

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

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	92,725
-2014	2,029
-Passengers	6,266
-Checkpoint stops	0
Total number of cases deleted	8,200
Stops for analysis	84,525
Searches	9,306
Percent of stops leading to search (search rate)	11.01

Figure 1. Number of Traffic Stops per Year

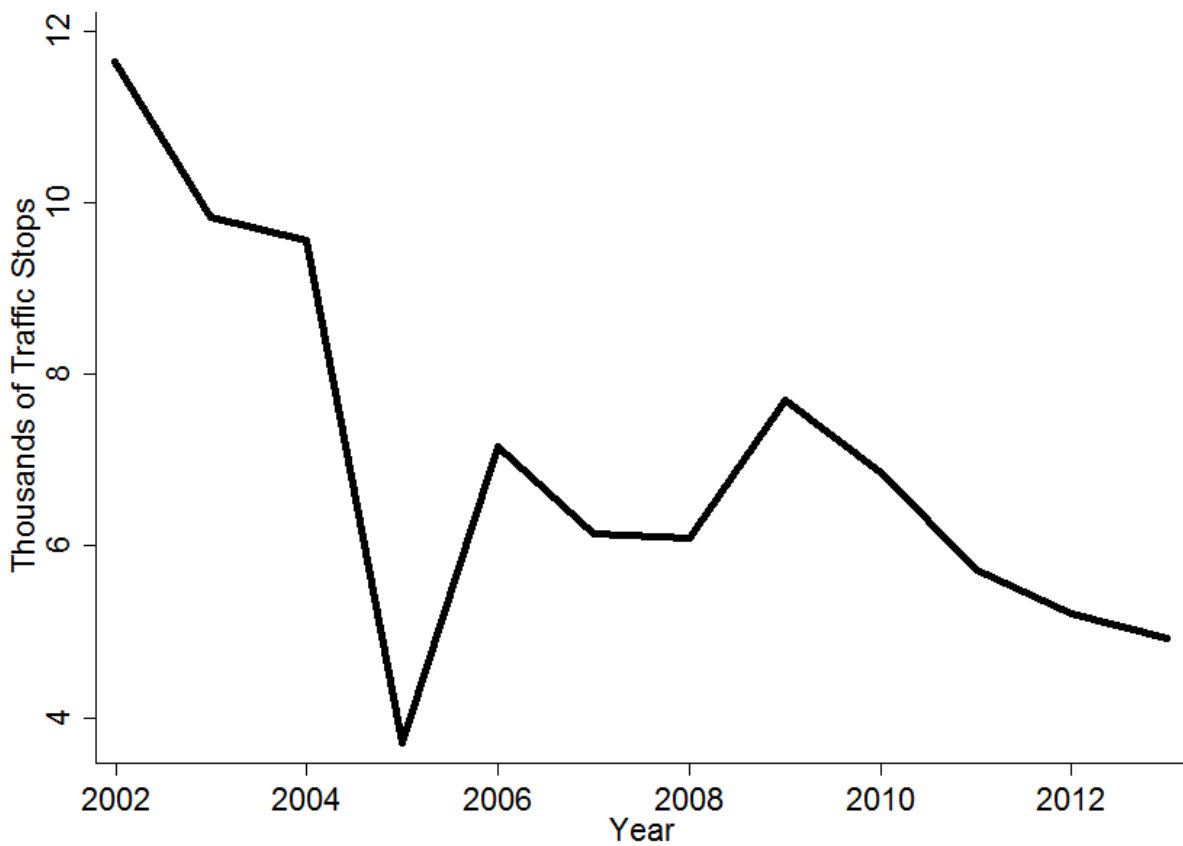


Figure 2. Racial Composition of Traffic Stops by Year

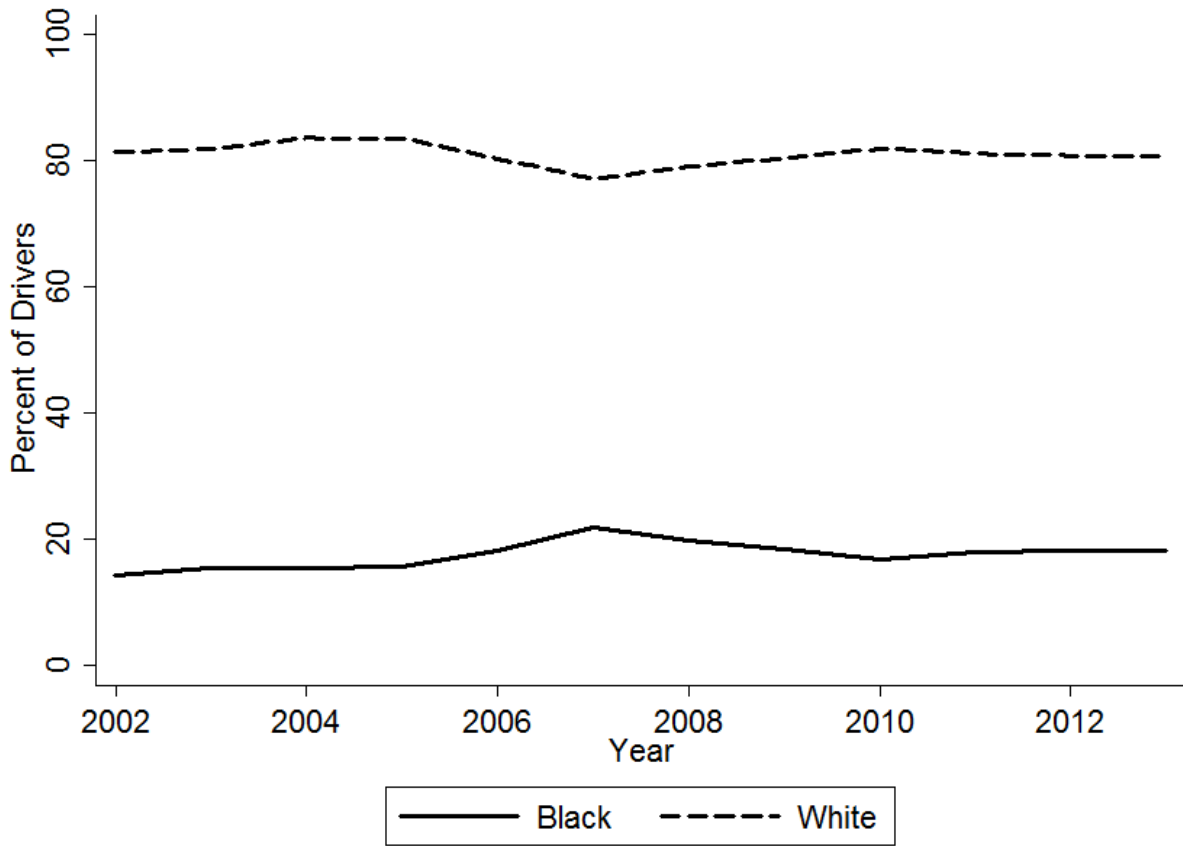


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	84,525	80.98	17.14
Speed Limit	23,408	82.10	15.63
Stop Light/Sign	4,255	84.16	14.10
Driving Impaired	811	81.26	14.67
Safe Movement	6,371	79.14	18.18
Vehicle Equipment	15,771	80.98	17.68
Vehicle Regulatory	20,330	79.22	19.29
Seat Belt	5,545	84.38	14.23
Investigation	4,170	81.06	17.19
Other Vehicle	3,864	77.87	19.07

Note: Includes only drivers. Excludes 0 checkpoint stops. Excludes 6,266 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	84,525	-	80.98	17.14	-
Total Searches	9,306	11.01	10.77	12.22	1.13
Speed Limit	23,408	6.07	5.76	7.96	1.38
Stop Light/Sign	4,255	7.12	7.23	7.00	0.97
Driving Impaired	811	50.55	50.99	48.74	0.96
Safe Movement	6,371	14.36	13.98	15.80	1.13
Vehicle Equipment	15,771	13.06	12.92	13.55	1.05
Vehicle Regulatory	20,330	9.45	9.07	10.94	1.21
Seat Belt	5,545	16.38	16.09	18.12	1.13
Investigation	4,170	21.44	21.75	20.50	0.94
Other Vehicle	3,864	12.27	12.10	13.43	1.11

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

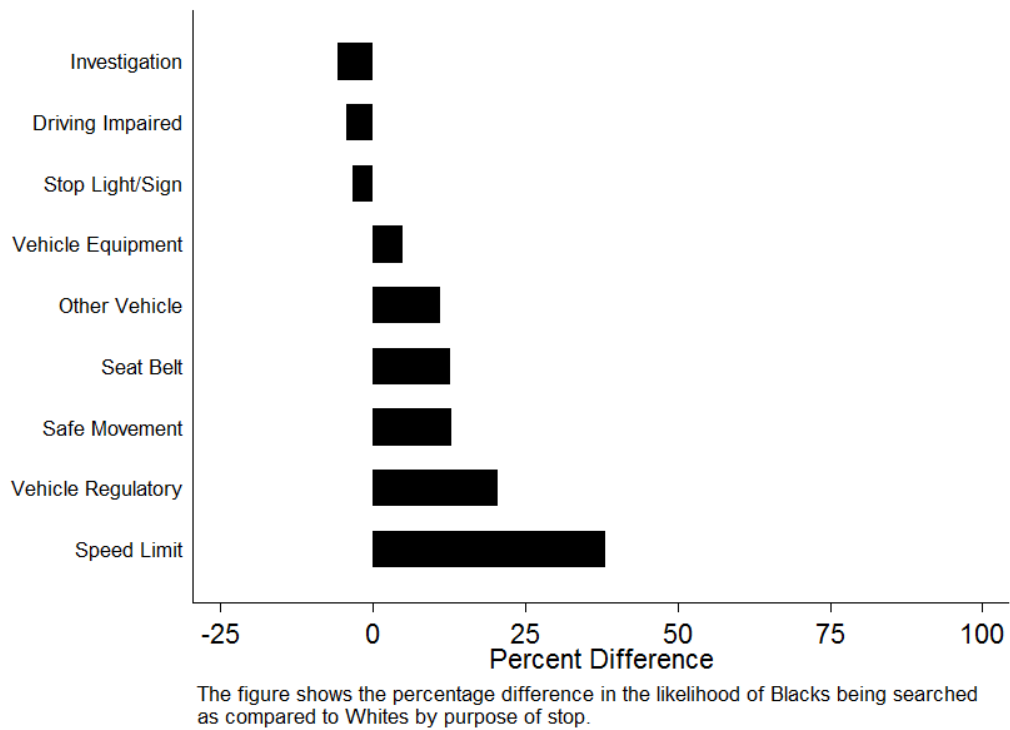


Figure 4. Racial Differences in the Likelihood of Search

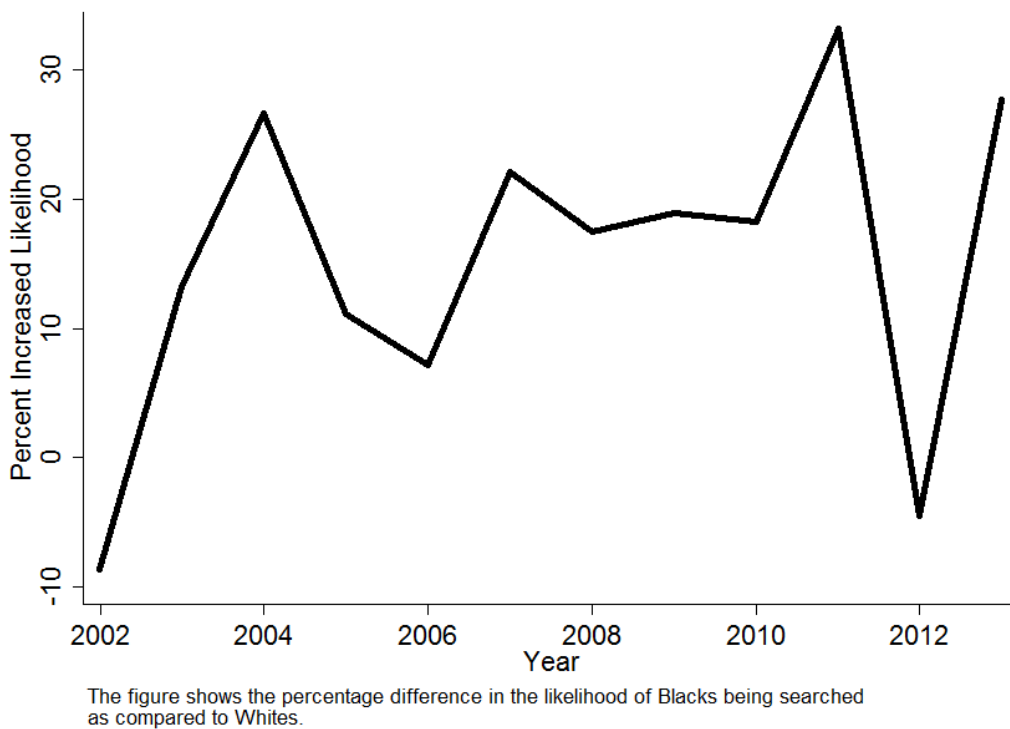
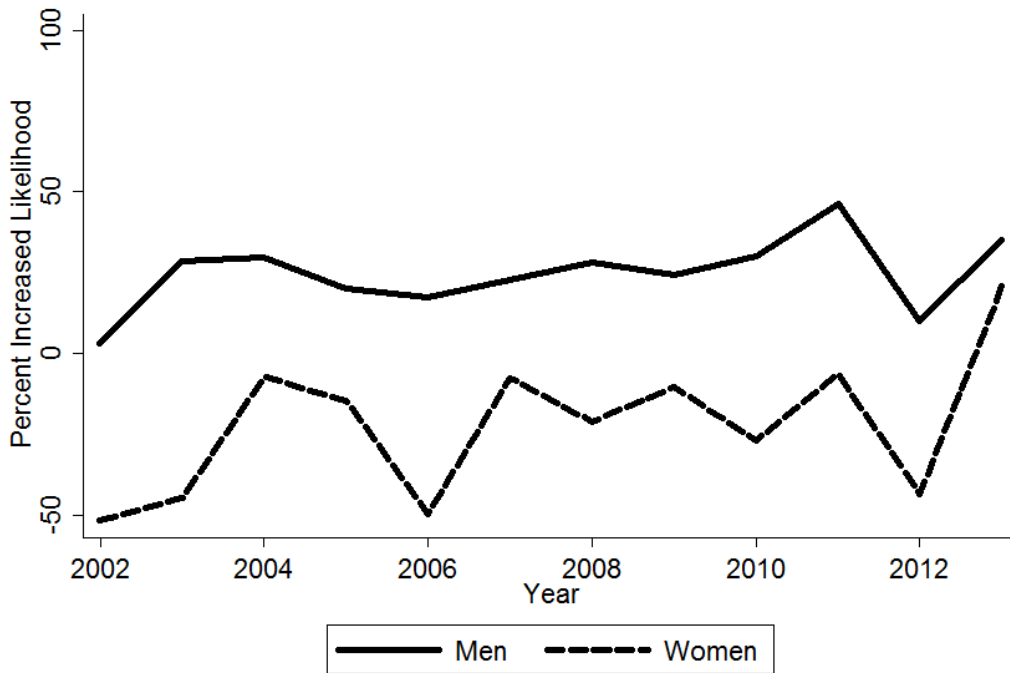
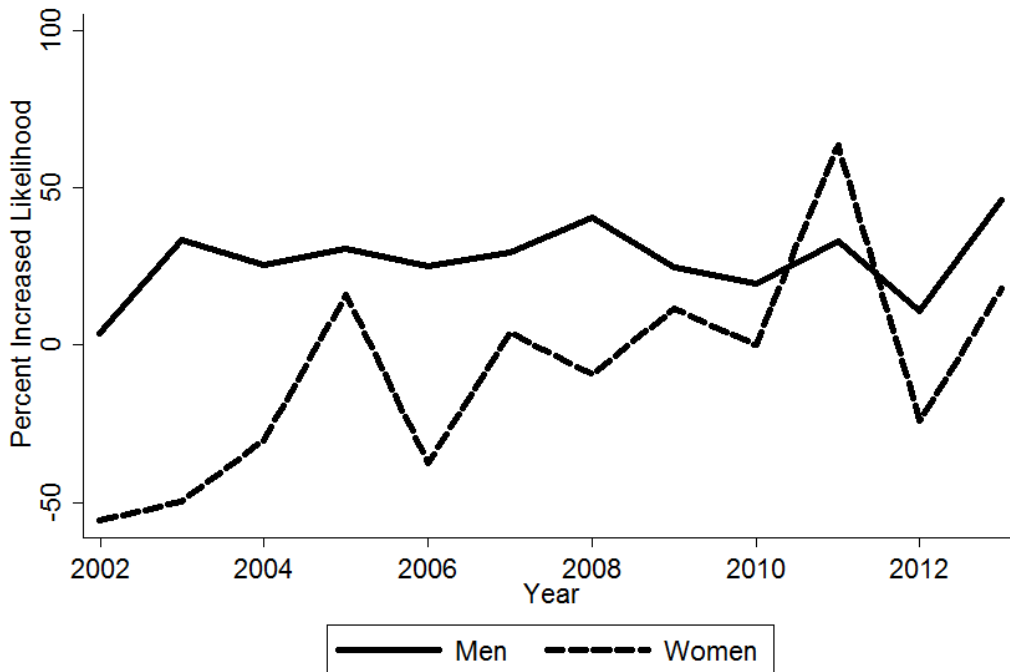


Figure 5. Racial Differences in the Likelihood of Search by Gender



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

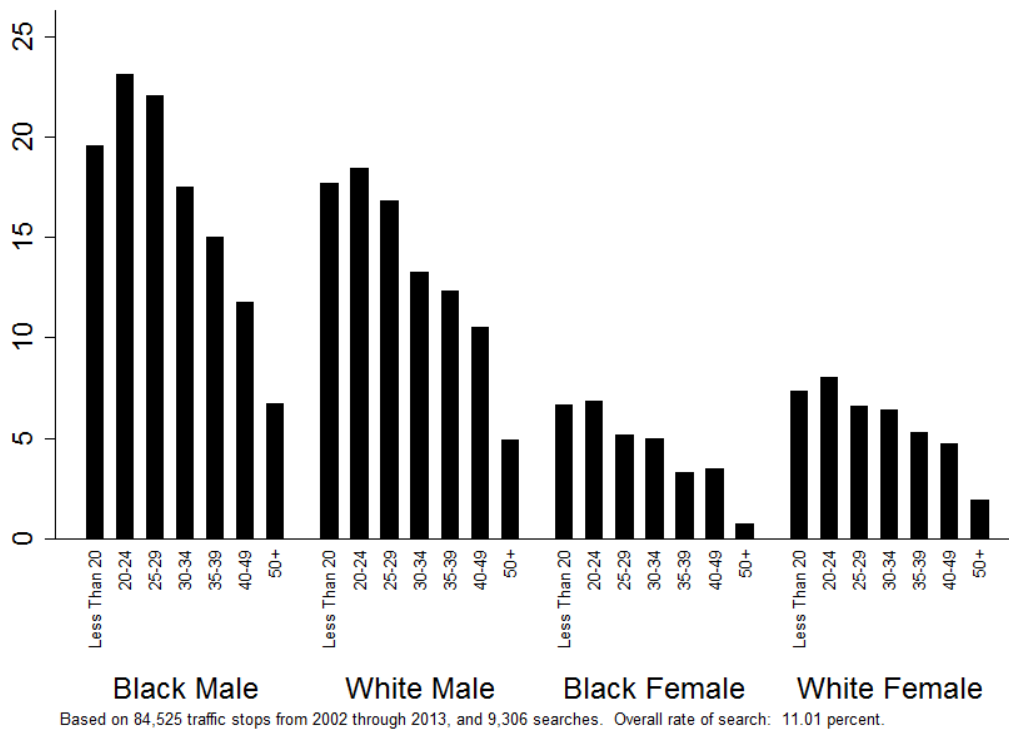


Figure 8. Number of Stops, by Race and Gender

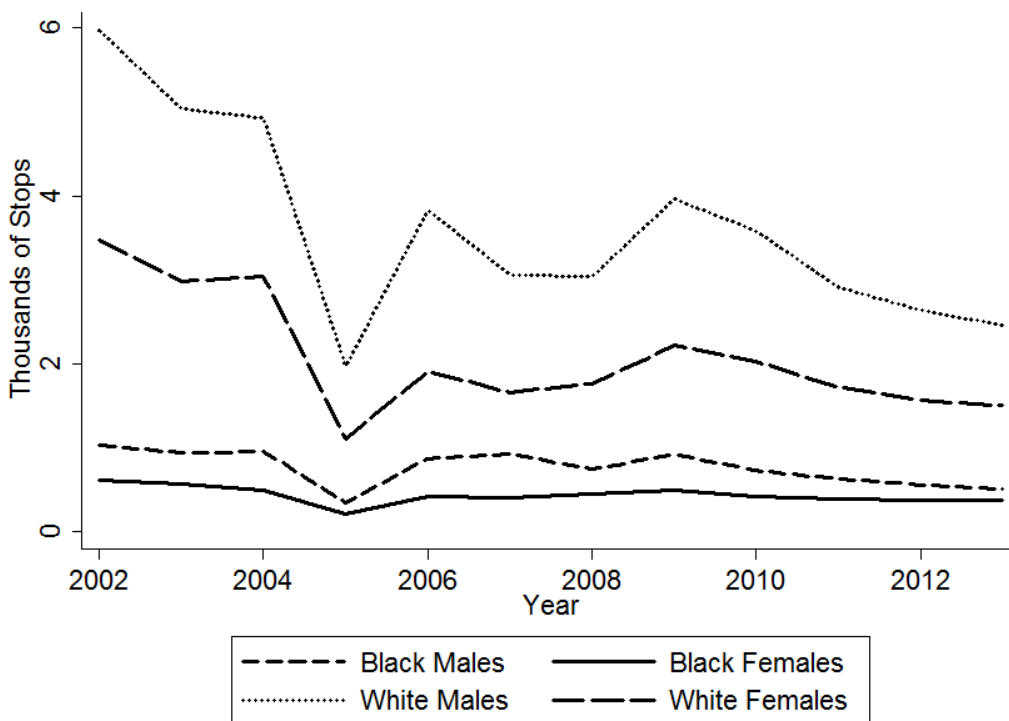


Figure 9. Percent of Stops Resulting in a Search, by Race and Gender

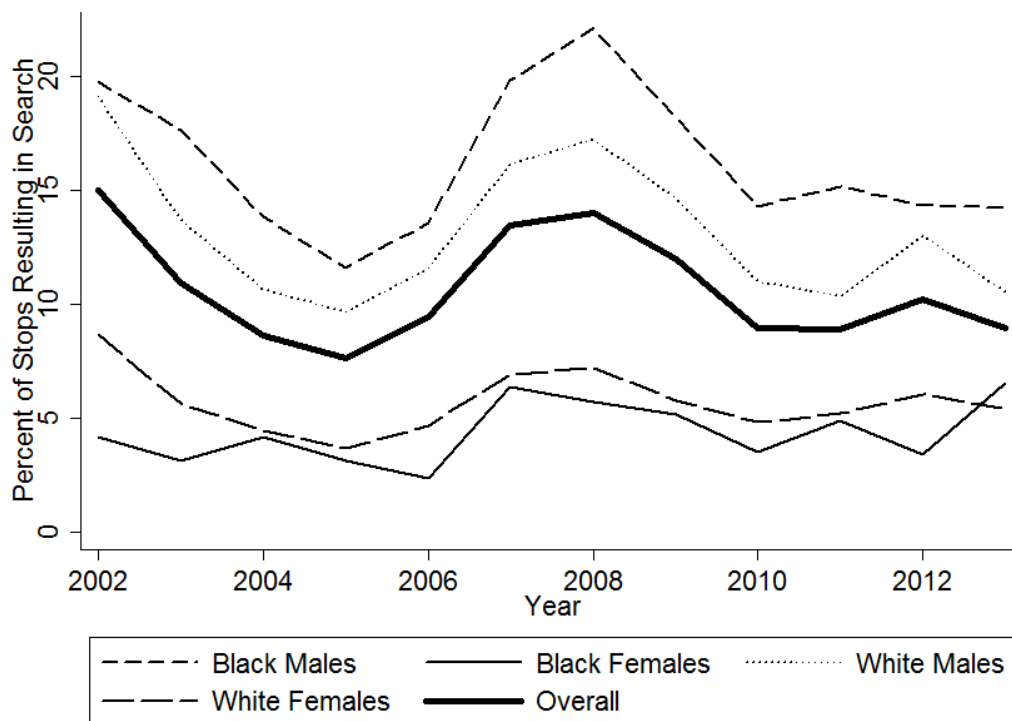


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	84,525	-	80.98	17.14	-
Total Searches	9,306	11.01	10.77	12.22	1.13
Consent	6,485	7.67	7.75	7.48	0.97
Search Warrant	7	0.01	0.00	0.03	-
Probable Cause	806	0.95	0.85	1.50	1.76
Incident to Arrest	1,832	2.17	1.98	2.95	1.49
Protective Frisk	176	0.21	0.19	0.27	1.42

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	432	55.67	55.67	0.51	0.51
2 – 10	165	21.26	76.93	0.62	1.13
11 - 100	45	5.80	82.73	2.32	3.45
101 – 1,000	113	14.56	97.29	56.57	60.02
1,001 +	21	2.71	100.00	39.98	100.00
Total	776	100	-	100	-

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

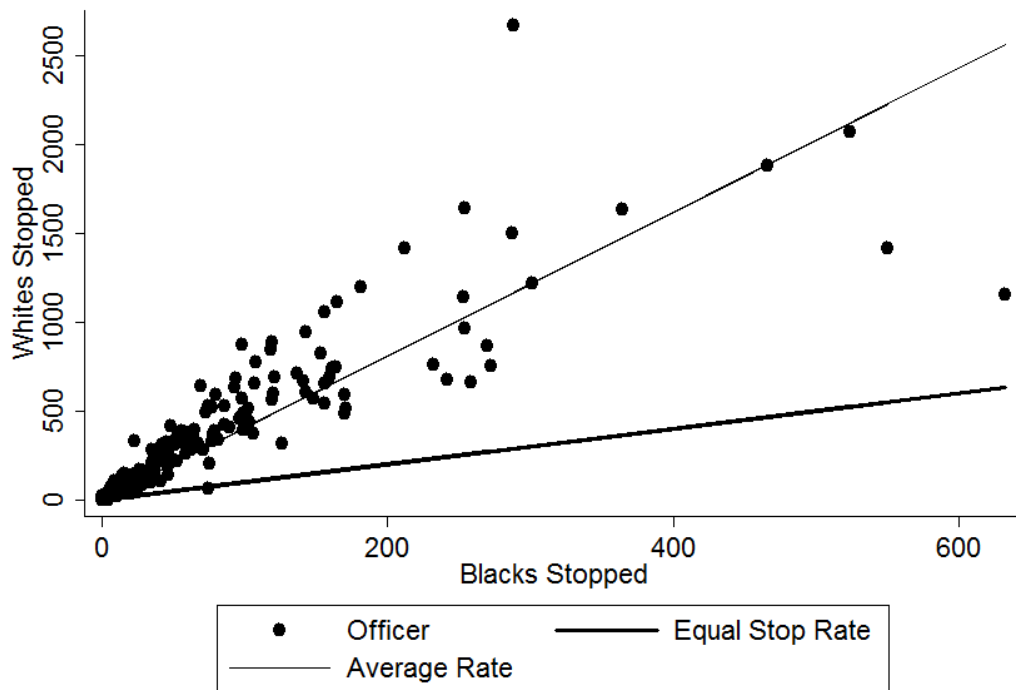


Figure 11. Number of Black and White Motorists Searched, by Officer

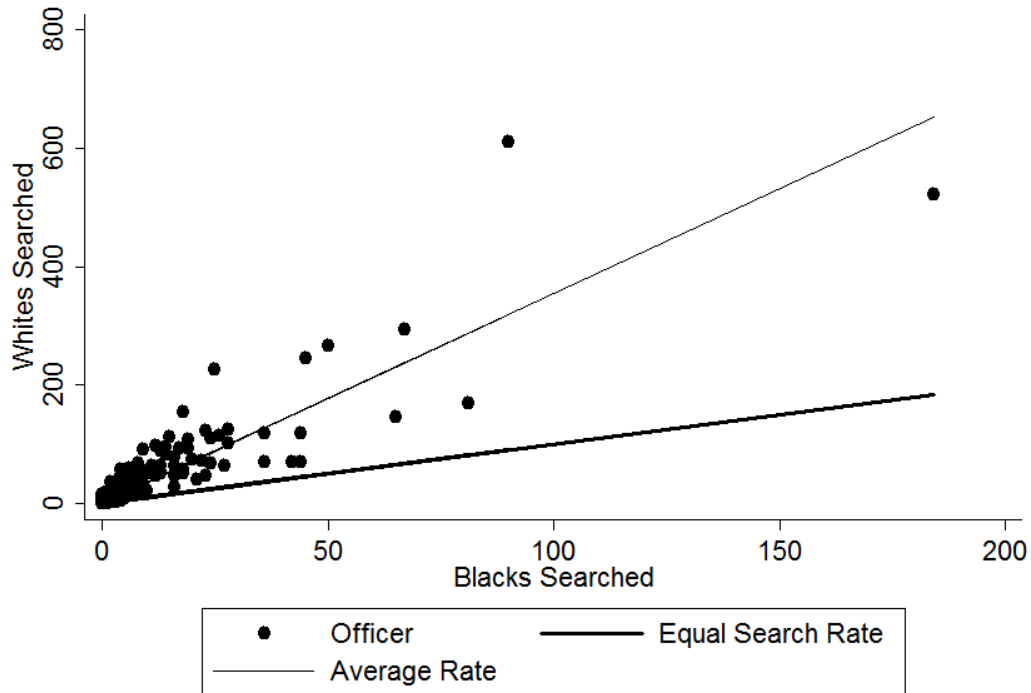


Figure 12. Percent of White and Black Drivers Searched, by Officer

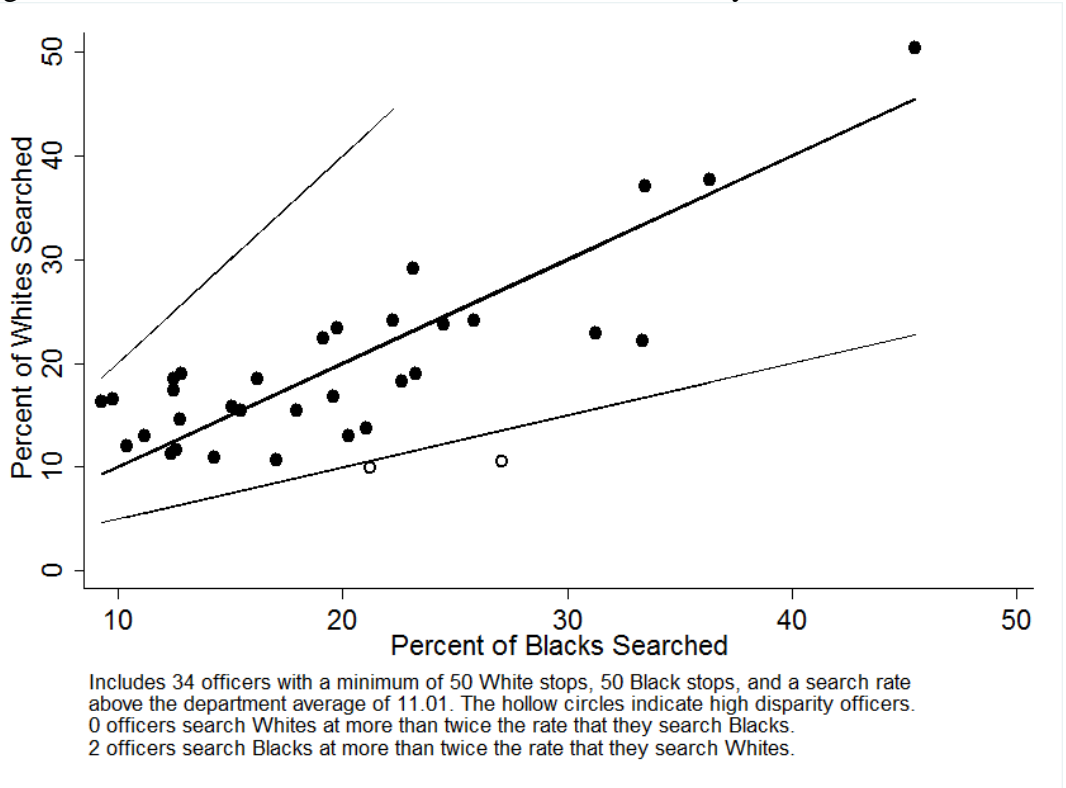


Table 6. Predicting the Occurrence of a Search by Gaston County Police Officers for Male Motorists with Odds-Ratios and Standard Errors in Parentheses, 2002-2013

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Demographics					
Race	1.30*(0.04)	1.34*(0.04)	1.33*(0.04)	1.33*(0.04)	1.20*(0.08)
Hispanic	1.31*(0.06)	1.21*(0.06)	1.15*(0.06)	1.15*(0.06)	1.06 (0.10)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.15 (0.09)	1.15 (0.09)	1.40*(0.23)
Impaired	-	-	14.47*(1.32)	14.59*(1.33)	19.59*(3.33)
Movement	-	-	2.25*(0.12)	2.26*(0.12)	3.40*(0.35)
Equipment	-	-	1.99*(0.08)	1.99*(0.08)	2.34*(0.20)
Regulatory	-	-	1.58*(0.07)	1.59*(0.07)	1.74*(0.16)
Seat Belt	-	-	2.67*(0.13)	2.67*(0.13)	1.93*(0.21)
Investigation	-	-	3.59*(0.19)	3.60*(0.19)	3.77*(0.41)
Other	-	-	1.82*(0.12)	1.82*(0.12)	2.02*(0.25)
Officer Type					
Black Disparity [†]	-	-	-	0.84 (0.10)	0.85 (0.20)
White Disparity [‡]	-	-	-	Omitted	Omitted
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.15*(0.00)	0.46*(0.02)	0.26*(0.01)	0.26*(0.01)	0.23*(0.04)
N	52,648	52,648	52,648	52,648	14,480
Pseudo R²	0.00	0.03	0.06	0.06	0.07

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.

* = Significant at 0.05 p-value

† = Coded 1 for 2 officers who searched Blacks at twice the rate of Whites; otherwise zero.

Officers with fewer than 50 searches of Black motorists are automatically coded zero.

‡ = Coded 1 for 0 officers who searched Whites at twice the rate of Blacks; otherwise zero.

Officers with fewer than 50 searches of White motorists are automatically coded zero.

Table 7. Predicting the Occurrence of a Search by Gaston County Police Officers for Female Motorists with Odds-Ratios and Standard Errors in Parentheses, 2002-2013

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Demographics					
Race	0.73*(0.05)	0.76*(0.05)	0.75*(0.05)	0.75*(0.05)	0.71*(0.12)
Hispanic	0.83 (0.14)	0.81 (0.13)	0.75 (0.13)	0.75 (0.13)	0.81 (0.30)
Age	-	0.97*(0.00)	0.97*(0.00)	0.97*(0.00)	0.97*(0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.64*(0.24)	1.64*(0.24)	1.60 (0.52)
Impaired	-	-	29.61*(4.88)	29.78*(4.92)	47.40*(15.23)
Movement	-	-	3.68*(0.41)	3.69*(0.41)	5.25*(1.12)
Equipment	-	-	3.43*(0.29)	3.43*(0.29)	2.92*(0.53)
Regulatory	-	-	2.30*(0.20)	2.30*(0.20)	2.19*(0.39)
Seat Belt	-	-	2.61*(0.33)	2.62*(0.33)	1.72*(0.45)
Investigation	-	-	6.15*(0.68)	6.16*(0.68)	4.13*(0.97)
Other	-	-	3.39*(0.43)	3.40*(0.43)	1.95*(0.53)
Officer Type					
Black Disparity [†]	-	-	-	0.87 (0.23)	1.28 (0.69)
White Disparity [‡]	-	-	-	Omitted	Omitted
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.06*(0.00)	0.17*(0.01)	0.07*(0.01)	0.07*(0.01)	0.07*(0.02)
N	30,286	30,286	30,286	30,286	8,347
Pseudo R²	0.00	0.02	0.06	0.06	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.

* = Significant at 0.05 p-value

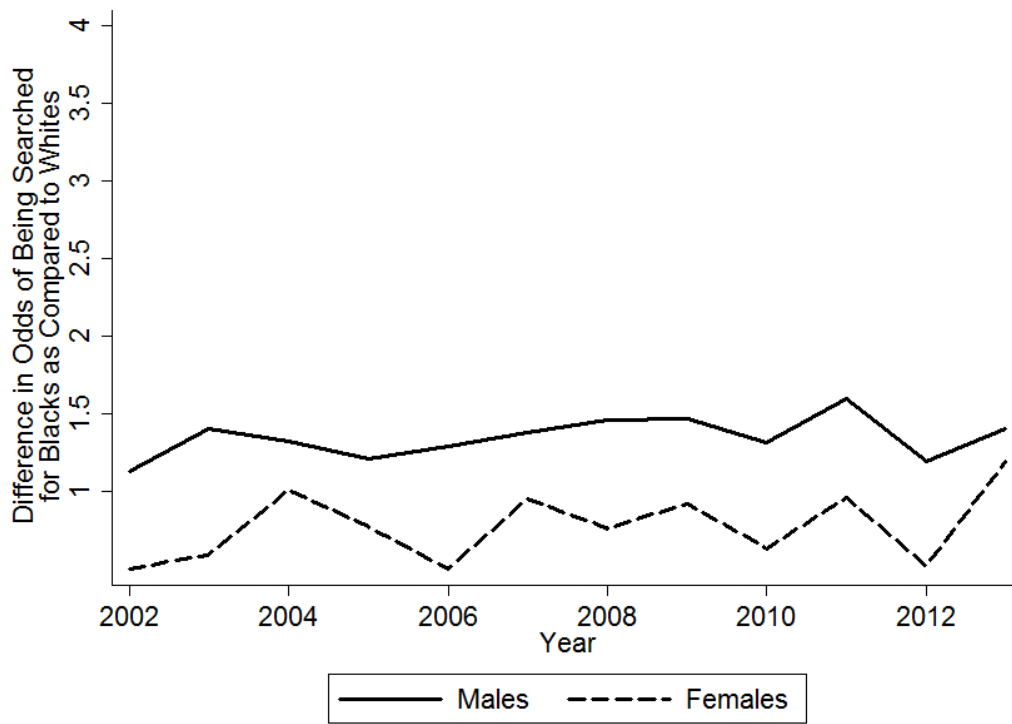
† = Coded 1 for 2 officers who searched Blacks at twice the rate of Whites; otherwise zero.

Officers with fewer than 50 searches of Black motorists are automatically coded zero.

‡ = Coded 1 for 0 officers who searched Whites at twice the rate of Blacks; otherwise zero.

Officers with fewer than 50 searches of White motorists are automatically coded zero.

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	6,266	78.22	19.81
Speed Limit	820	73.05	25.24
Stop Light/Sign	180	80.00	18.89
Driving Impaired	160	84.38	10.00
Safe Movement	674	77.74	20.03
Vehicle Equipment	1,593	80.60	17.89
Vehicle Regulatory	1,142	75.48	21.98
Seat Belt	682	81.38	17.60
Investigation	727	79.92	18.84
Other Vehicle	288	75.35	19.44

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	53,900	-	80.57	17.11	-
Total Searches	7,588	14.08	13.57	16.68	1.23
Speed Limit	14,284	8.42	7.89	11.85	1.50
Stop Light/Sign	2,628	9.25	9.15	10.60	1.16
Driving Impaired	611	54.34	54.84	51.72	0.94
Safe Movement	4,437	17.20	16.59	19.37	1.17
Vehicle Equipment	10,240	15.88	15.38	18.02	1.17
Vehicle Regulatory	12,149	12.35	11.51	15.84	1.38
Seat Belt	4,026	20.17	19.92	22.00	1.10
Investigation	2,966	24.78	24.98	24.53	0.98
Other Vehicle	2,559	14.62	14.32	16.23	1.13

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	30,625	-	81.69	17.20	-
Total Searches	1,718	5.61	5.90	4.40	0.75
Speed Limit	9,124	2.40	2.47	2.06	0.83
Stop Light/Sign	1,627	3.69	4.15	1.29	0.31
Driving Impaired	200	39.00	39.26	40.62	1.03
Safe Movement	1,934	7.86	8.12	7.12	0.88
Vehicle Equipment	5,531	7.85	8.41	5.38	0.64
Vehicle Regulatory	8,181	5.13	5.46	3.91	0.72
Seat Belt	1,519	6.32	6.36	5.82	0.92
Investigation	1,204	13.21	14.12	9.09	0.64
Other Vehicle	1,305	7.66	7.88	7.56	0.96

Table A4. Type of Search by Race: Men

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	53,900	-	80.57	17.11	-
Total Searches	7,588	14.08	13.57	16.68	1.23
Consent	5,282	9.80	9.77	10.26	1.05
Search Warrant	7	0.01	0.01	0.04	4.00
Probable Cause	656	1.22	1.06	2.06	1.94
Incident to Arrest	1,484	2.75	2.47	3.93	1.59
Protective Frisk	159	0.29	0.27	0.39	1.44

Table A5. Type of Search by Race: Women

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	30,625	-	81.69	17.20	-
Total Searches	1,718	5.61	5.90	4.40	0.75
Consent	1,203	3.93	4.24	2.60	0.61
Search Warrant	0	-	-	-	-
Probable Cause	150	0.49	0.49	0.51	1.04
Incident to Arrest	348	1.14	1.12	1.23	1.10
Protective Frisk	17	0.06	0.06	0.06	1.00

Figure A6. Stops by Day of the Week

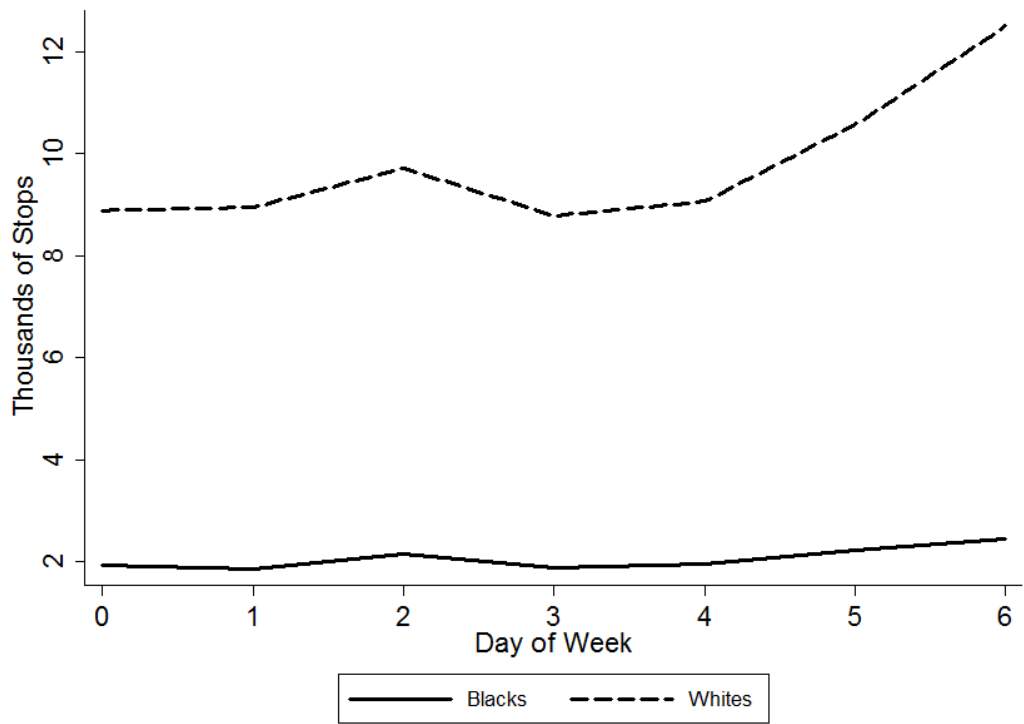


Figure A7. Searches by Day of the Week

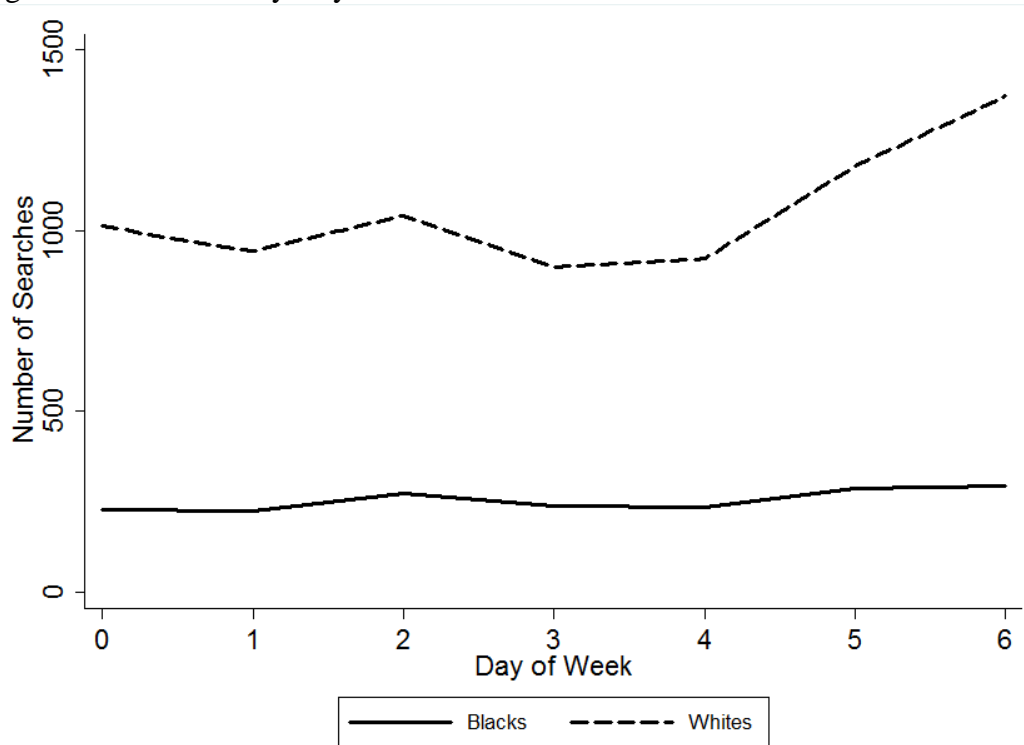
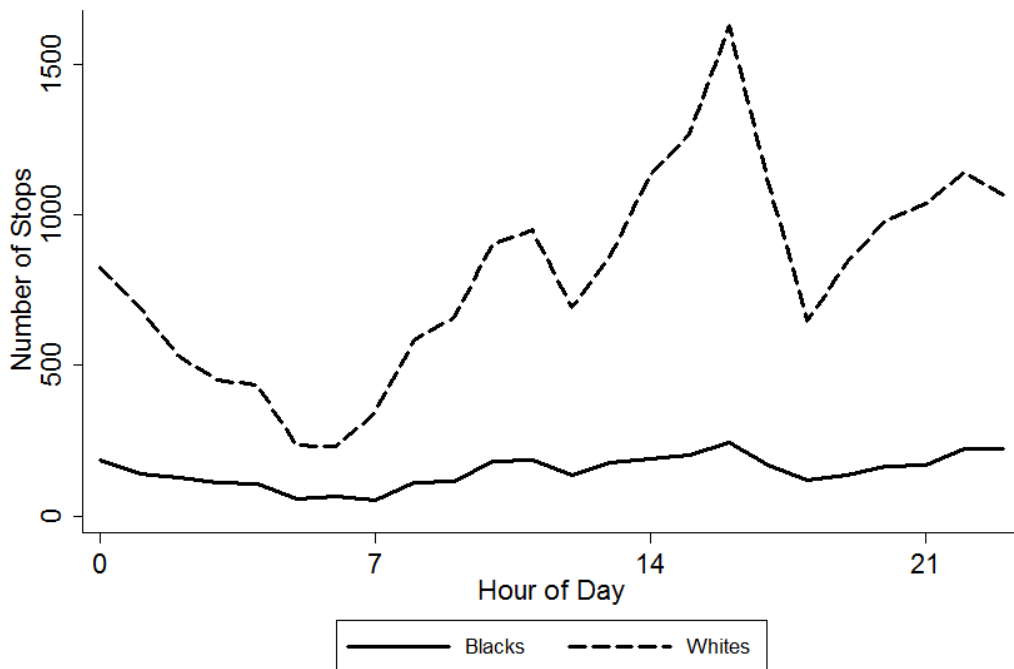
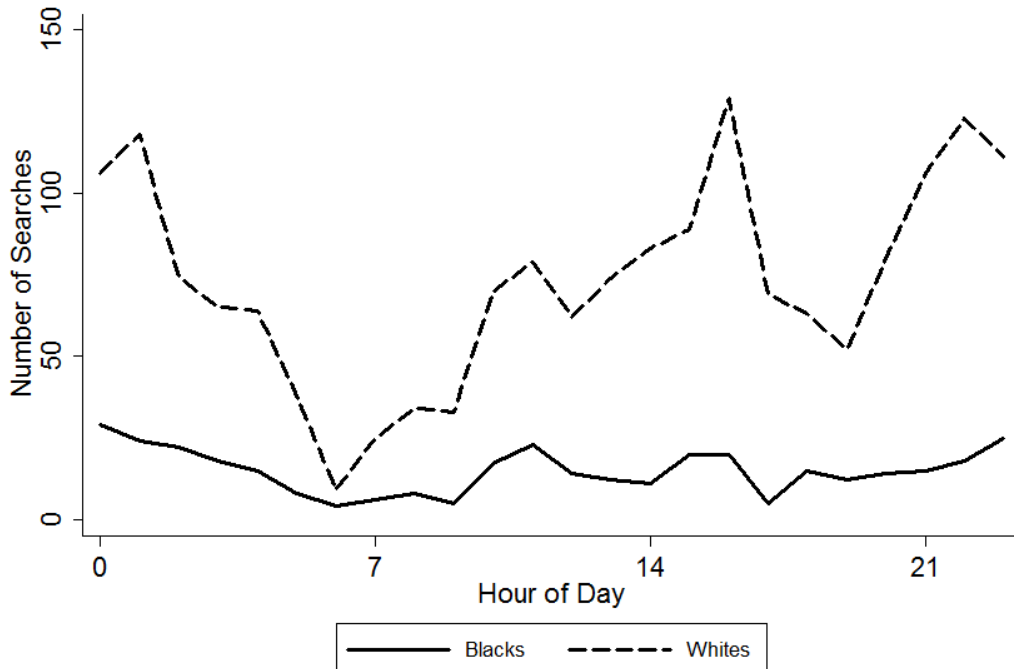


Figure A8. Stops by Hour of the Day



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



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

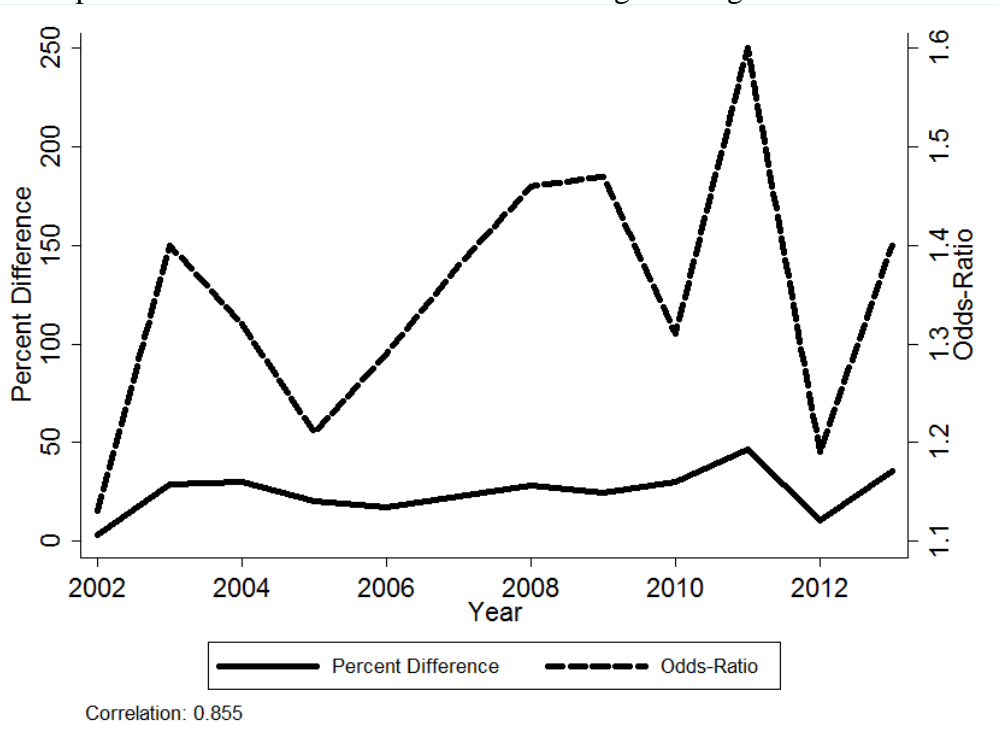


Figure A11. Correlation Between Percent Difference in Likelihood of Black Women being Searched as Compared to Whites and Odds-Ratios from Logistic Regression

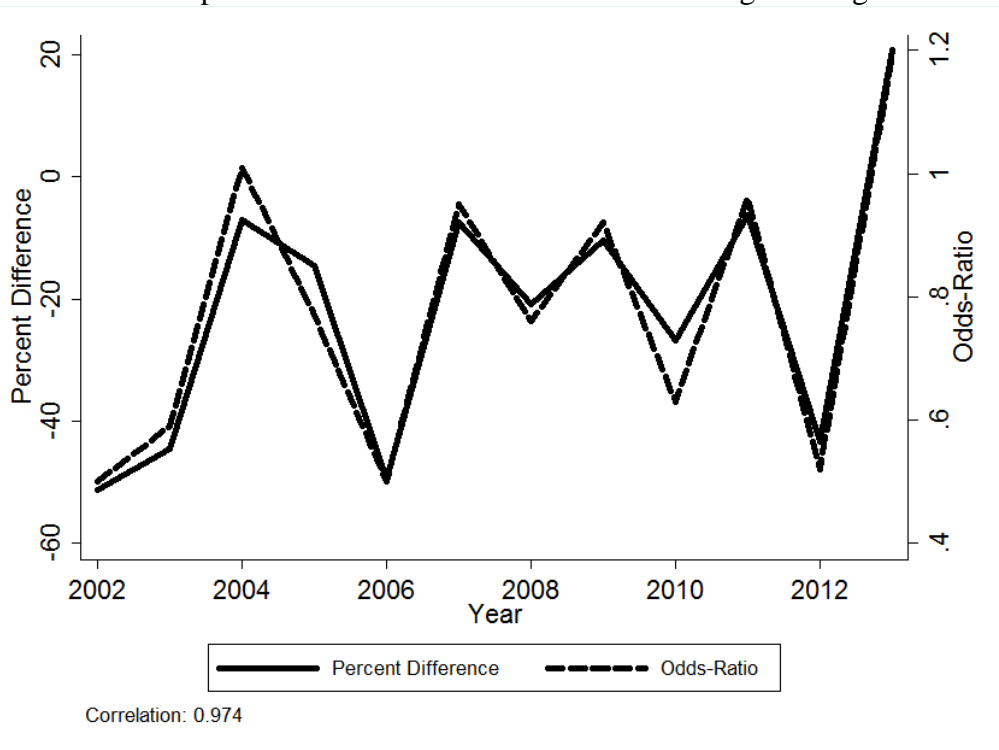
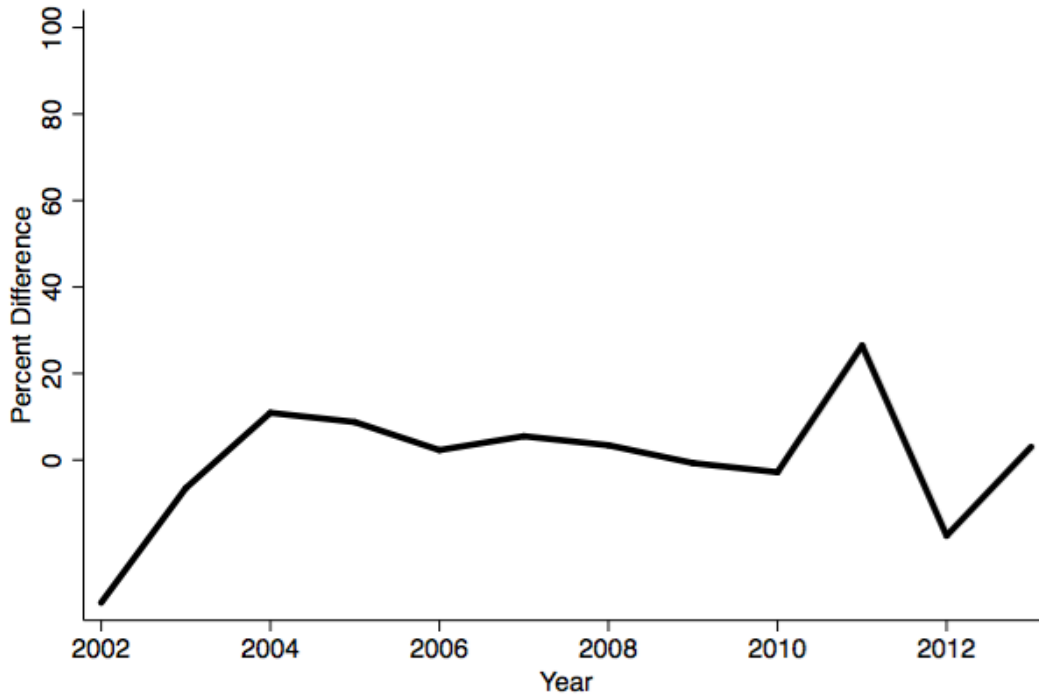


Figure A12. Racial Differences in the Likelihood of Search: Consent Searches Only



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

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

Contraband	Number	% Total	% White	% Black
Yes	4,673	50.21	49.50	54.35
No	4,633	49.79	50.50	45.65
Total	9,306	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	61,076	2.49	12.93	37.50	46.36	0.72	100.0
Black	No	12,718	2.90	16.27	35.71	44.24	0.87	100.0
Total	No	75,219	2.55	13.48	37.09	46.13	0.76	100.0
White	Yes	7,370	1.40	4.84	27.52	47.48	18.77	100.0
Black	Yes	1,770	0.56	4.52	25.03	44.80	25.08	100.0
Total	Yes	9,306	1.23	4.77	27.07	46.97	19.97	100.0