

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

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	94,841
-2001	3
-2014	2,182
-Passengers	1,248
-Checkpoint stops	1,807
Total number of cases deleted	5,052
Stops for analysis	89,789
Searches	2,671
Percent of stops leading to search (search rate)	2.97%

Figure 1. Number of Traffic Stops per Year

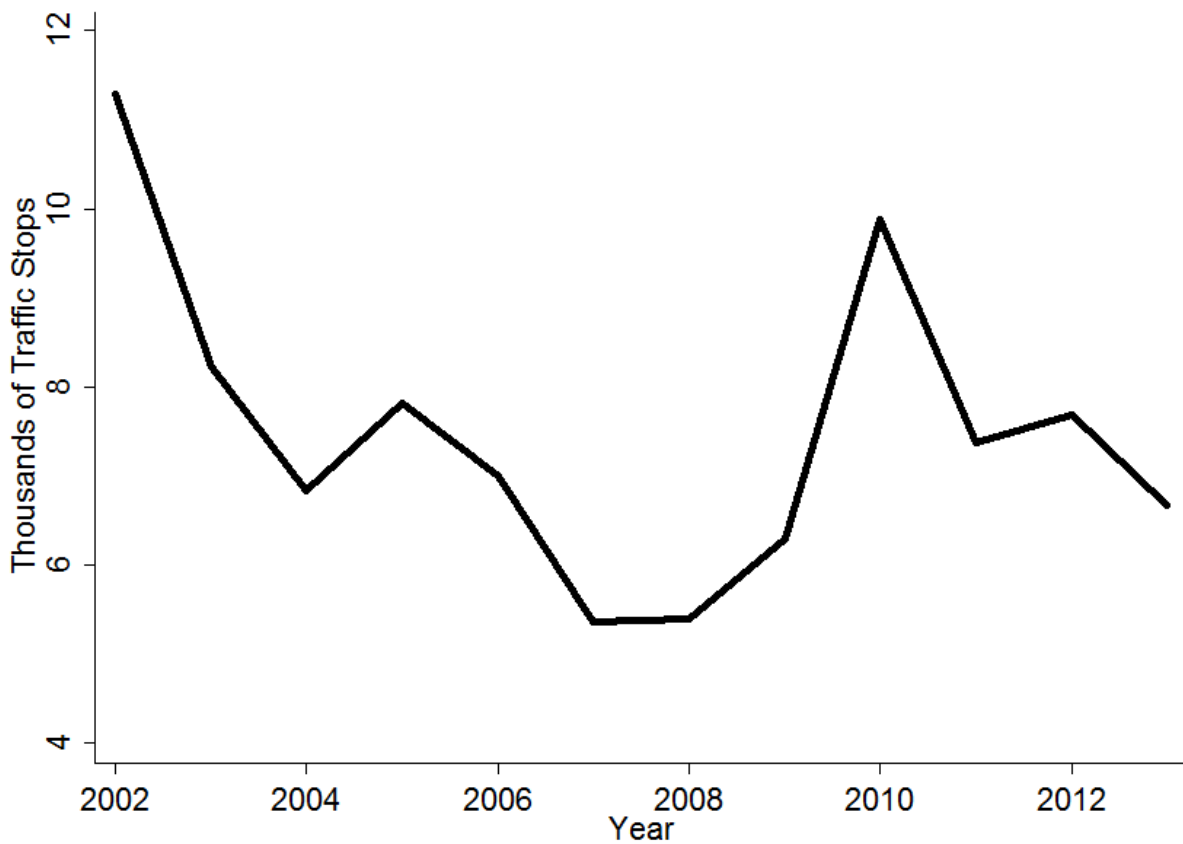


Figure 2. Racial Composition of Traffic Stops by Year

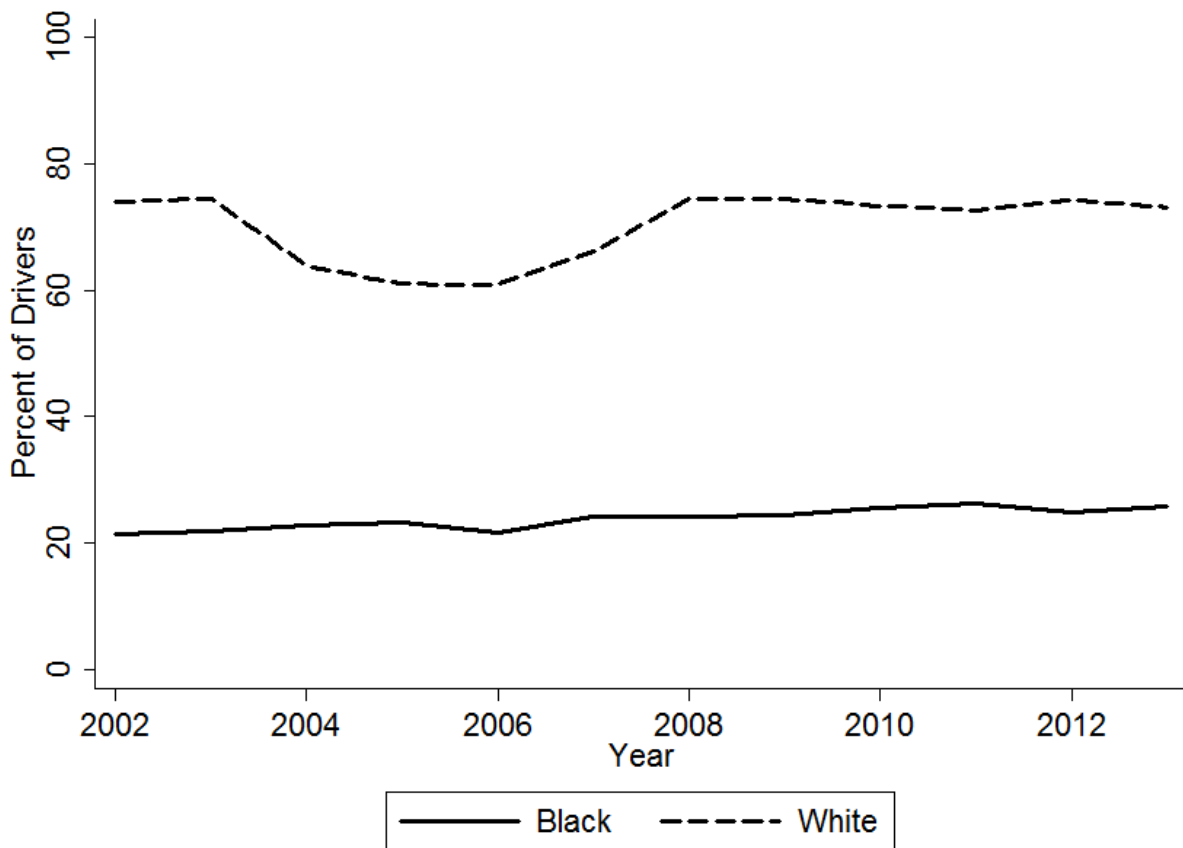


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	89,789	70.52	23.75
Speed Limit	30,541	75.81	19.40
Stop Light/Sign	4,616	69.41	24.13
Driving Impaired	955	64.29	21.26
Safe Movement	5,219	68.10	23.61
Vehicle Equipment	13,106	65.04	27.09
Vehicle Regulatory	19,933	68.76	27.41
Seat Belt	6,606	71.03	23.75
Investigation	4,249	69.73	24.66
Other Vehicle	4,564	63.67	26.73

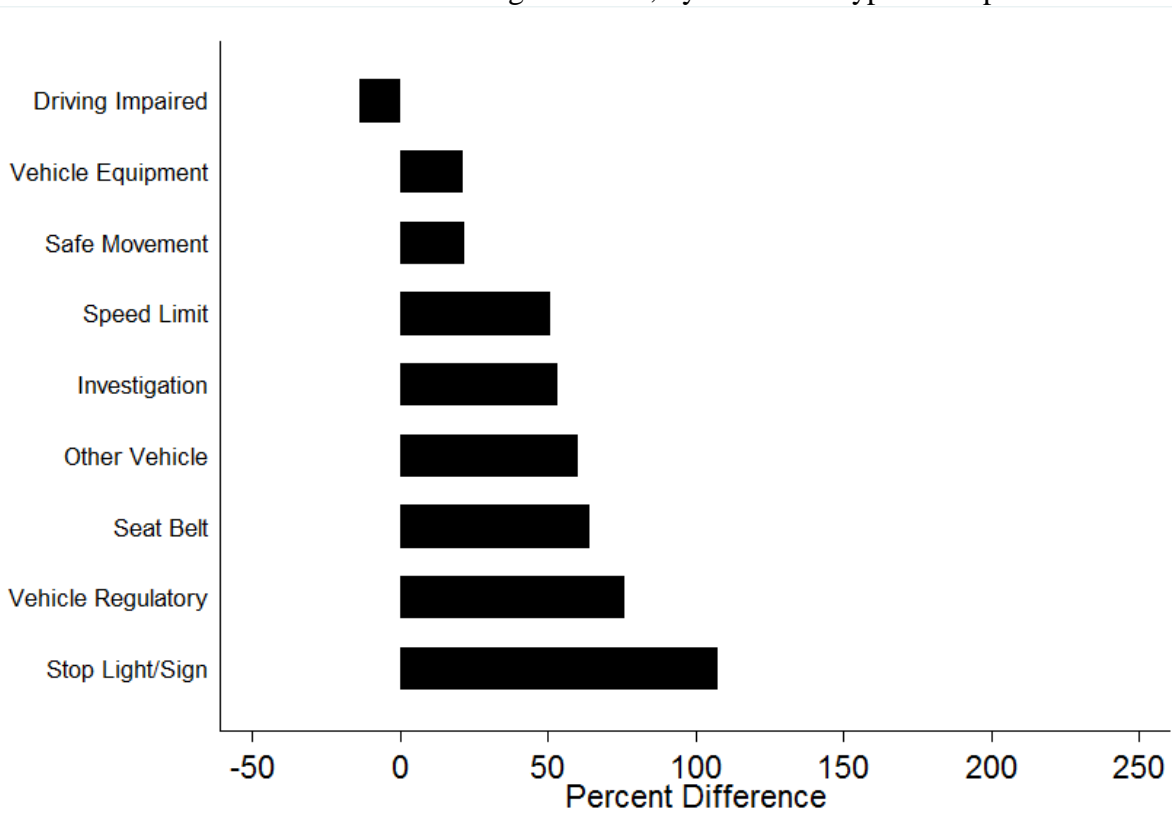
Note: Includes only drivers. Excludes checkpoint stops. Excludes 1,248 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	89,789	-	70.52	23.75	-
Total Searches	2,671	2.97	2.55	3.78	1.48
Speed Limit	30,541	1.16	0.98	1.49	1.52
Stop Light/Sign	4,616	2.53	1.90	3.95	2.08
Driving Impaired	955	36.44	37.62	32.51	0.86
Safe Movement	5,219	6.46	6.85	7.14	1.04
Vehicle Equipment	13,106	4.14	3.75	4.56	1.22
Vehicle Regulatory	19,933	1.39	1.37	2.42	1.77
Seat Belt	6,606	1.67	1.51	2.49	1.65
Investigation	4,249	6.12	5.23	8.02	1.53
Other Vehicle	4,564	5.81	5.26	8.44	1.60

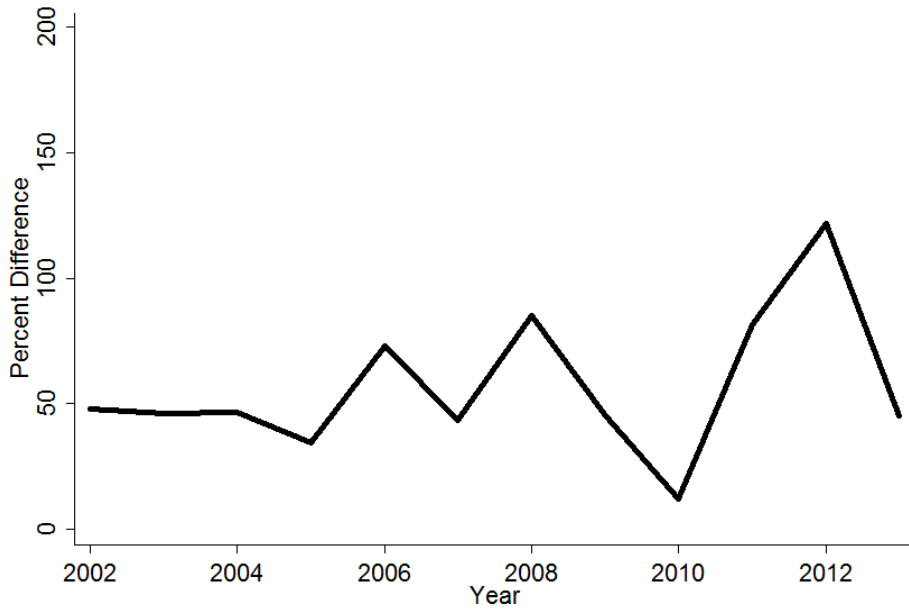
Note: See the appendix for this same table broken down for Men and Women.

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



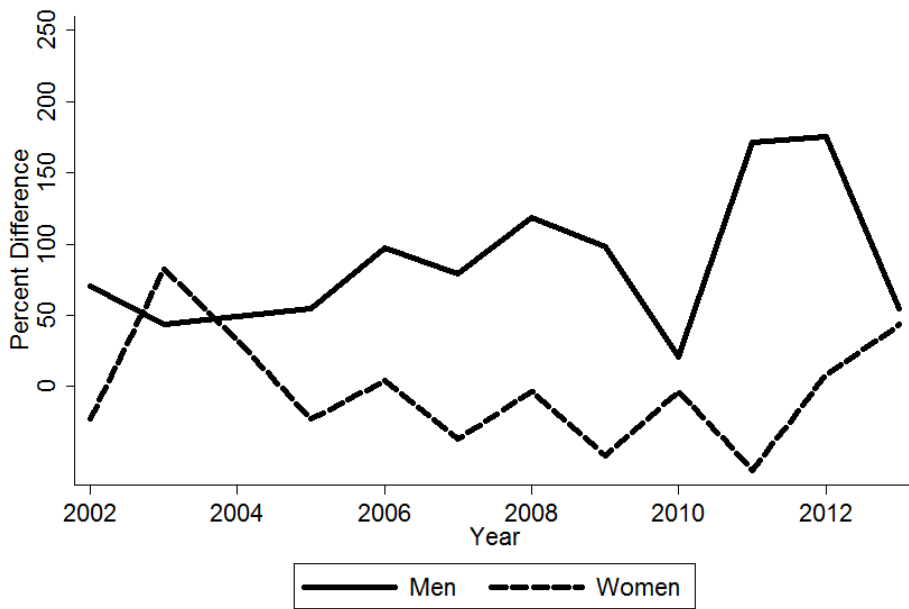
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by purpose of stop.

Figure 4. Racial Differences in the Likelihood of Search



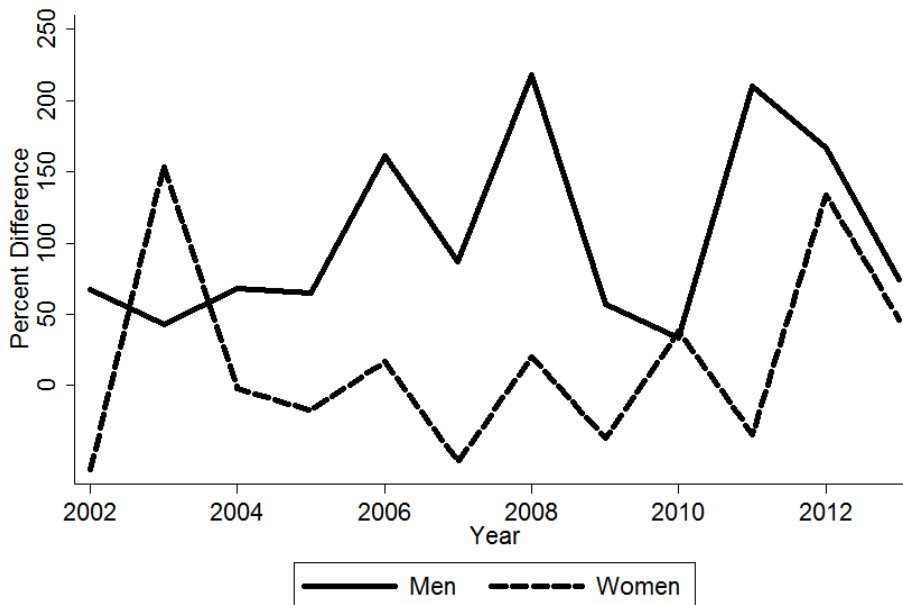
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites.

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



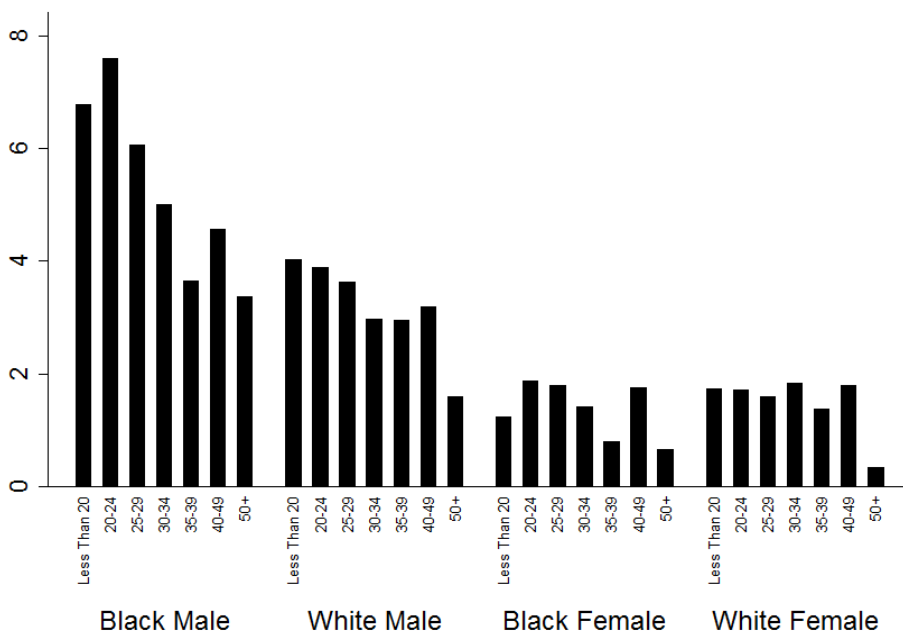
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by gender.

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 89,789 traffic stops from 2002 through 2013, and 2,671 searches. Overall rate of search: 2.97 percent.

Black men under the age of 30 are searched at rates of about 7 percent whereas white men of that age see rates of about 4 percent, and women in general are typically below 2 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

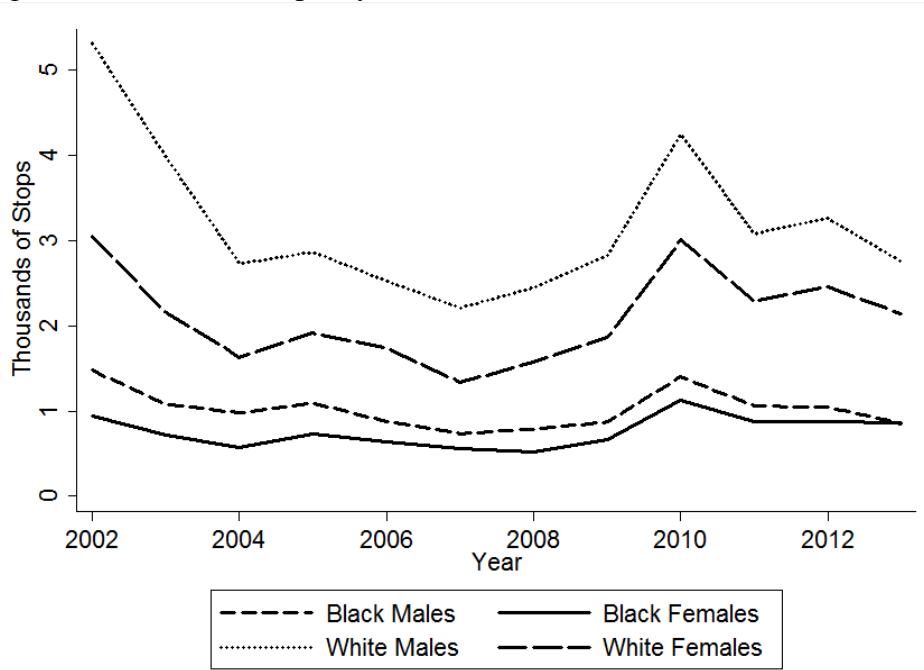


Figure 9. Percent of Stops Resulting in a Search, by Race and Gender

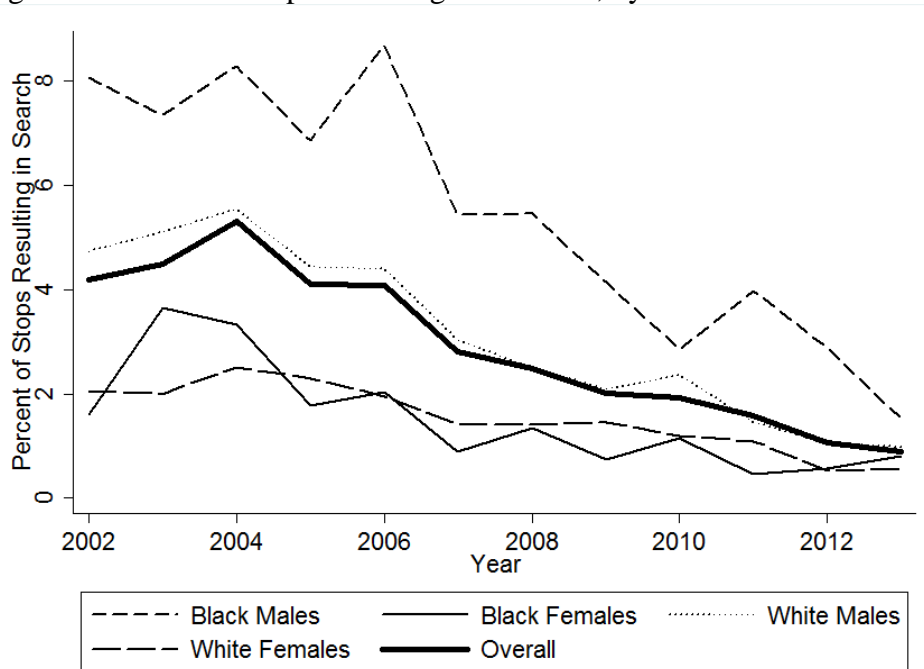


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	89,789	-	70.52	23.75	-
Total Searches	2,671	2.97	2.55	3.78	1.48
Consent	1,003	1.12	1.02	1.46	1.43
Search Warrant	31	-	-	-	-
Probable Cause	220	0.25	0.20	0.43	2.15
Incident to Arrest	1,391	1.55	1.28	1.80	1.41
Protective Frisk	26	0.03	0.02	0.07	3.50

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	179	49.72	48.72	0.20	0.20
2 – 10	38	10.56	60.28	0.15	0.35
11 - 100	36	10.00	70.28	1.78	2.13
101 – 1,000	79	21.94	92.22	38.28	40.41
1,001 +	28	7.78	100.00	59.59	100.00
Total	360	100	-	100	-

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

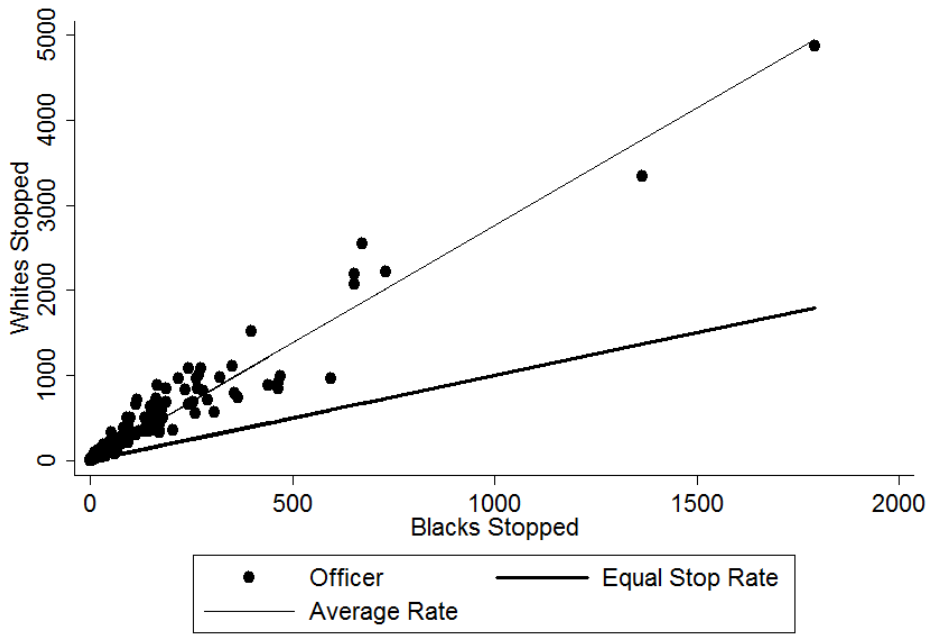


Figure 11. Number of Black and White Motorists Searched, by Officer

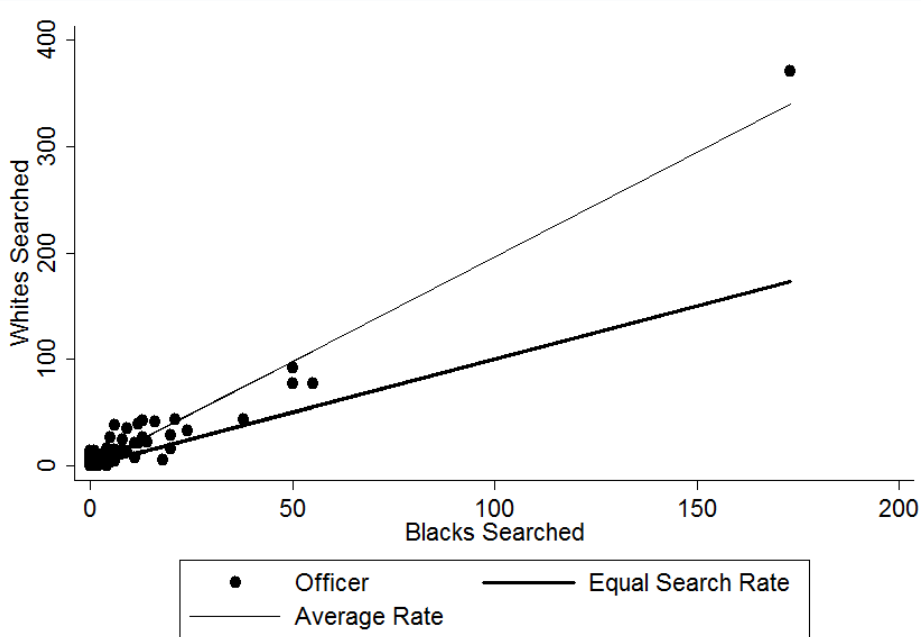
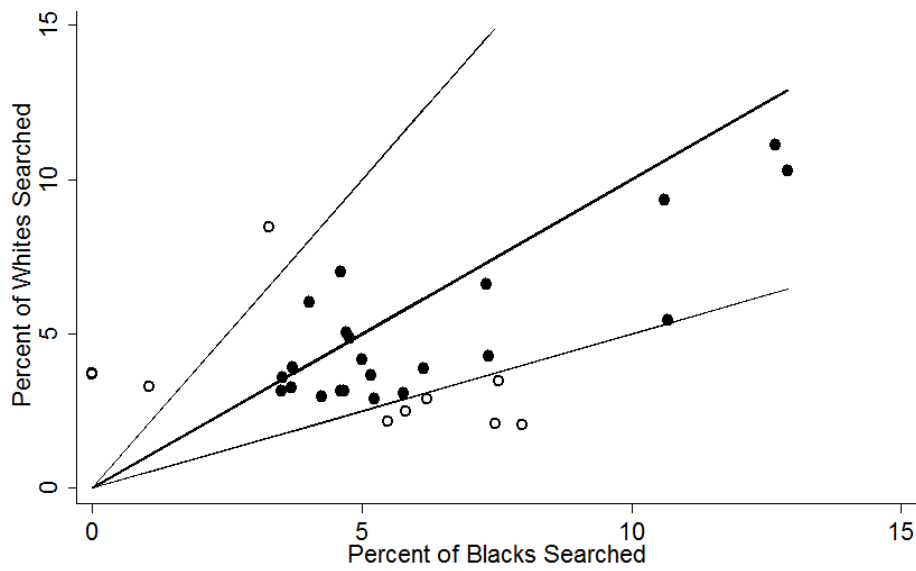


Figure 12. Percent of White and Black Drivers Searched, by Officer



Includes 32 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 2.97. The hollow circles indicate high disparity officers. 4 officers search Whites at more than twice the rate that they search Blacks. 6 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	1.81*(0.09)	1.79*(0.09)	1.60*(0.08)	1.60*(0.08)	1.45*(0.10)
Hispanic	1.29*(0.10)	1.20*(0.09)	0.77*(0.06)	0.79*(0.06)	0.68*(0.08)
Age	-	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)	0.97*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.07*(0.26)	2.11*(0.26)	1.91*(0.29)
Impaired	-	-	41.16*(4.36)	42.92*(4.57)	25.20*(3.44)
Movement	-	-	4.93*(0.46)	4.90*(0.46)	2.47*(0.34)
Equipment	-	-	2.89*(0.24)	2.89*(0.24)	2.04*(0.22)
Regulatory	-	-	1.38*(0.13)	1.38*(0.13)	1.32*(0.15)
Seat Belt	-	-	1.24(0.15)	1.25(0.15)	1.29(0.22)
Investigation	-	-	4.70*(0.47)	4.87*(0.49)	4.85*(0.56)
Other	-	-	4.92*(0.47)	4.91*(0.47)	2.35*(0.36)
Officer Type					
Black Disparity [†]	-	-	-	1.64*(0.12)	1.71*(0.20)
White Disparity [†]	-	-	-	0.87(0.15)	1.13(0.20)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.03*(0.00)	0.06*(0.00)	0.03*(0.00)	0.03*(0.00)	0.05*(0.01)
N	50,449	50,449	50,449	50,449	39,103
Pseudo R²	0.01	0.01	0.10	0.10	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.

Table 7. Predicting the Occurrence of a Search, Female Drivers

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Demographics					
Race	0.92(0.09)	0.91(0.09)	0.80*(0.08)	0.80*(0.08)	0.74*(0.10)
Hispanic	0.30*(0.10)	0.29*(0.10)	0.19*(0.07)	0.19*(0.07)	0.20*(0.08)
Age	-	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)	0.98*(0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.42*(0.67)	2.44*(0.68)	1.99*(0.63)
Impaired	-	-	113.95*(23.50)	114.85*(23.86)	43.76*(11.41)
Movement	-	-	9.54*(1.76)	9.64*(1.78)	4.26*(1.04)
Equipment	-	-	5.90*(0.97)	5.88*(0.97)	2.91*(0.58)
Regulatory	-	-	2.30*(0.40)	2.31*(0.40)	2.17*(0.43)
Seat Belt	-	-	2.21*(0.59)	2.23*(0.60)	2.35*(0.75)
Investigation	-	-	10.62*(2.03)	10.78*(2.07)	7.02*(1.55)
Other	-	-	7.62*(1.55)	7.69*(1.56)	2.78*(0.86)
Officer Type					
Black Disparity [†]	-	-	-	1.34(0.21)	1.51(0.33)
White Disparity [†]	-	-	-	1.20(0.30)	1.57(0.41)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.02*(0.00)	0.03*(0.00)	0.01*(0.00)	0.01*(0.00)	0.01*(0.00)
N	34,192	34,192	34,192	34,192	27,280
Pseudo R²	0.00	0.01	0.12	0.12	0.13

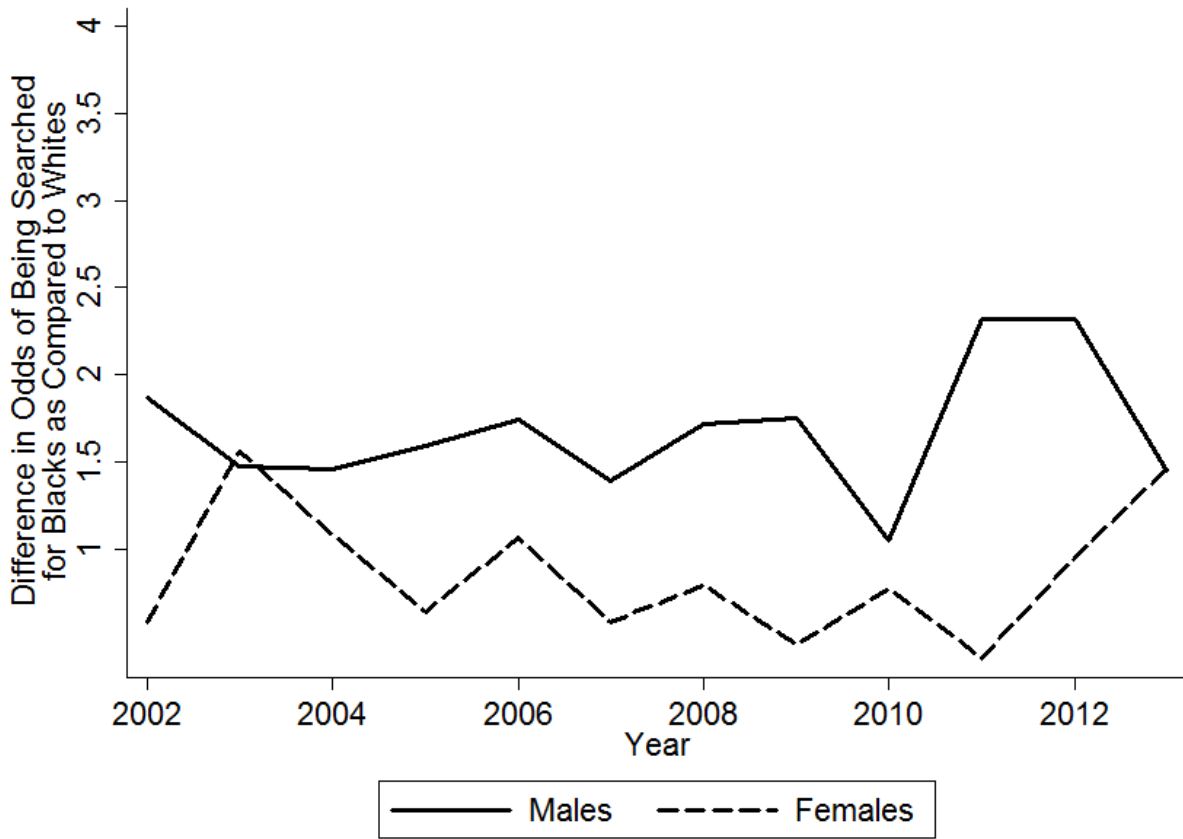
Note: Entries are odds-ratios, with standard errors in parenthesis.

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	1,248	56.57	36.41
Speed Limit	120	60.00	27.50
Stop Light/Sign	68	47.06	51.47
Driving Impaired	97	70.10	14.43
Safe Movement	124	61.29	36.29
Vehicle Equipment	298	56.71	32.55
Vehicle Regulatory	186	49.46	45.16
Seat Belt	75	56.00	44.00
Investigation	164	57.32	35.37
Other Vehicle	102	53.92	43.14

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	54,496	-	70.09	22.49	-
Total Searches	2,153	3.95	3.24	5.50	1.70
Speed Limit	17,129	1.72	1.43	2.36	1.65
Stop Light/Sign	2,854	3.50	2.63	5.49	2.09
Driving Impaired	752	38.03	38.95	34.00	0.87
Safe Movement	3,442	7.90	6.94	9.15	1.32
Vehicle Equipment	8,562	5.03	4.27	6.20	1.45
Vehicle Regulatory	11,316	2.24	1.66	3.77	2.27
Seat Belt	4,610	1.97	1.77	3.10	1.75
Investigation	2,784	7.29	5.92	10.79	1.82
Other Vehicle	3,047	7.25	6.13	11.88	1.94

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	35,293	-	71.18	25.70	-
Total Searches	518	1.47	1.51	1.46	0.97
Speed Limit	13,412	0.44	0.42	0.50	1.19
Stop Light/Sign	1,763	0.96	0.73	1.75	2.40
Driving Impaired	203	30.54	33.09	28.30	0.86
Safe Movement	1,777	3.66	3.85	3.60	0.94
Vehicle Equipment	4,544	2.46	2.79	2.02	0.72
Vehicle Regulatory	8,617	0.96	0.98	0.95	0.97
Seat Belt	1,996	0.95	0.92	1.19	1.29
Investigation	1,465	3.89	4.14	3.33	0.80
Other Vehicle	1,517	2.90	3.65	1.70	0.47

Table A4. Type of Search by Race: Men

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	54,496	-	70.09	22.49	-
Total Searches	2,153	3.95	3.24	5.50	1.70
Consent	784	1.44	1.23	2.21	1.80
Search Warrant	24	-	-	-	-
Probable Cause	177	0.32	0.26	0.61	2.35
Incident to Arrest	1,145	2.10	1.68	2.54	1.51
Protective Frisk	23	0.04	0.02	0.11	5.50

Table A5. Type of Search by Race: Women

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	35,293	-	71.18	25.70	-
Total Searches	518	1.47	1.51	1.46	0.97
Consent	219	0.62	0.70	0.45	0.64
Search Warrant	7	-	-	-	-
Probable Cause	43	0.12	0.11	0.18	1.64
Incident to Arrest	246	0.70	0.68	0.79	1.16
Protective Frisk	3	0.01	0.00	0.02	n/a

Figure A6. Stops by Day of the Week

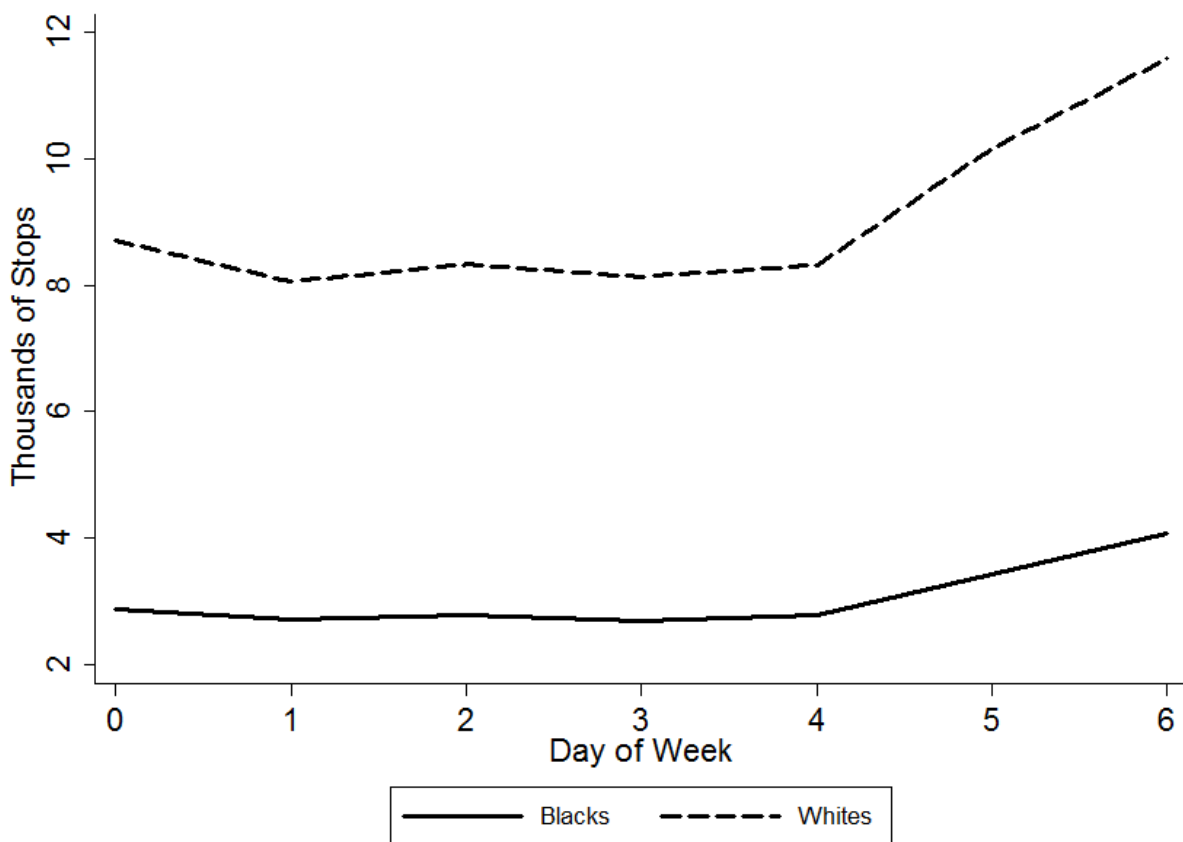


Figure A7. Searches by Day of the Week

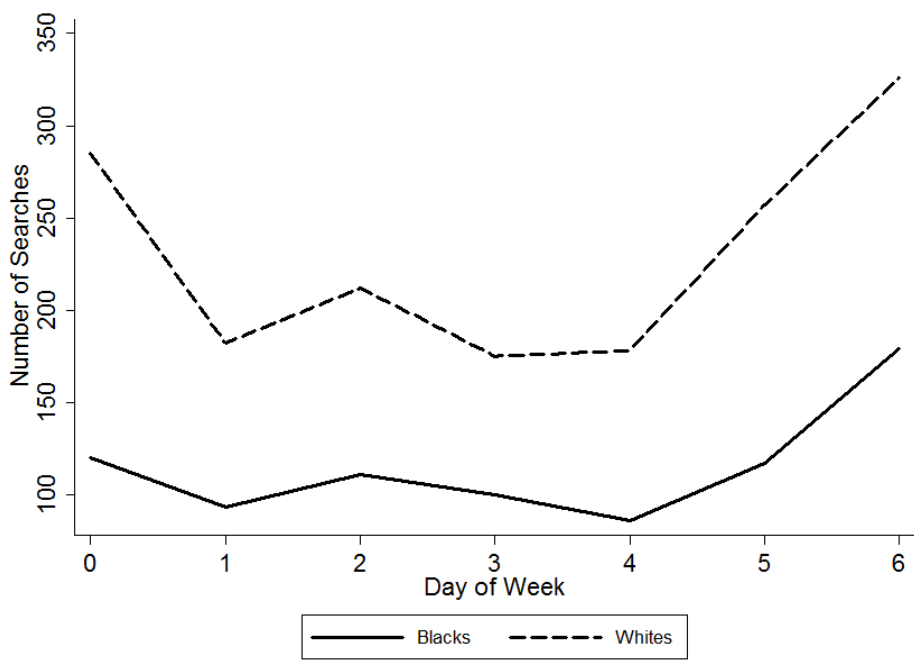
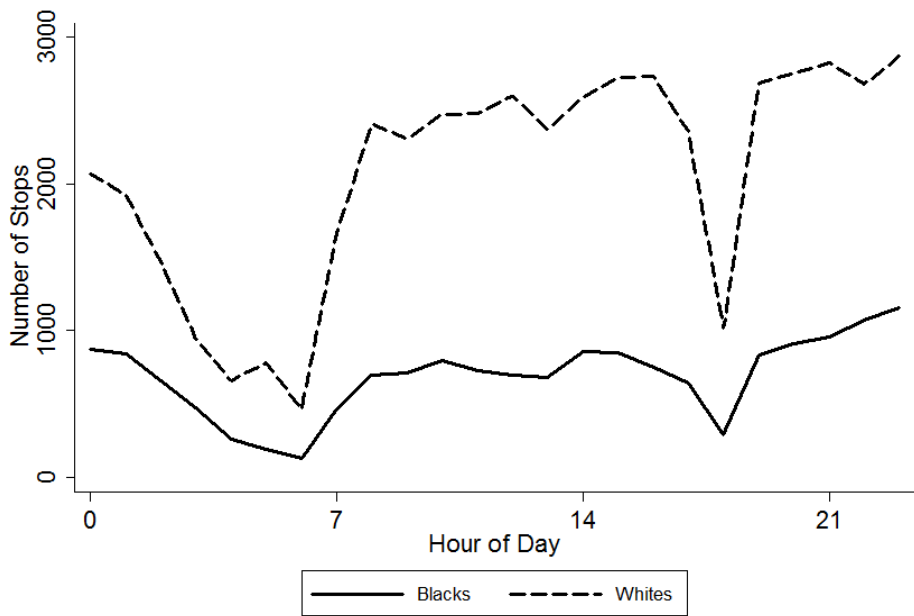
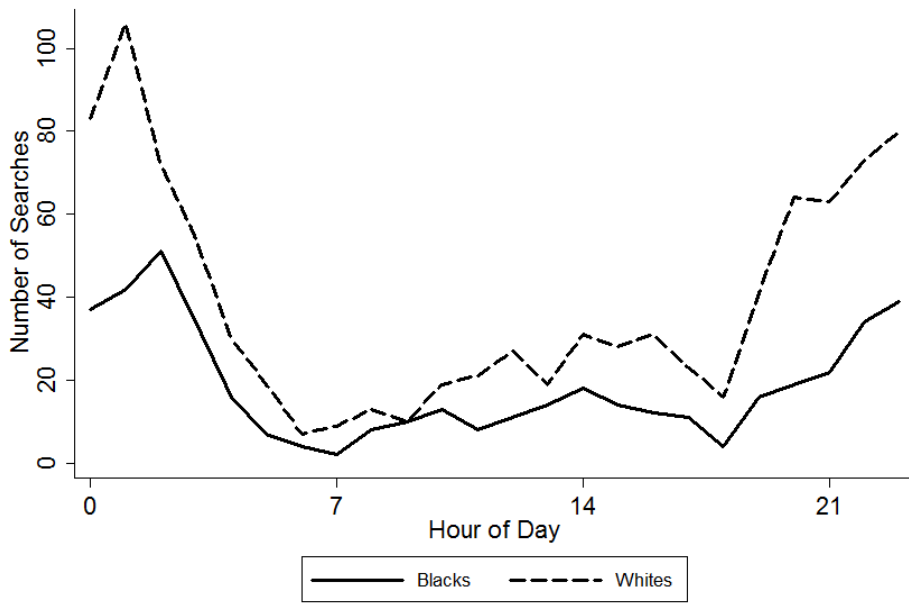


Figure A8. Stops by Hour of the Day



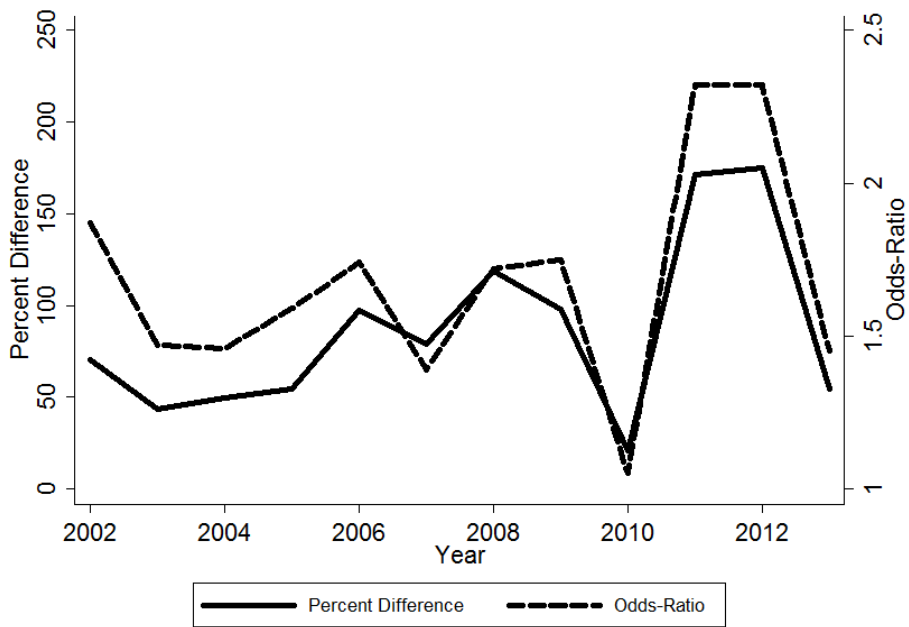
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

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: 0.916

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

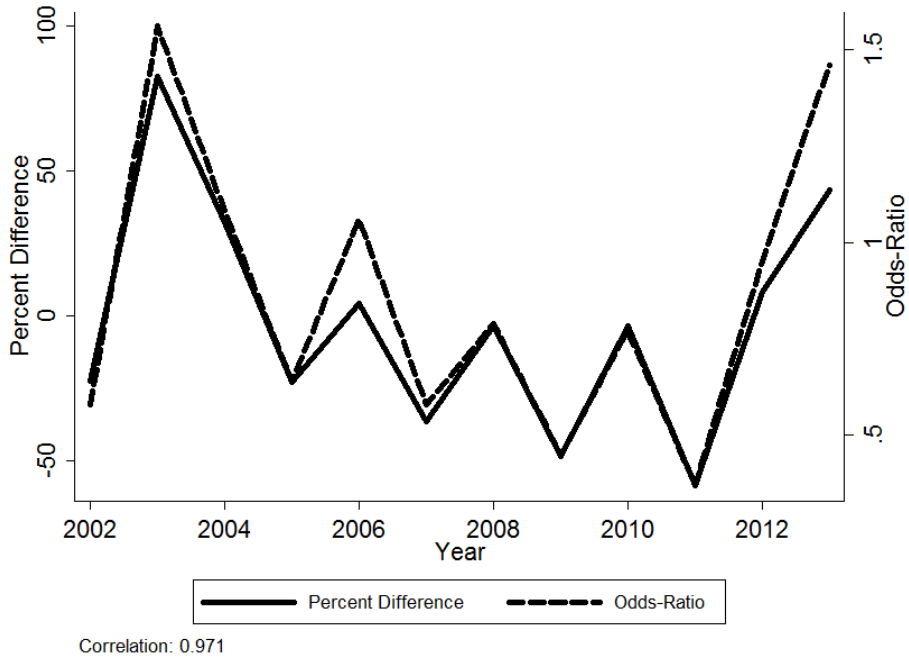


Figure A12. Racial Differences in the Likelihood of Search: Consent Searches Only

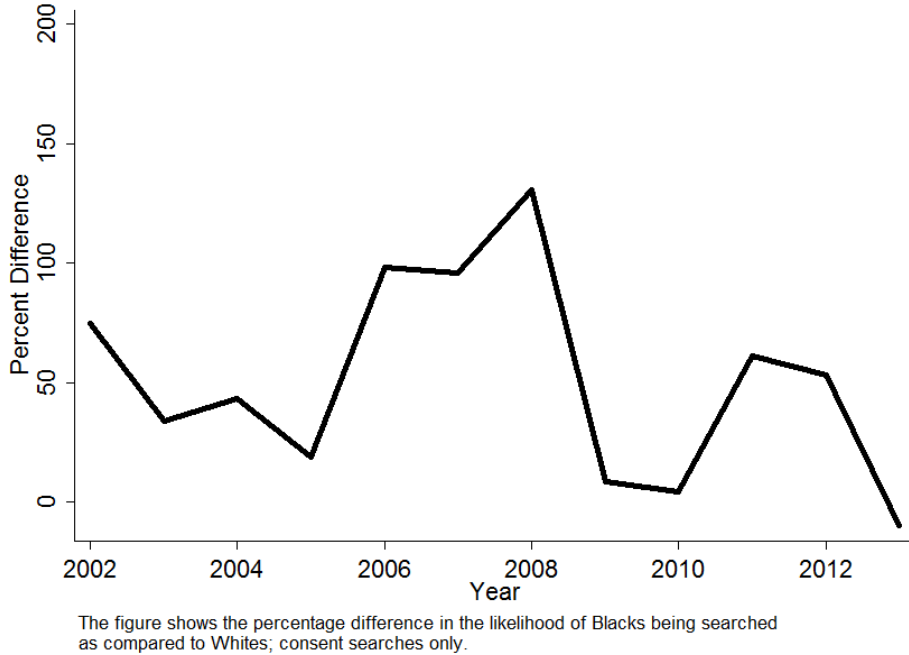


Table A6. Likelihood of Finding Contraband Given a Search, by Race

Contraband	Number	% Total	% White	% Black
Yes	857	32.09	33.31	32.13
No	1,814	67.91	66.69	67.87
Total	2,671	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	61,701	1.66	14.15	12.37	71.22	0.60	100.0
Black	No	20,519	1.59	17.23	11.00	69.50	0.68	100.0
Total	No	87,118	1.63	14.69	11.64	71.38	0.66	100.0
White	Yes	1,615	1.18	7.99	1.49	35.60	53.75	100.0
Black	Yes	806	1.24	5.96	1.86	40.32	50.62	100.0
Total	Yes	2,671	1.27	6.81	1.54	35.60	54.77	100.0