	2.76	3.70	1.34
Vehicle Equipment	5,098	3.94	2.74	6.01	2.19
Vehicle Regulatory	6,836	2.81	2.10	4.45	2.12
Seat Belt	2,257	2.30	1.78	3.69	2.07
Investigation	1,674	13.74	12.15	16.04	1.32
Other Vehicle	2,892	2.70	2.54	3.17	1.25

Table A4. Type of Search by Race: Men

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	97,649	-	67.77	28.63	-
Total Searches	4,956	5.08	3.29	9.35	2.84
Consent	2,120	2.17	1.38	4.10	2.97
Search Warrant	24	-	-	-	-
Probable Cause	743	0.76	0.41	1.59	3.88
Incident to Arrest	1,984	2.03	1.40	3.49	2.49
Protective Frisk	85	0.09	0.07	0.14	2.00

Table A5. Type of Search by Race: Women

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	58,880	-	70.64	25.84	-
Total Searches	1,208	2.05	1.61	3.33	2.07
Consent	484	0.82	0.67	1.23	1.84
Search Warrant	5	-	-	-	-
Probable Cause	154	0.26	0.19	0.49	2.58
Incident to Arrest	548	0.93	0.72	1.54	2.14
Protective Frisk	17	0.03	0.02	0.06	3.00

Figure A6. Stops by Day of the Week

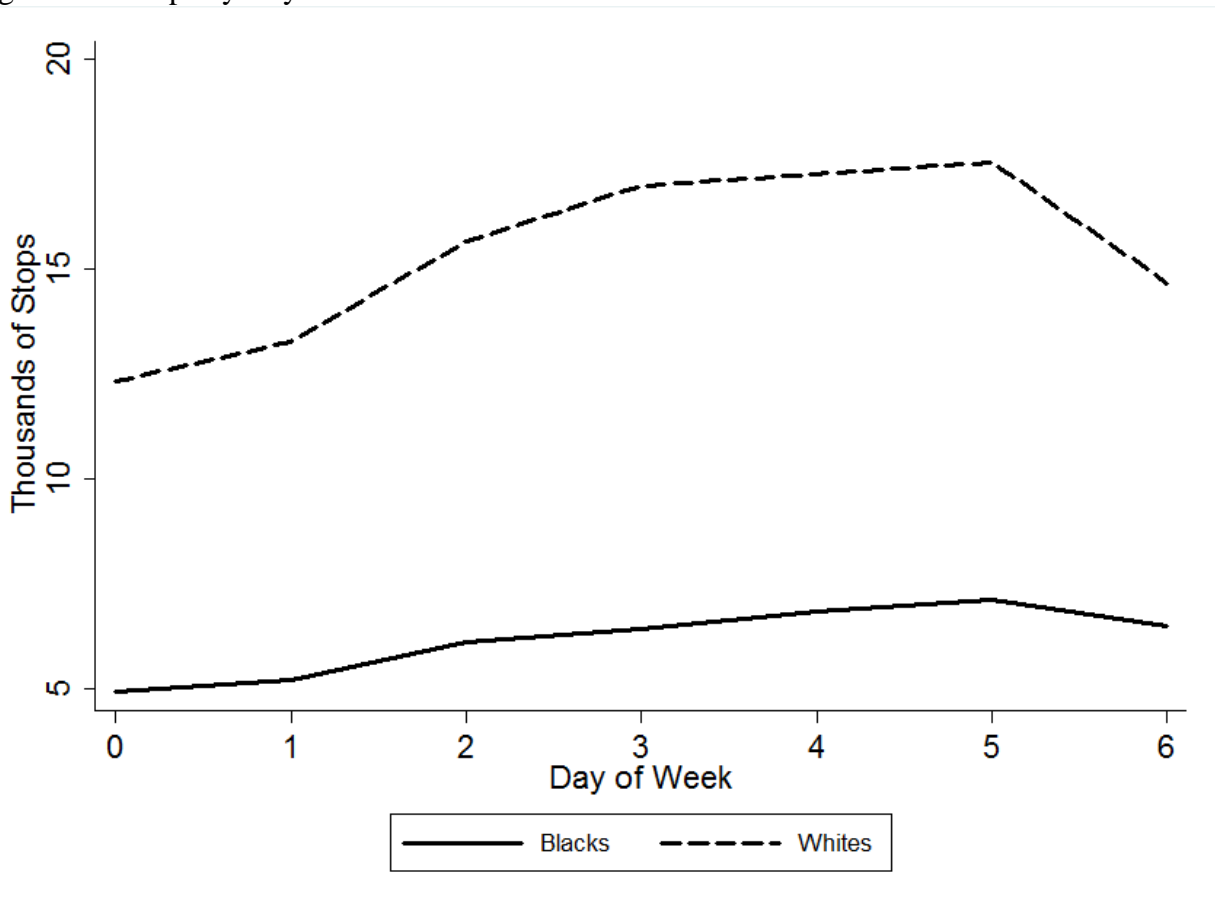


Figure A7. Searches by Day of the Week

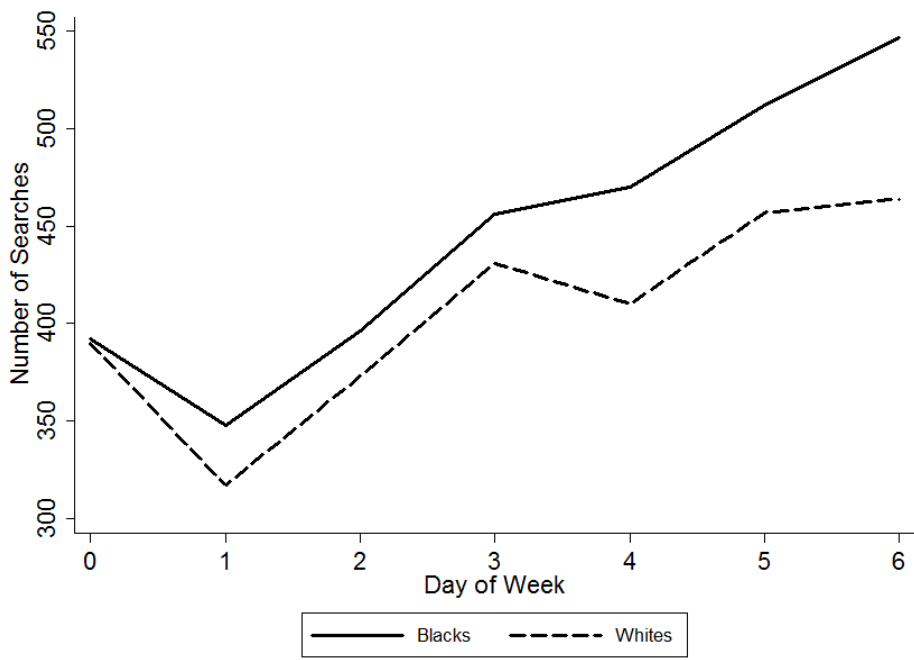
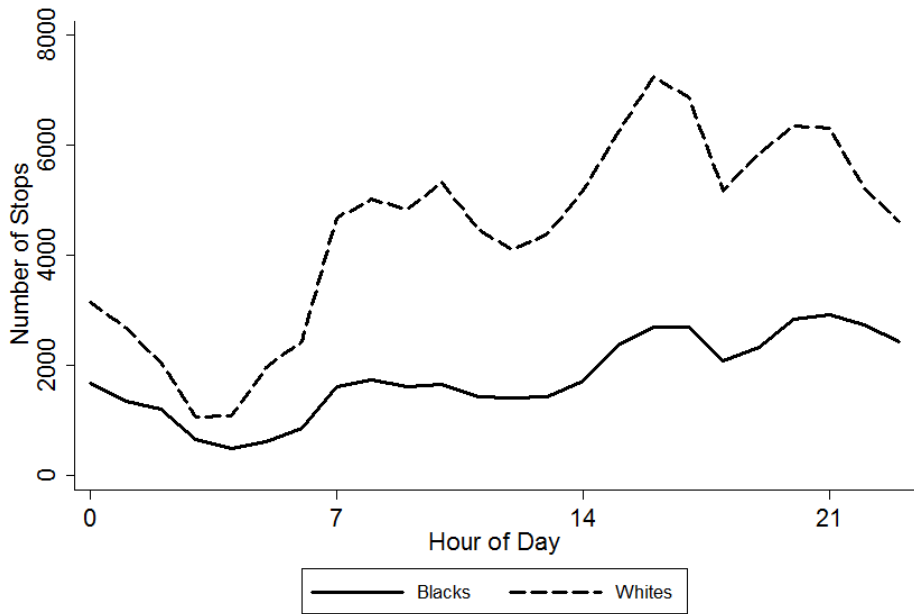
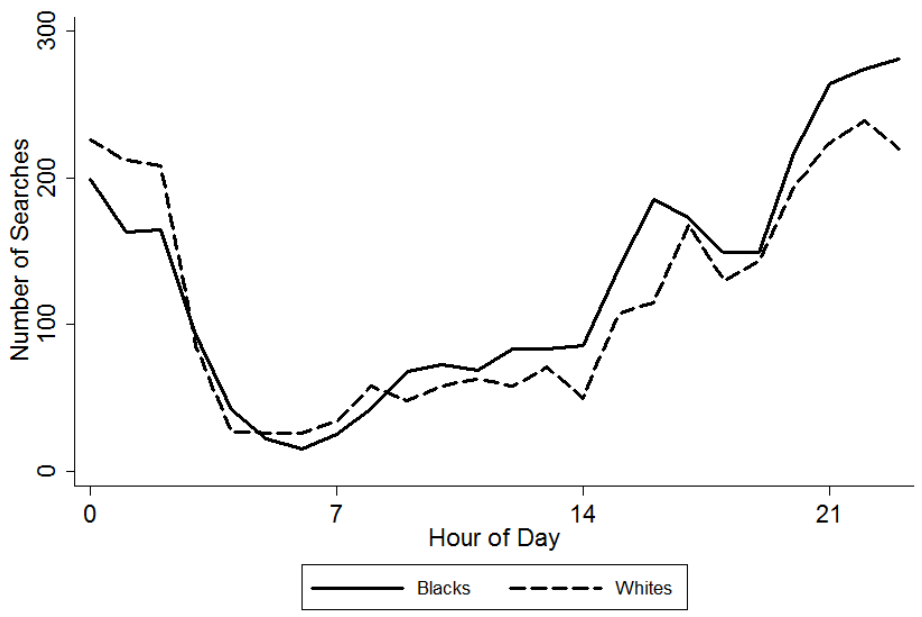


Figure A8. Stops by Hour of the Day



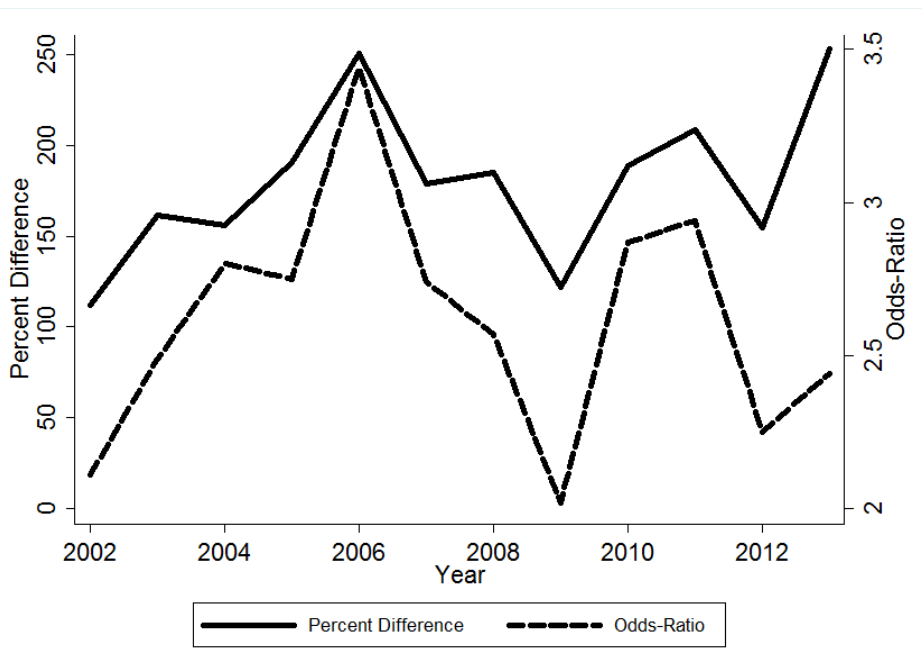
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

Figure A9. Searches by Hour of the Day



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

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



Correlation: 0.711

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

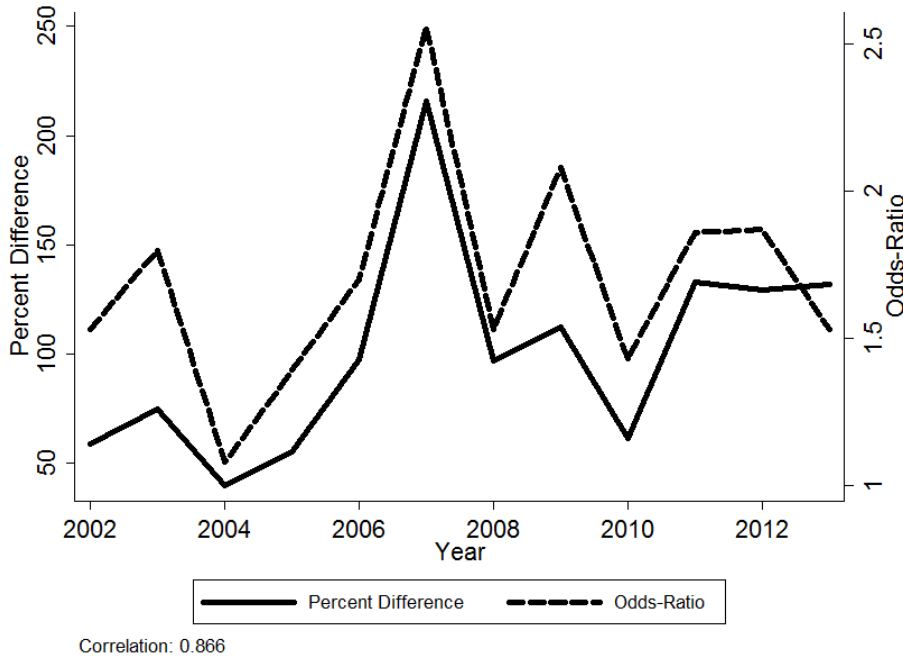


Figure A12. Racial Differences in the Likelihood of Search: Consent Searches Only

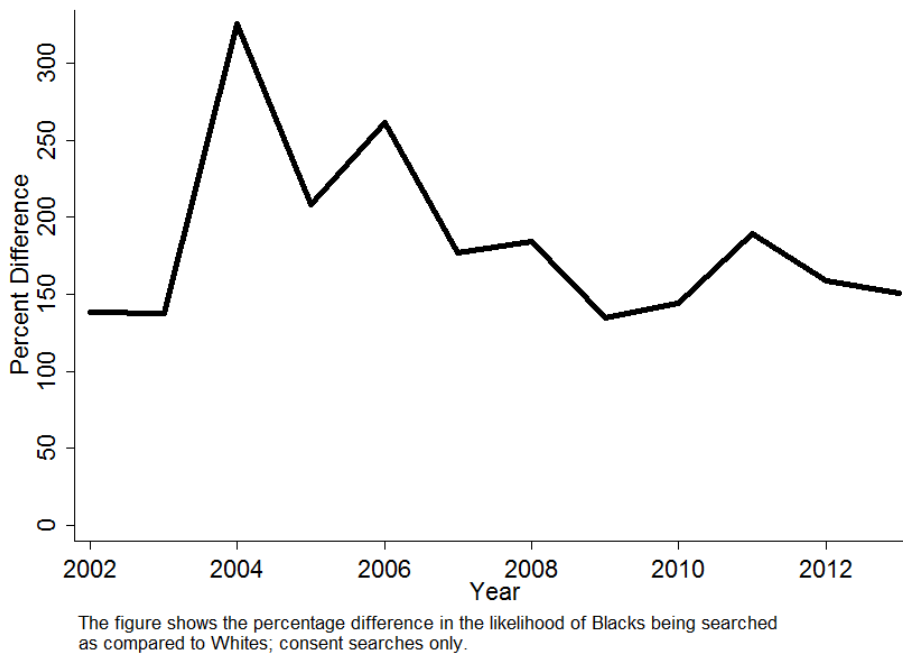


Table A6. Likelihood of Finding Contraband Given a Search, by Race

Contraband	Number	% Total	% White	% Black
Yes	1,549	25.13	24.98	25.73
No	4,615	74.87	75.02	74.27
Total	6,164	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	104,932	2.05	15.44	15.27	66.36	0.88	100.0
Black	No	40,048	3.02	17.68	16.74	60.74	1.63	100.0
Total	No	150,365	2.31	16.12	15.62	64.88	1.08	100.0
White	Yes	2,842	2.96	5.28	5.63	29.66	56.47	100.0
Black	Yes	3,121	2.85	4.17	7.31	31.34	54.34	100.0
Total	Yes	6,164	2.89	4.64	6.42	30.69	55.35	100.0