

**Analysis of Black-White Differences in Traffic Stops and Searches
for the NC State Highway Patrol, 2002-2013**

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Table 1. Overview of the Data

Data Subsets	Observations
Total stops	8,426,400
-2014	215,150
-Passengers	20,185
-Checkpoint stops	126,605
Total number of cases deleted	354,165
Stops for analysis	8,072,235
Searches	59,257
Percent of stops leading to search (search rate)	0.73%

Search Rate = 0.73

Figure 1. Number of Traffic Stops per Year

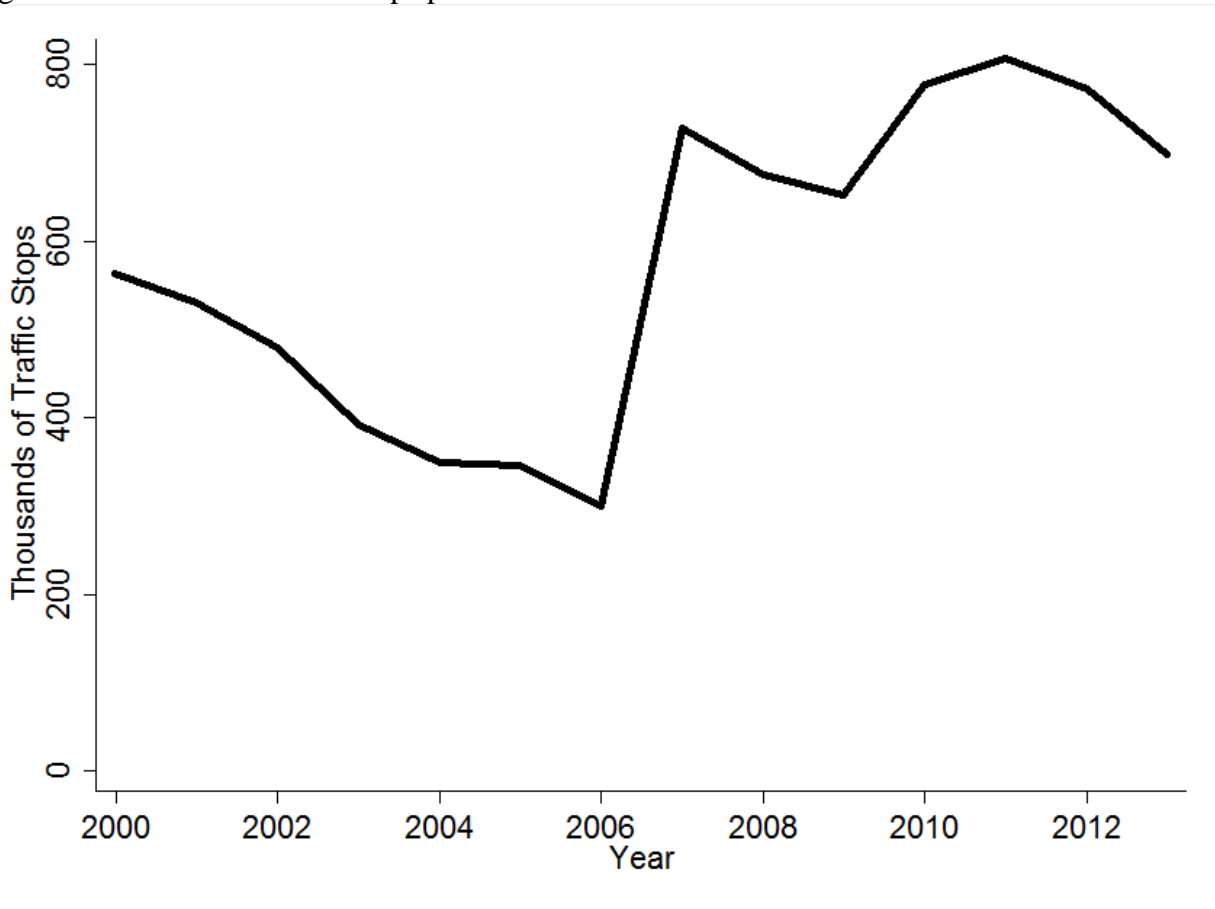


Figure 2. Racial Composition of Traffic Stops by Year

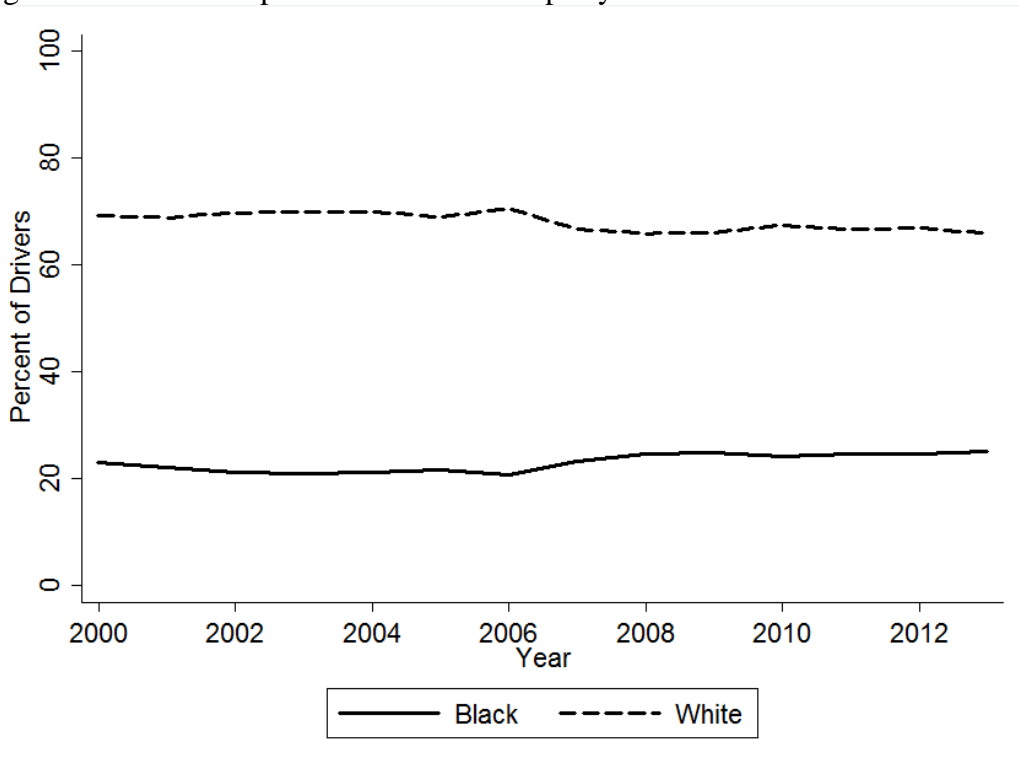


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

Purpose	Number	Percent	
		White	Black
Total Stops	8,072,228	67.54	23.38
Speed Limit	4,226,735	68.16	23.62
Stop Light/Sign	125,266	68.31	21.19
Driving Impaired	81,231	58.92	21.65
Safe Movement	236,520	64.89	23.12
Vehicle Equipment	402,425	66.19	24.59
Vehicle Regulatory	701,465	70.82	22.15
Seat Belt	1,208,964	70.76	21.81
Investigation	691,395	61.06	25.08
Other Vehicle	398,227	61.21	24.73

Note: Includes only drivers. Excludes 126,605 checkpoint stops. Excludes 20,185 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	8,072,228	-	67.54	23.38	-
Total Searches	59,257	0.73	0.62	0.87	1.40
Speed Limit	4,226,735	0.38	0.30	0.53	1.77
Stop Light/Sign	125,266	0.67	0.56	0.87	1.55
Driving Impaired	81,231	24.01	24.60	22.90	0.93
Safe Movement	236,520	1.72	1.52	2.04	1.34
Vehicle Equipment	402,425	0.57	0.46	0.78	1.70
Vehicle Regulatory	701,465	0.30	0.24	0.45	1.88
Seat Belt	1,208,964	0.29	0.24	0.42	1.75
Investigation	691,395	0.97	0.90	1.12	1.24
Other Vehicle	398,227	1.05	1.00	1.22	1.22

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

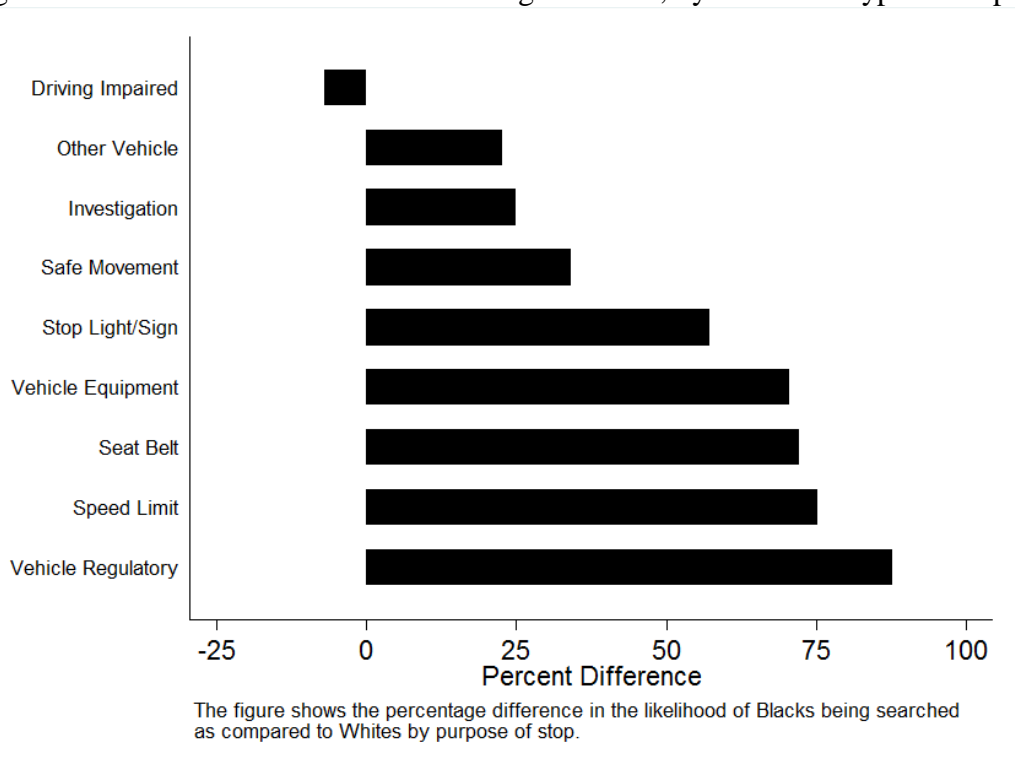
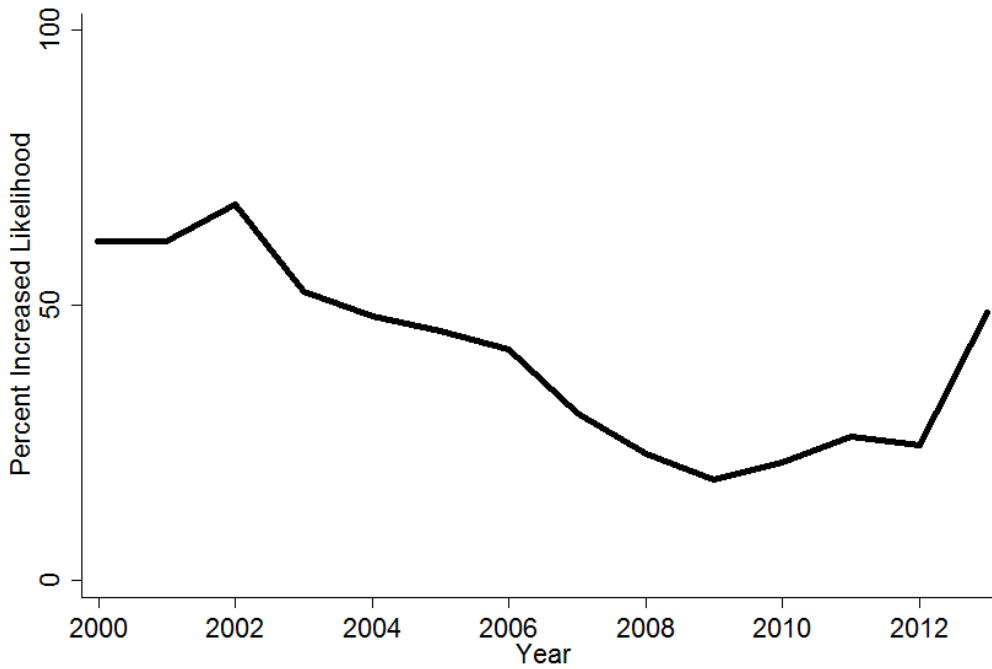
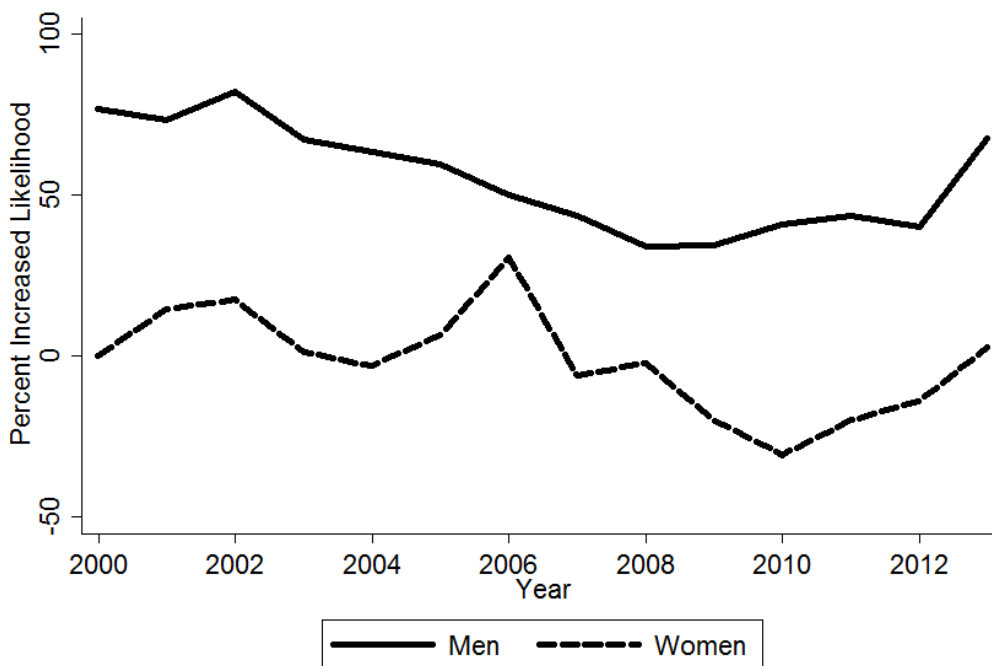


Figure 4. Racial Differences in the Likelihood of Search



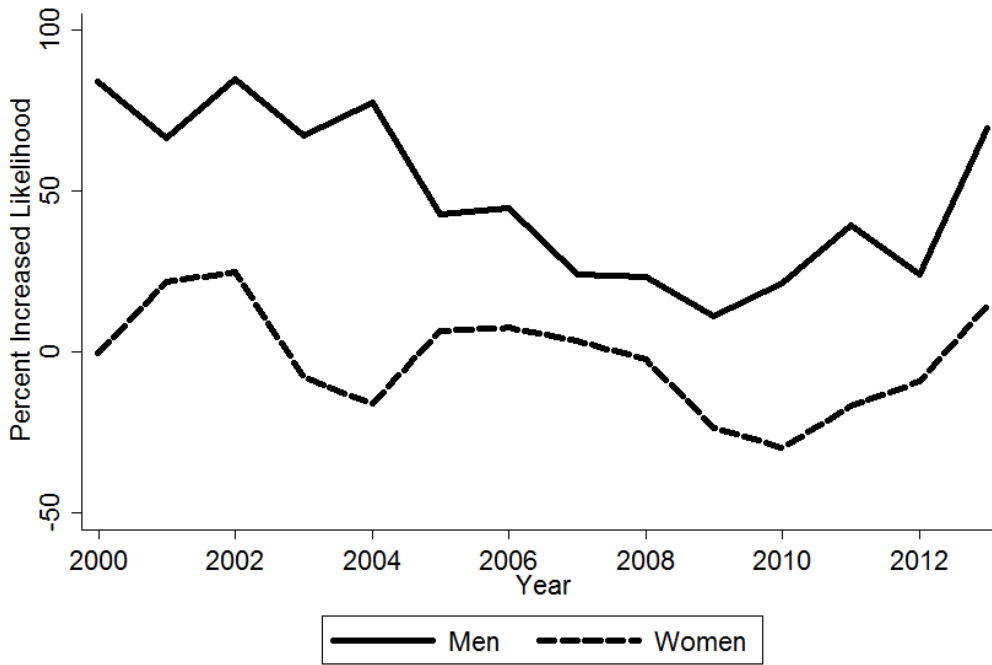
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites.

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



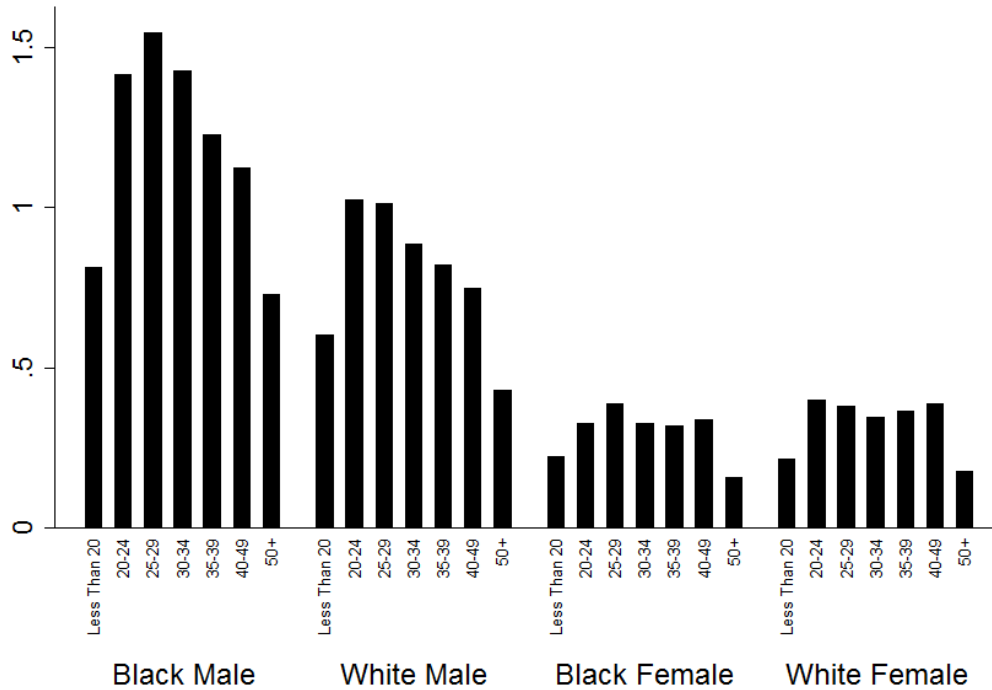
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by gender.

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



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 8,012,978 traffic stops from 2000 through 2013, and 59,257 searches. Overall rate of search: 5.34 percent.

Figure 8. Number of Stops, by Race and Gender

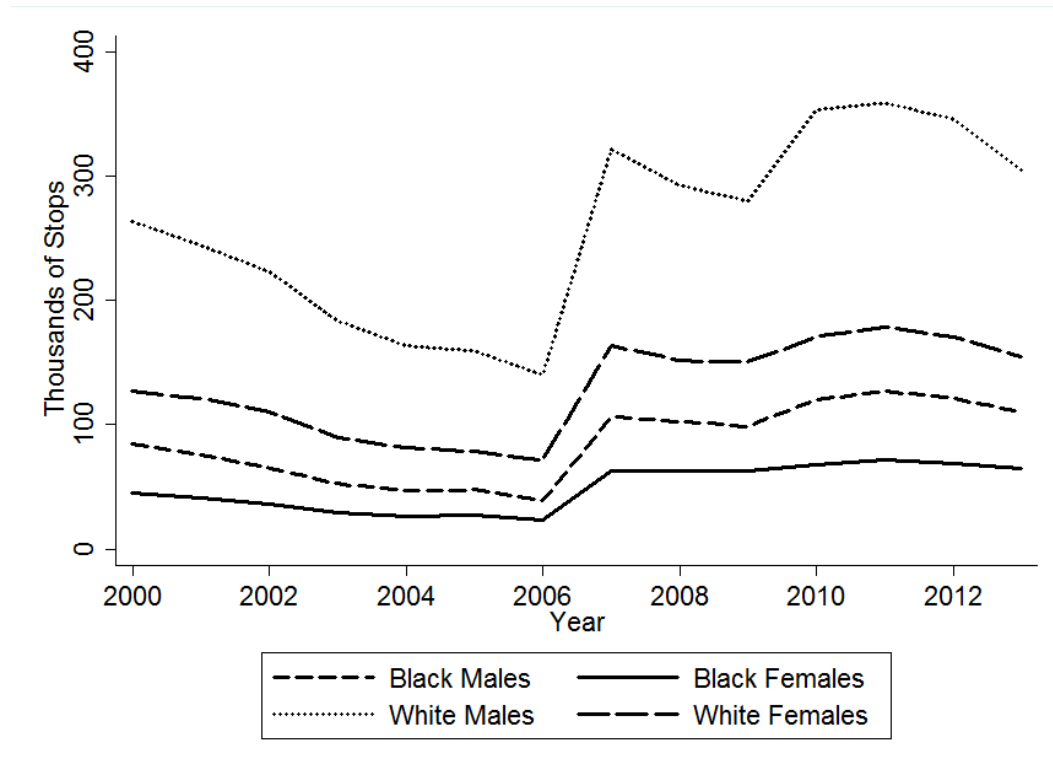


Figure 9. Percent of Stops Resulting in a Search, by Race and Gender

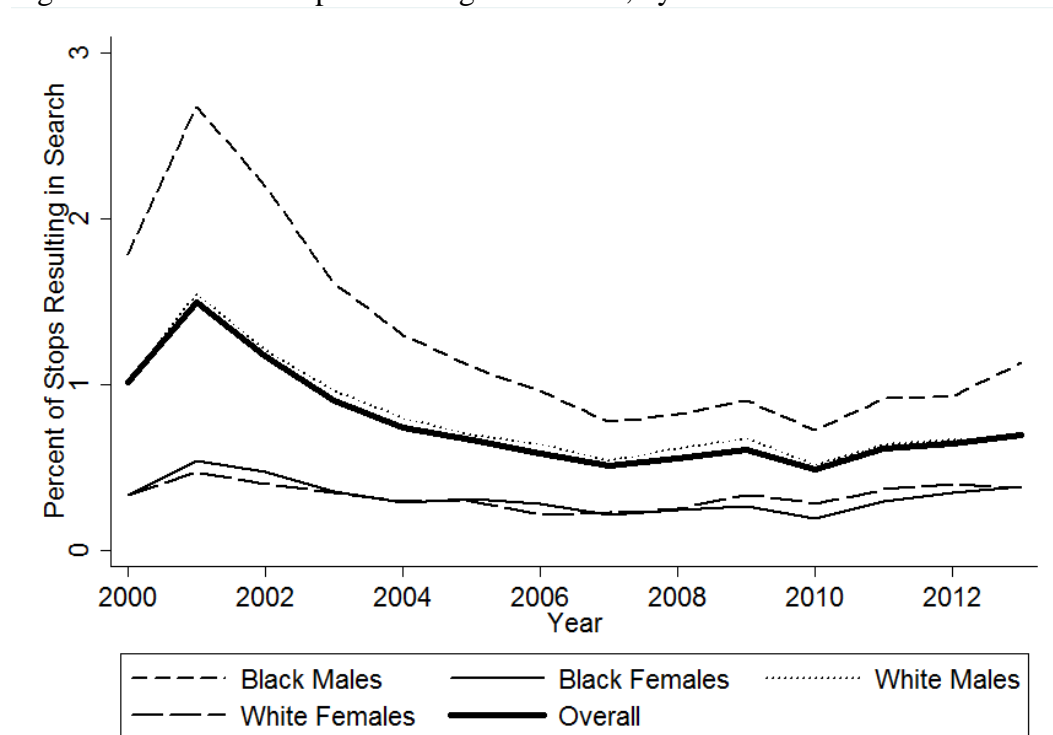


Table 4. Type of Search by Race

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	8,072,228	-	67.54	23.38	-
Total Searches	59,257	0.73	0.62	0.87	1.40
Consent	5,569	0.07	0.06	0.07	1.17
Search Warrant	192	-	-	-	-
Probable Cause	4,766	0.06	0.05	0.08	1.60
Incident to Arrest	41,220	0.51	0.42	0.61	1.45
Protective Frisk	7,510	0.09	0.08	0.10	1.25

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	3,348	39.86	39.86	0.04	0.04
2 – 10	1,740	20.71	60.57	0.09	0.13
11 - 100	994	11.83	72.40	0.35	0.48
101 – 1,000	561	6.68	79.08	3.14	3.62
1,001 +	1,757	20.92	100.00	96.38	100.00
Total	533	100	-	100	-

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

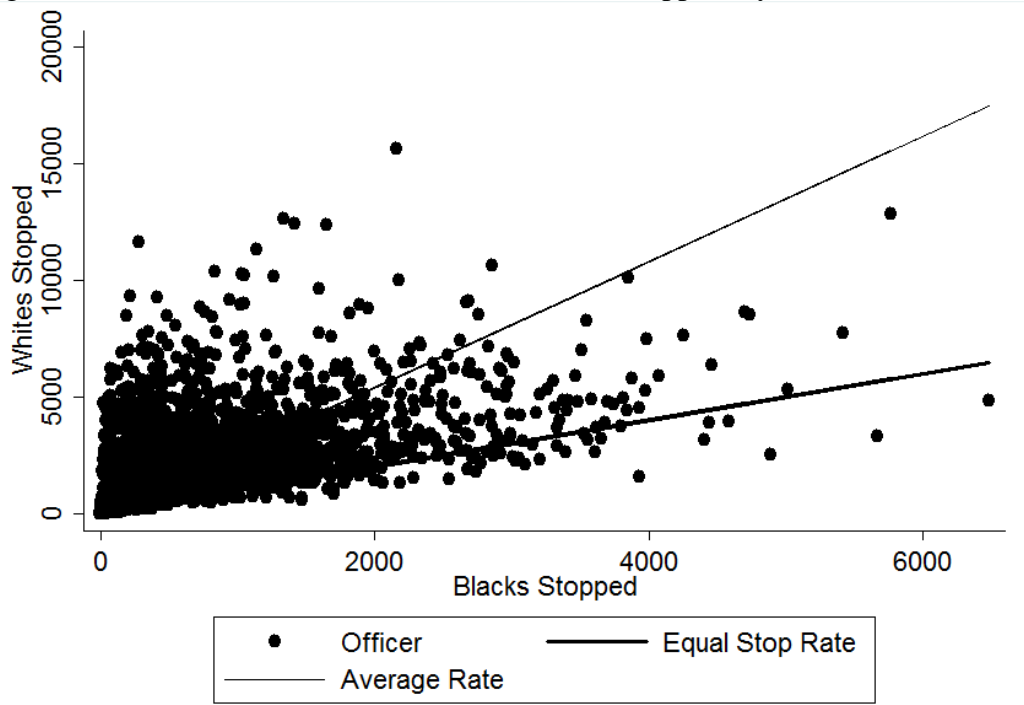


Figure 11. Number of Black and White Motorists Searched, by Officer

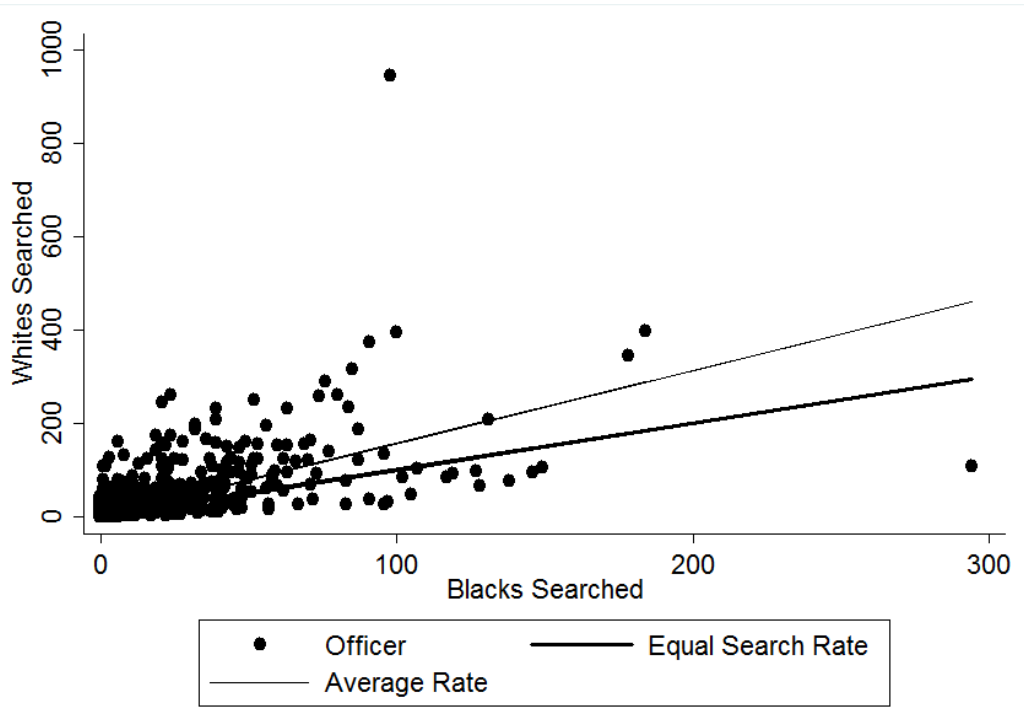
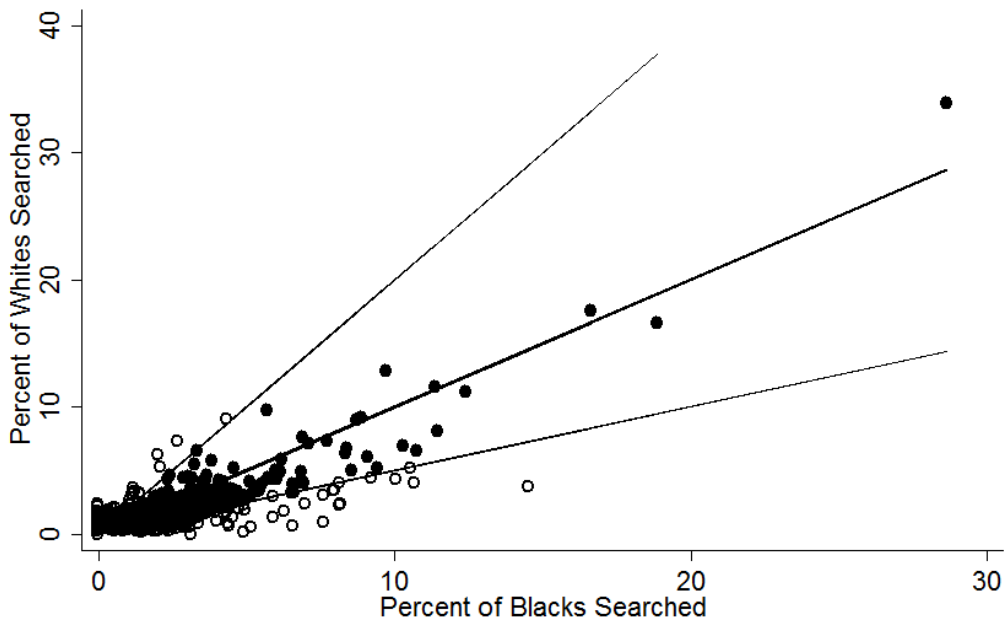


Figure 12. Percent of White and Black Drivers Searched, by Officer



Includes 638 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 0.65. The hollow circles indicate high disparity officers. 70 officers search Whites at more than twice the rate that they search Blacks. 153 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	1.63*(0.02)	1.63*(0.02)	1.56*(0.02)	1.53*(0.02)	1.66*(0.09)
Hispanic	5.96*(0.13)	5.63*(0.13)	4.66*(0.11)	4.70*(0.12)	5.72*(0.81)
Age	-	0.98*(0.00)	0.98*(0.00)	0.98*(0.00)	0.99*(0.00)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	1.68*(0.07)	1.65*(0.07)	1.16 (0.24)
Impaired	-	-	67.45*(0.93)	68.30*(0.95)	20.96*(1.66)
Movement	-	-	4.12*(0.09)	4.01*(0.08)	1.25 (0.23)
Equipment	-	-	1.35*(0.04)	1.35*(0.04)	1.16 (0.15)
Regulatory	-	-	0.82*(0.02)	0.82*(0.02)	0.80 (0.13)
Seat Belt	-	-	0.71*(0.01)	0.71*(0.01)	1.03 (0.10)
Investigation	-	-	2.13*(0.04)	2.16*(0.04)	3.09*(0.30)
Other	-	-	2.60*(0.05)	2.61*(0.05)	2.02*(0.20)
Officer Type					
Black Disparity [†]	-	-	-	2.63*(0.04)	3.08*(1.34)
White Disparity [†]	-	-	-	1.76*(0.05)	3.88 (2.84)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.01*(0.00)	0.01*(0.00)	0.01*(0.00)	0.01*(0.00)	0.00*(0.01)
N	4,830,550	4,830,550	4,830,550	4,830,550	212,761
Pseudo R²	0.01	0.02	0.17	0.18	0.19

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	0.95*(0.02)	0.95*(0.02)	1.04 (0.03)	1.01 (0.03)	0.95 (0.16)
Hispanic	2.85*(0.26)	2.79*(0.26)	2.33*(0.23)	2.38*(0.23)	2.44 (2.48)
Age	-	0.99*(0.00)	0.99*(0.00)	0.99*(0.00)	1.00 (0.01)
Stop Purpose					
Speed Limit	-	-	-	-	-
Stop Light	-	-	2.32*(0.21)	2.29*(0.21)	1.88 (0.98)
Impaired	-	-	189.46*(5.85)	188.85*(5.86)	45.71*(10.08)
Movement	-	-	6.39*(0.30)	6.28*(0.29)	0.86 (0.62)
Equipment	-	-	1.96*(0.12)	1.96*(0.12)	2.76*(0.83)
Regulatory	-	-	0.96 (0.06)	0.97 (0.06)	1.90 (0.69)
Seat Belt	-	-	0.86*(0.05)	0.87*(0.05)	1.15 (0.39)
Investigation	-	-	6.38*(0.25)	6.29*(0.24)	5.32*(1.43)
Other	-	-	3.47*(0.17)	3.47*(0.17)	2.63*(0.80)
Officer Type					
Black Disparity [†]	-	-	-	2.29*(0.08)	6.28*(4.99)
White Disparity [†]	-	-	-	1.91*(0.11)	(Omitted)
Time					
Hour of Day	-	-	-	-	Included
Day of Week	-	-	-	-	Included
Constant	0.00*(0.00)	0.00*(0.00)	0.00*(0.00)	0.00*(0.00)	0.00*(0.00)
N	2,508,599	2,508,599	2,508,599	2,508,599	98,425
Pseudo R²	0.00	0.00	0.21	0.21	0.25

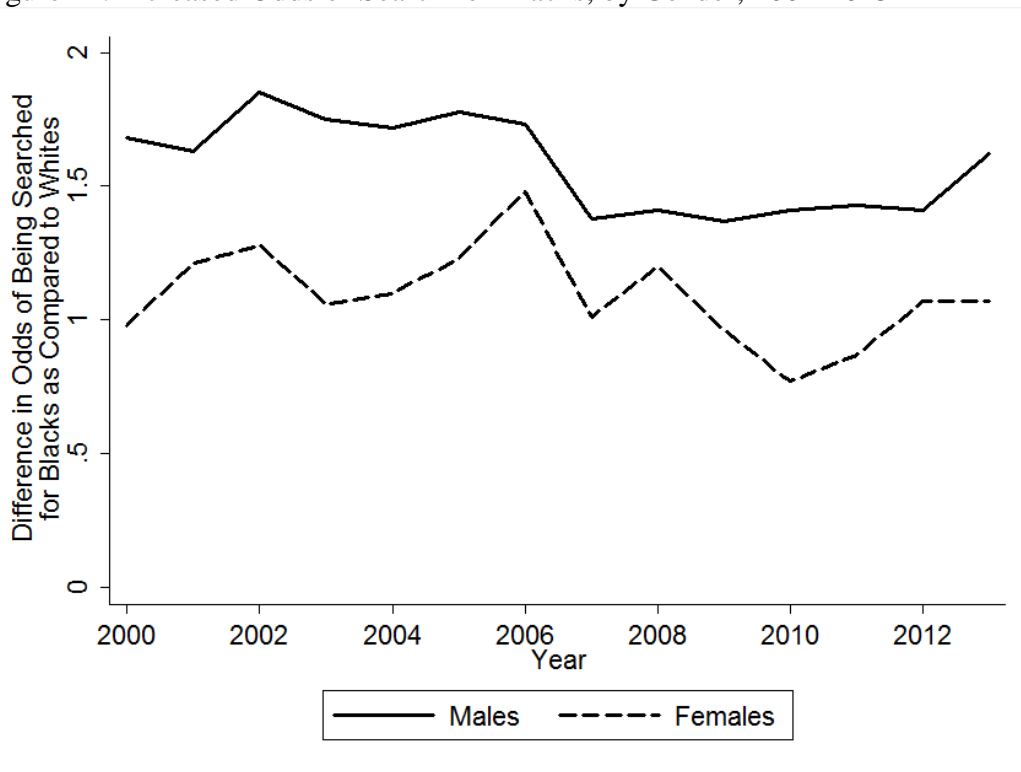
Note: Entries are odds-ratios, with standard errors in parenthesis.

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	20,185	27.40	15.52
Speed Limit	6,499	28.81	21.49
Stop Light/Sign	215	24.65	12.09
Driving Impaired	5,380	16.62	5.93
Safe Movement	1,059	42.21	21.91
Vehicle Equipment	806	31.14	16.00
Vehicle Regulatory	679	35.79	17.23
Seat Belt	1,569	34.99	17.97
Investigation	2,020	22.33	13.51
Other Vehicle	1,730	35.32	16.71

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	5,401,945	-	67.26	22.16	-
Total Searches	50,642	0.94	0.77	1.19	1.55
Speed Limit	2,685,667	0.52	0.41	0.78	1.90
Stop Light/Sign	79,541	0.87	0.71	1.22	1.72
Driving Impaired	66,096	24.96	25.64	23.97	0.94
Safe Movement	160,138	2.14	1.87	2.64	1.41
Vehicle Equipment	270,980	0.72	0.56	1.05	1.88
Vehicle Regulatory	430,852	0.41	0.31	0.66	2.13
Seat Belt	871,881	0.35	0.29	0.54	1.86
Investigation	558,672	1.01	0.89	1.23	1.38
Other Vehicle	278,118	1.30	1.22	1.64	1.34

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

Purpose	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	2,670,283	-	68.11	25.83	-
Total Searches	8,615	0.32	0.33	0.31	0.94
Speed Limit	1,541,068	0.14	0.12	0.17	1.42
Stop Light/Sign	45,725	0.30	0.29	0.37	1.28
Driving Impaired	15,135	19.87	21.08	17.67	0.84
Safe Movement	76,382	0.84	0.82	0.93	1.13
Vehicle Equipment	131,445	0.27	0.25	0.30	1.20
Vehicle Regulatory	270,613	0.13	0.12	0.16	1.33
Seat Belt	337,083	0.12	0.11	0.15	1.36
Investigation	132,723	0.81	0.95	0.68	0.72
Other Vehicle	120,109	0.45	0.51	0.38	0.75

Table A4. Type of Search by Race: Men

Search Type	Number	% Total	% White	% Black	Ratio
					Black:White
Total Stops	5,401,945	-	67.26	22.16	-
Total Searches	50,642	0.94	0.77	1.19	1.55
Consent	4,909	0.09	0.08	0.10	1.25
Search Warrant	166	-	-	-	-
Probable Cause	4,080	0.08	0.06	0.12	2.00
Incident to Arrest	34,818	0.64	0.51	0.82	1.61
Protective Frisk	6,669	0.12	0.11	0.15	1.36

Table A5. Type of Search by Race: Women

Search Type	Number	% Total	% White	% Black	Ratio Black:White
Total Stops	2,670,283	-	68.11	25.83	-
Total Searches	8,615	0.32	0.33	0.31	0.94
Consent	660	0.02	0.02	0.02	1.00
Search Warrant	26	-	-	-	-
Probable Cause	686	0.03	0.03	0.03	1.00
Incident to Arrest	6,402	0.24	0.24	0.23	0.96
Protective Frisk	841	0.03	0.03	0.03	1.00

Figure A6. Stops by Day of the Week

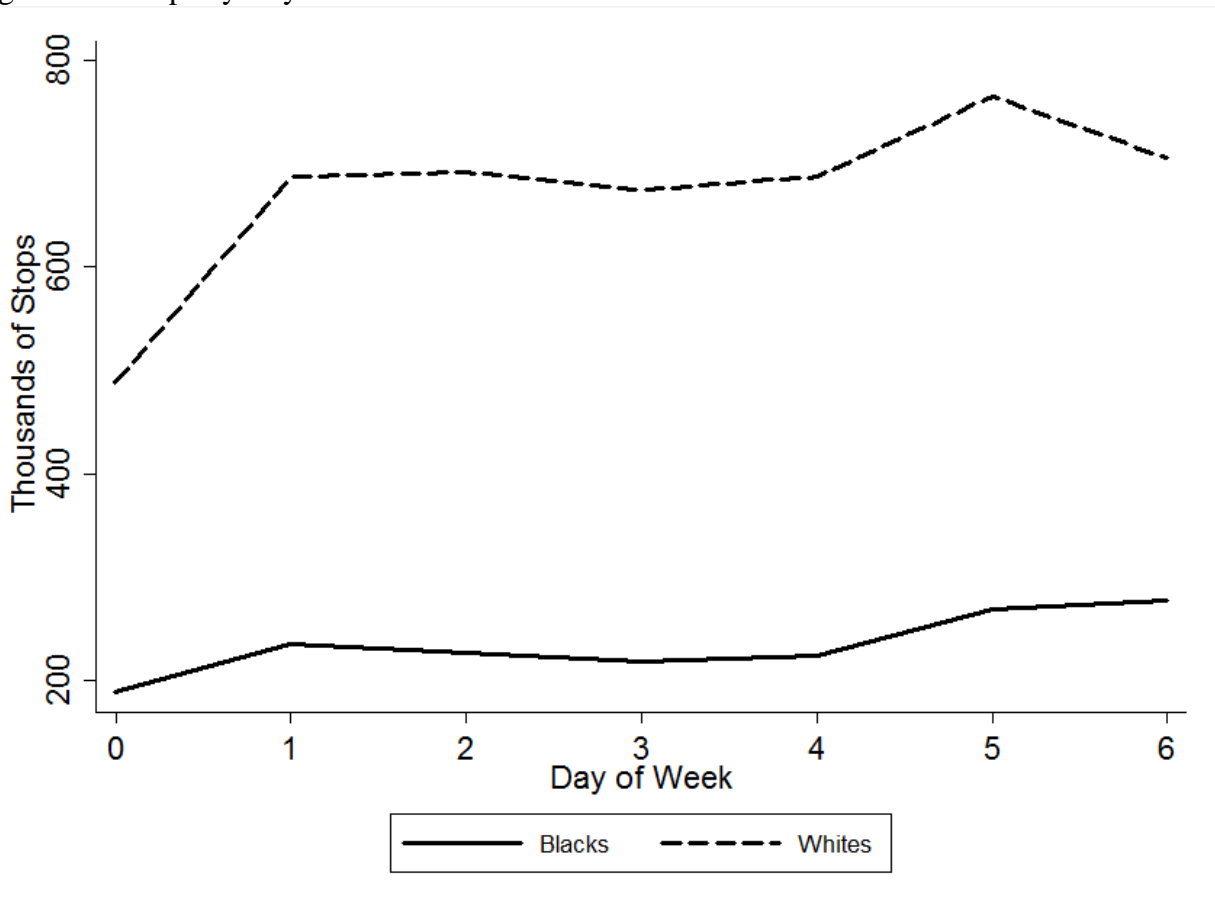


Figure A7. Searches by Day of the Week

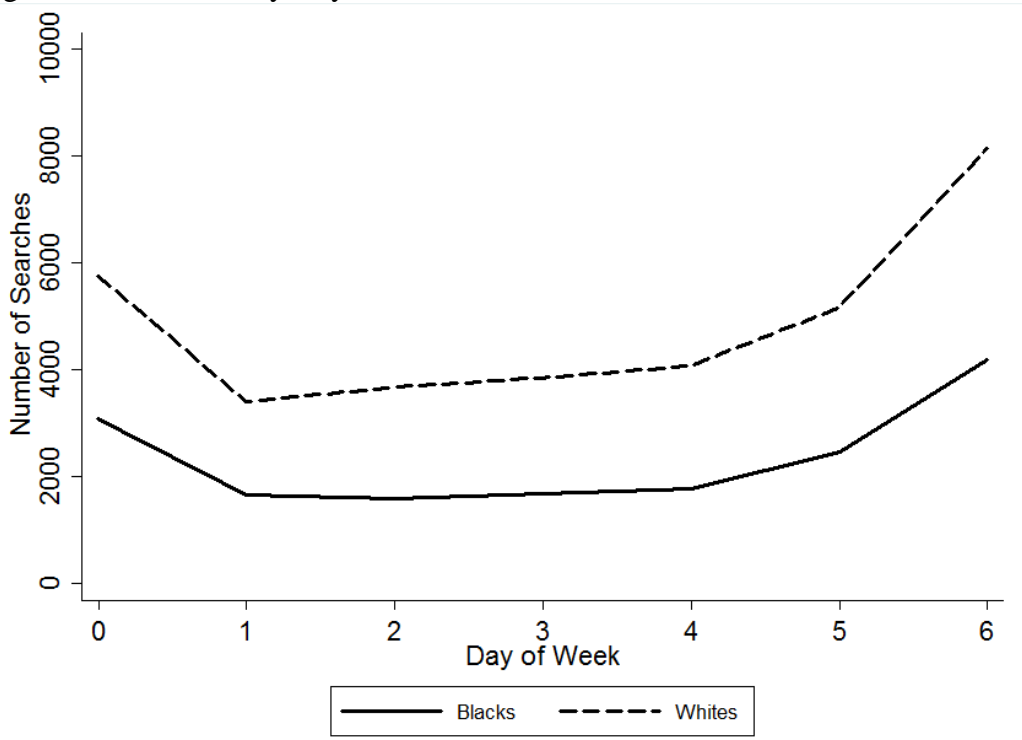


Figure A8. Stops by Hour of the Day

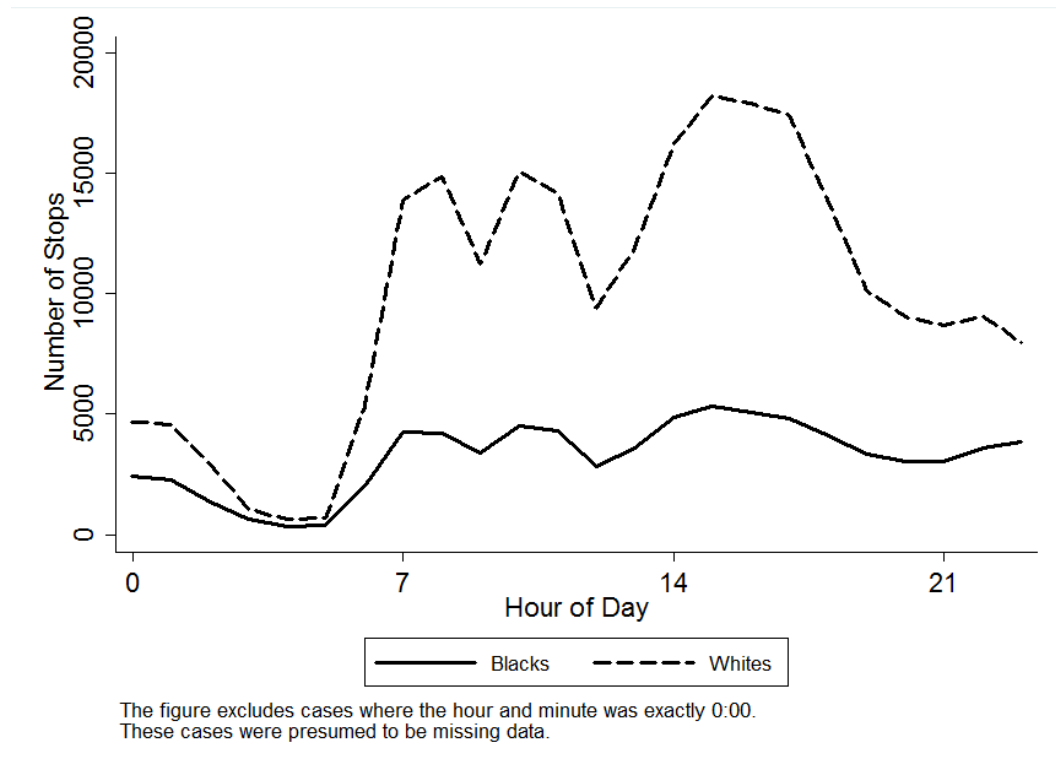


Figure A9. Searches by Hour of the Day

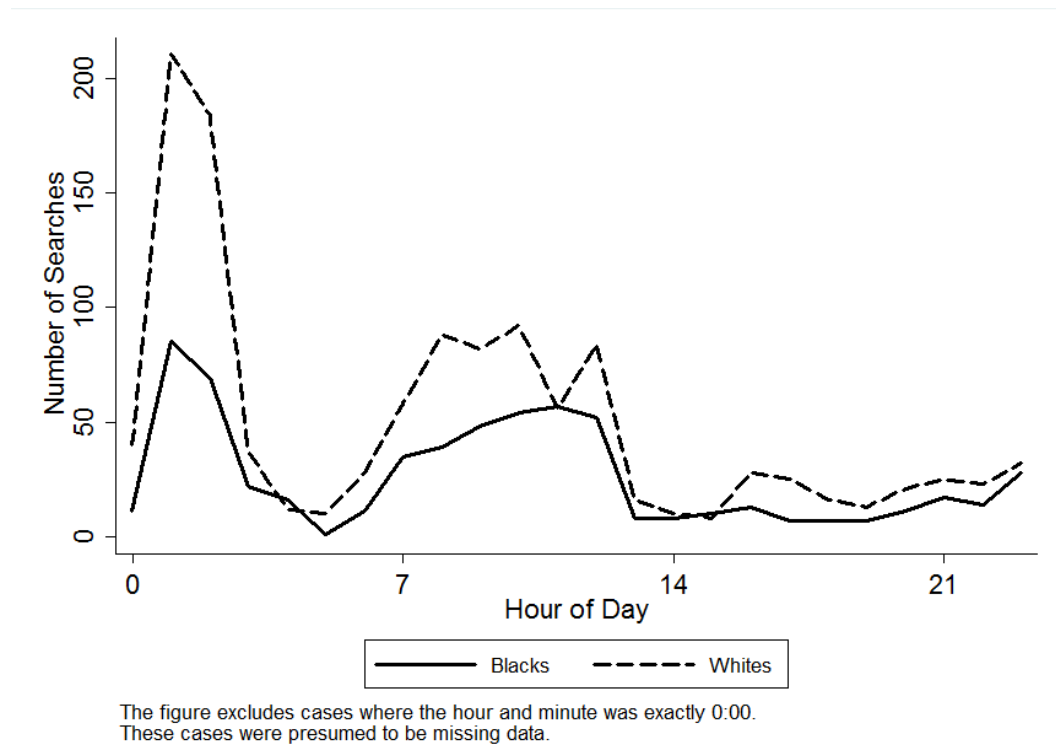


Figure A10.

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

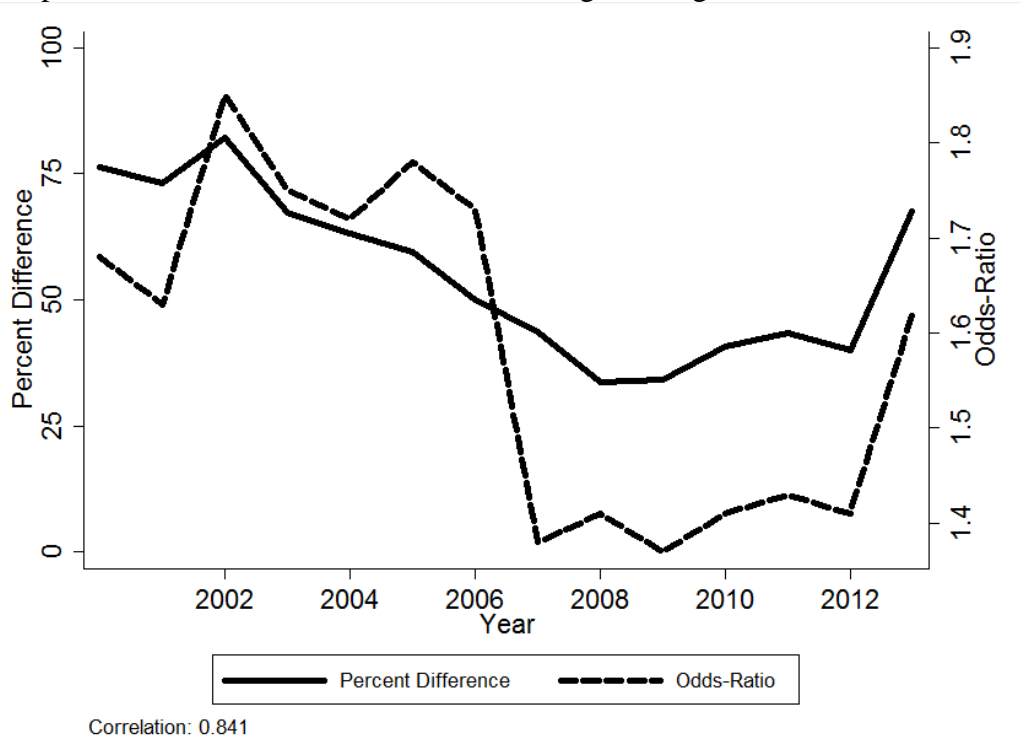


Figure A11. Correlation Between Percent Difference in Likelihood of Black Women being Searched as Compared to Whites and Odds-Ratios from Logistic Regression

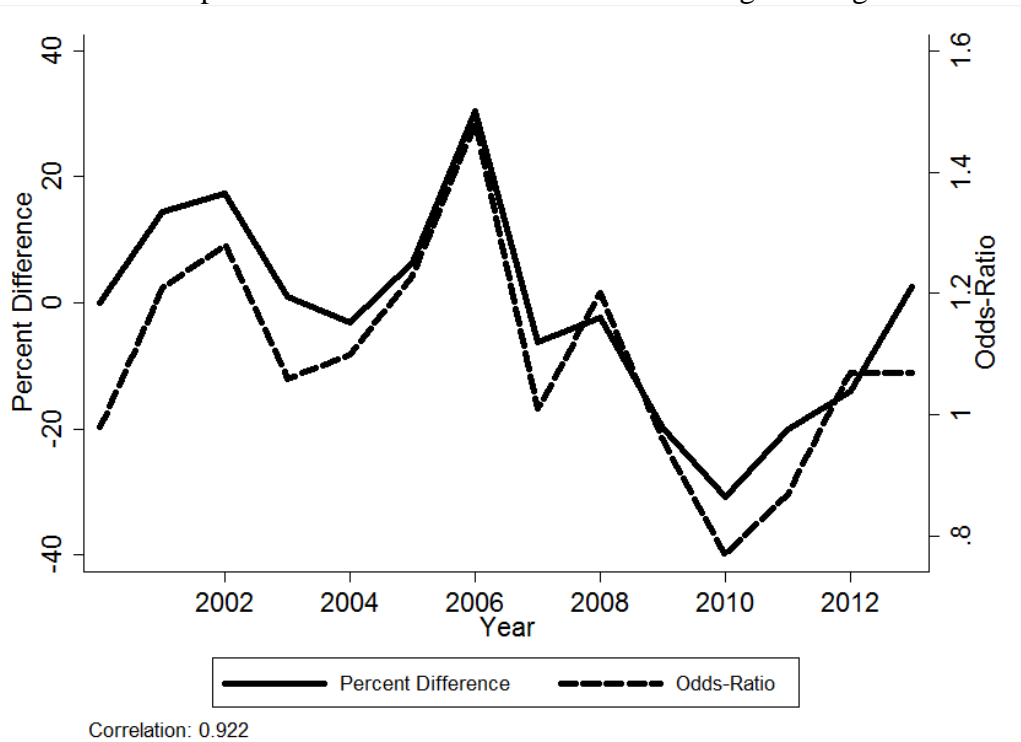
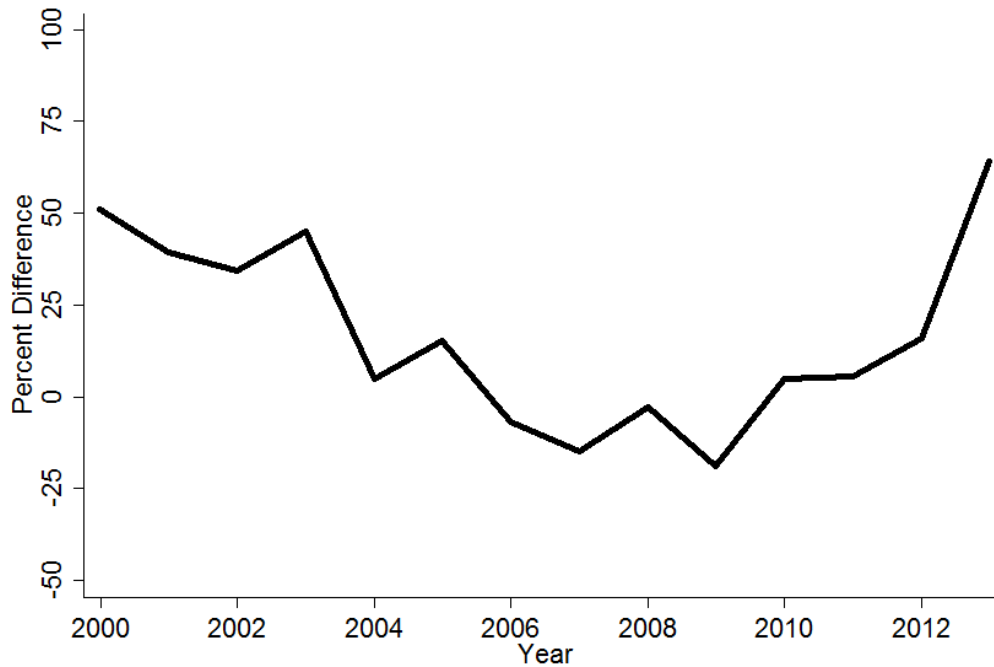


Figure A12. Racial Differences in the Likelihood of Search: Consent Searches Only



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	8,160	13.77	14.39	14.63
No	51,097	86.23	85.61	85.37
Total	59,257	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	5,418,214	2.76	1.49	16.09	79.06	0.60	100.0
Black	No	1,870,521	2.94	1.85	14.55	79.87	0.79	100.0
Total	No	8,012,971	2.71	1.56	15.19	79.82	0.72	100.0
White	Yes	34,017	0.19	0.56	8.30	16.04	74.91	100.0
Black	Yes	16,397	0.20	0.38	6.42	16.91	76.09	100.0
Total	Yes	59,257	0.18	0.48	7.23	15.75	76.36	100.0