

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

8 December 2014

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[report prepared by Katherine Elliott]

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Table 1. Overview of the Data

| Data Subsets                                     | Observations |
|--|--------------|
| Total stops                                      | 29,049       |
| -2014  | 717          |
| -Passengers                                      | 184          |
| -Checkpoint stops                                | 179          |
| Total number of cases deleted                    | 1,063        |
| Stops remaining for analysis                     | 27,986       |
| Searches   | 282          |
| Percent of stops leading to search (search rate) | 1.01         |

Figure 1. Number of Traffic Stops per Year

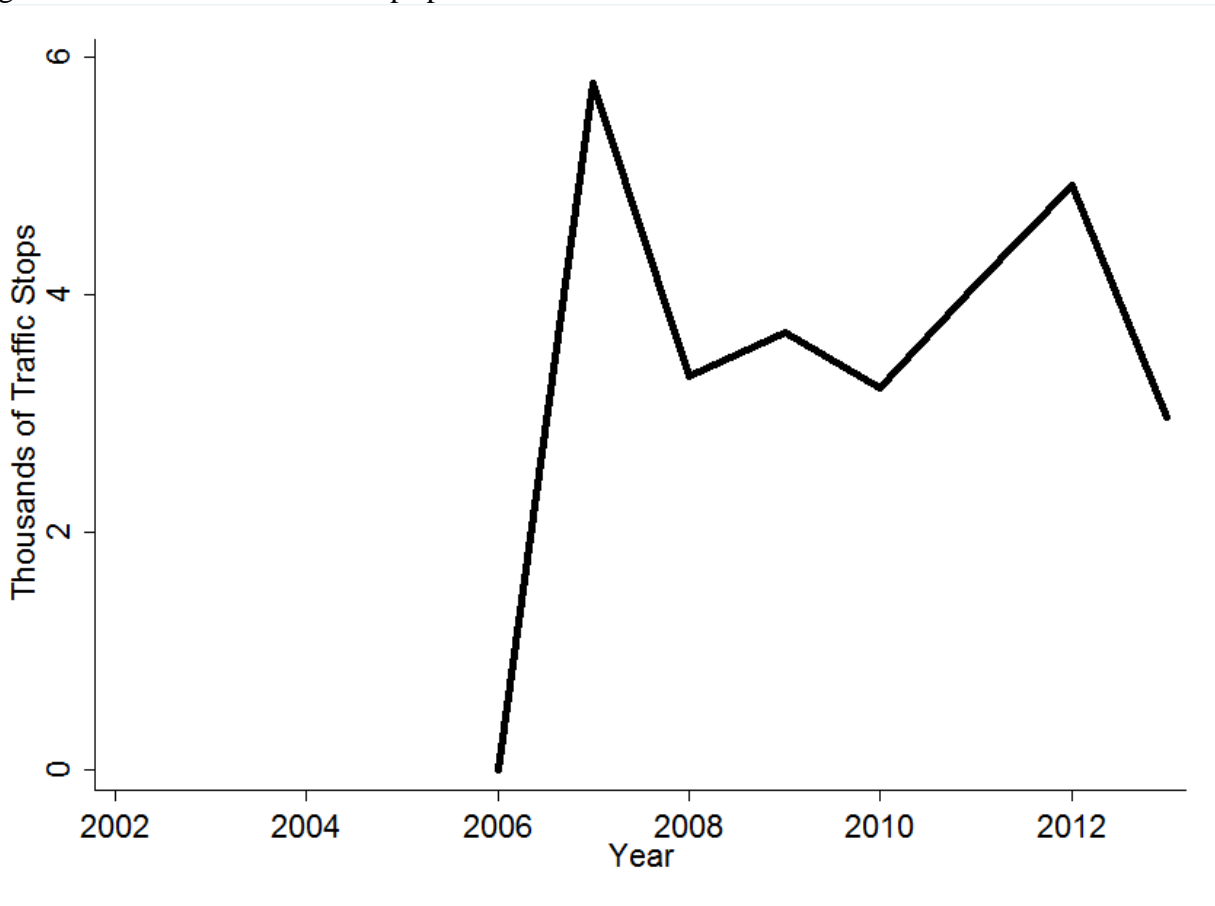


Figure 2. Racial Composition of Traffic Stops by Year

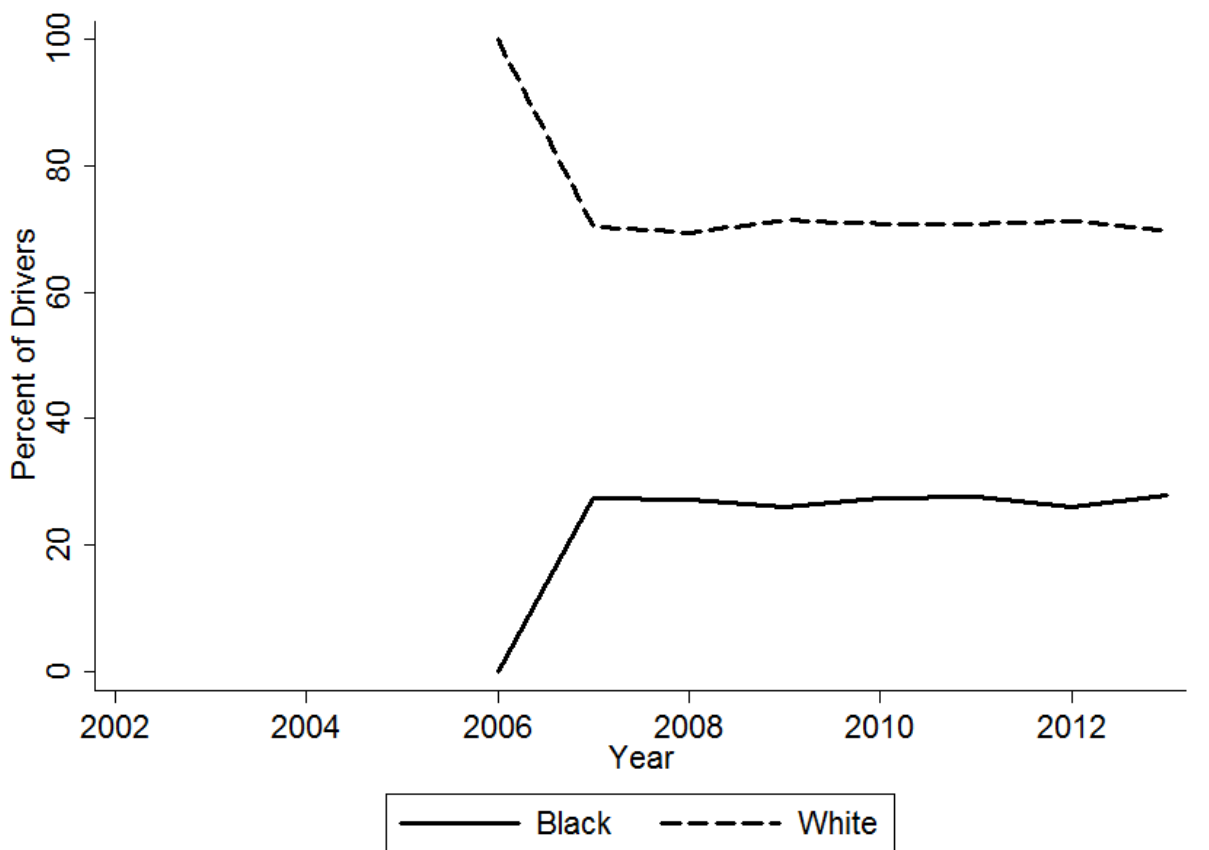


Table 2. Racial Composition of Traffic Stops by Purpose, Drivers

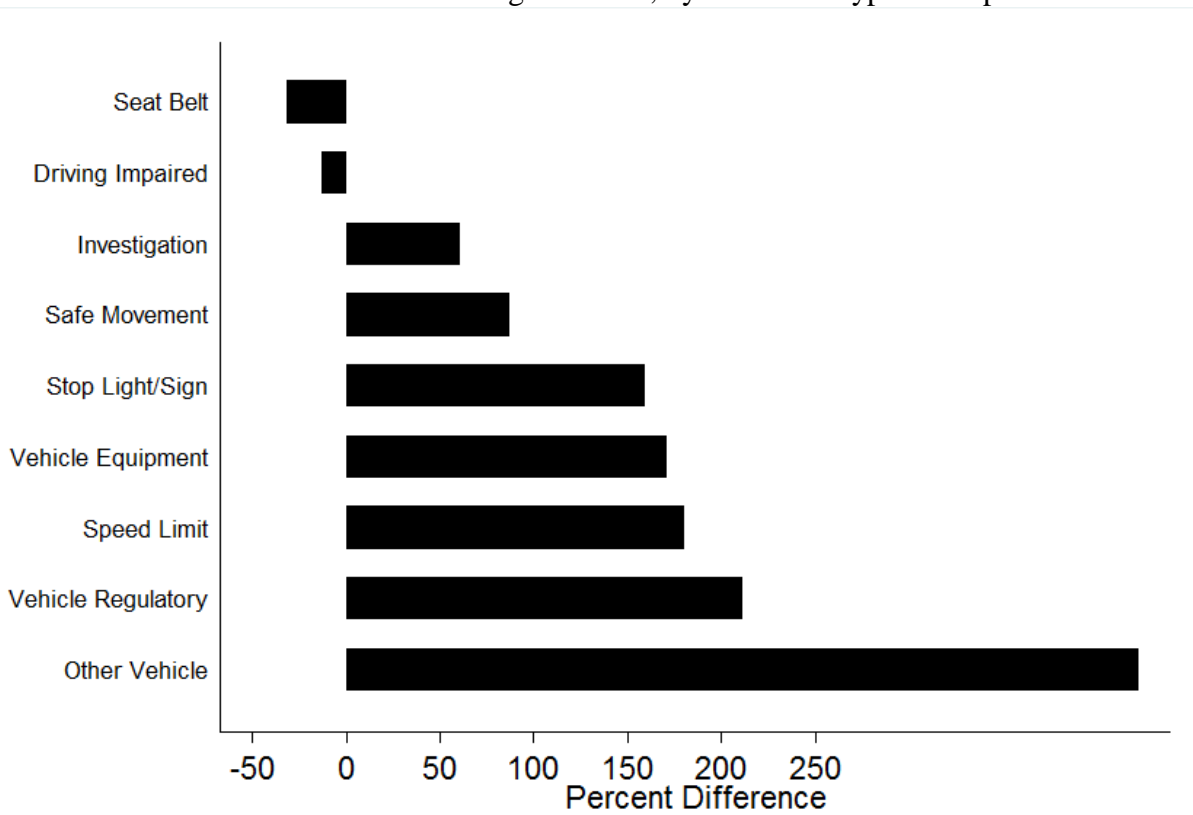
| Purpose            | Number | Percent |       |
|--------------------|--------|---------|-------|
|                    |        | White   | Black |
| Total Stops        | 27,986 | 70.62   | 27.00 |
| Speed Limit        | 11,359 | 72.31   | 24.80 |
| Stop Light/Sign    | 2,385  | 73.92   | 23.77 |
| Driving Impaired   | 136    | 72.06   | 25.74 |
| Safe Movement      | 1,100  | 67.91   | 30.18 |
| Vehicle Equipment  | 3,911  | 62.42   | 35.13 |
| Vehicle Regulatory | 4,817  | 72.29   | 26.12 |
| Seat Belt          | 2,731  | 75.43   | 23.65 |
| Investigation      | 658    | 61.85   | 36.32 |
| Other Vehicle      | 889    | 62.20   | 32.28 |

Note: Includes only drivers. Excludes 184 passengers.

Table 3. Percent Searched by Race and Purpose of Stop

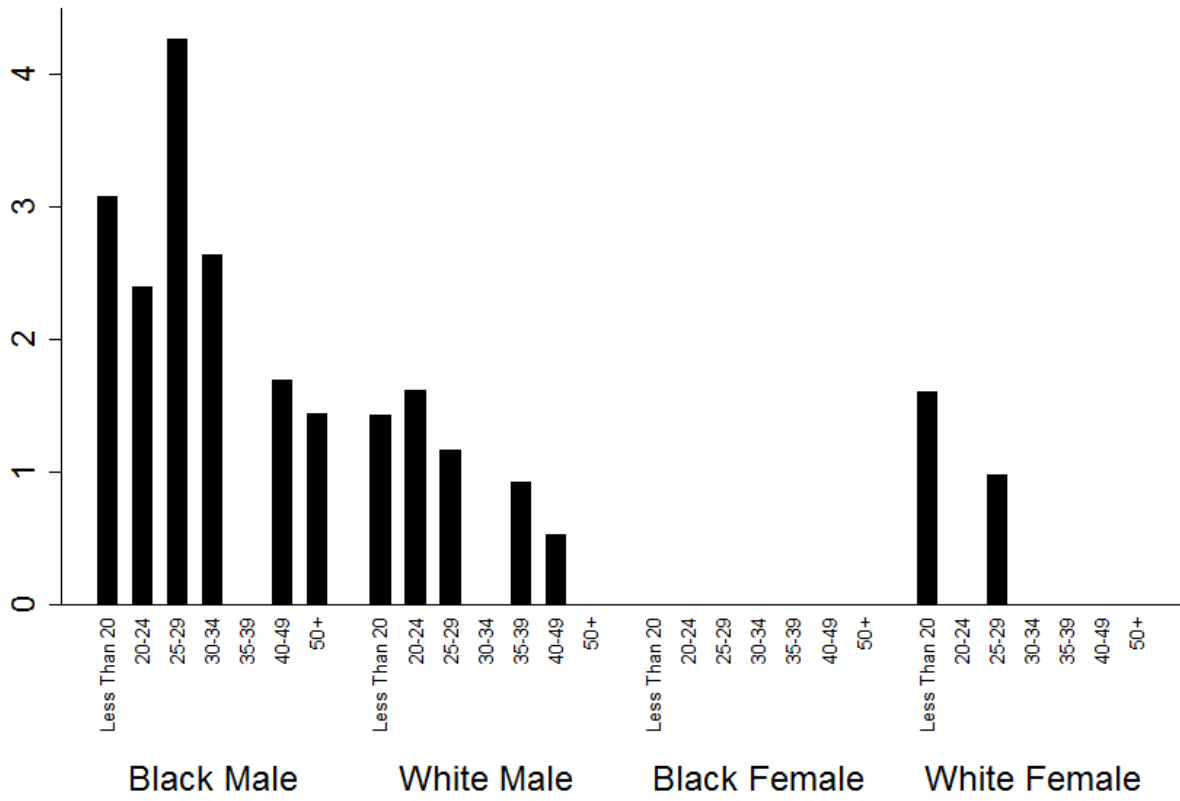
| Purpose            | Number | % Total | % White | % Black | Ratio       |
|--------------------|--------|---------|---------|---------|-------------|
|                    |        |         |         |         | Black:White |
| Total Stops        | 27,986 | -       | 70.62   | 27.00   | -           |
| Total Searches     | 282    | 1.01    | 0.73    | 1.73    | 2.37        |
| Speed Limit        | 11,359 | 0.46    | 0.32    | 0.89    | 2.78        |
| Stop Light/Sign    | 2,385  | 0.55    | 0.34    | 0.88    | 2.59        |
| Driving Impaired   | 136    | 30.88   | 32.65   | 28.57   | 0.88        |
| Safe Movement      | 1,100  | 1.00    | 0.80    | 1.51    | 1.89        |
| Vehicle Equipment  | 3,911  | 1.28    | 0.78    | 2.11    | 2.71        |
| Vehicle Regulatory | 4,817  | 0.73    | 0.46    | 1.43    | 3.11        |
| Seat Belt          | 2,731  | 0.62    | 0.68    | 0.46    | 0.68        |
| Investigation      | 658    | 5.32    | 4.42    | 7.11    | 1.61        |
| Other Vehicle      | 889    | 3.04    | 1.27    | 6.62    | 5.21        |

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



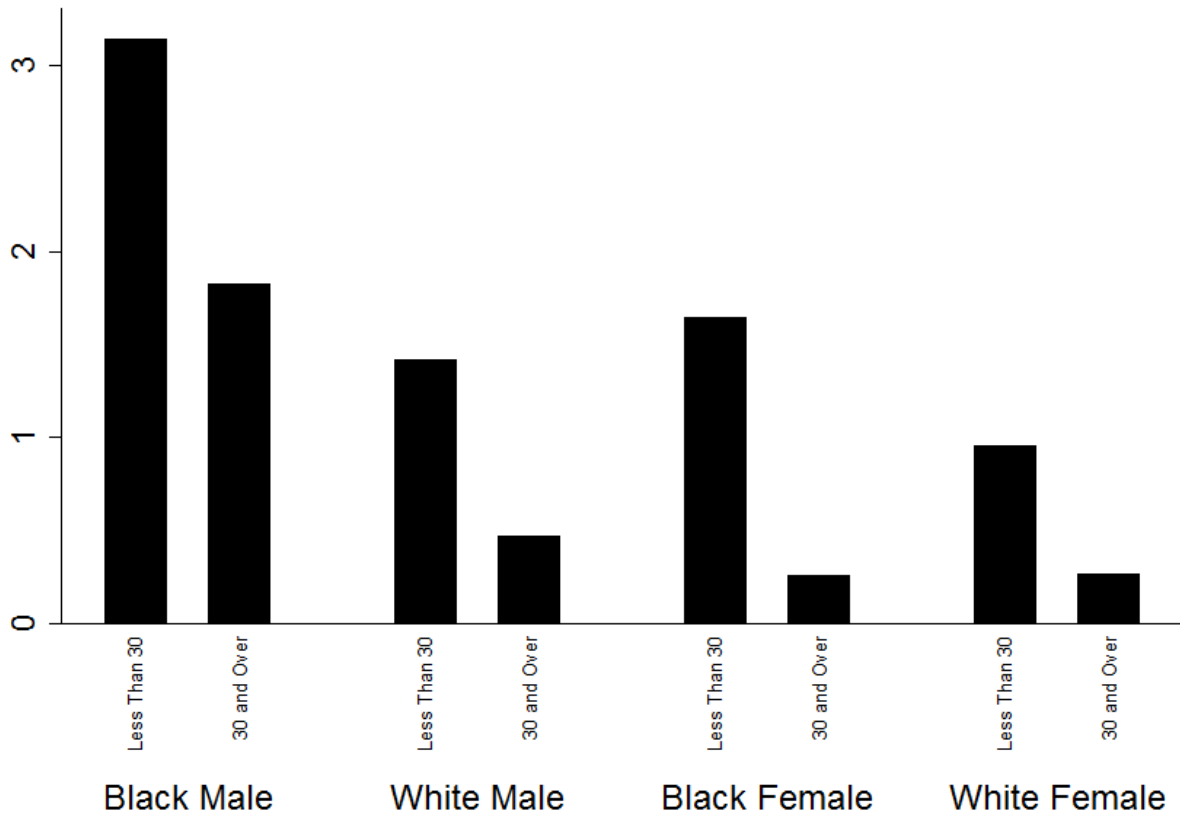
The figure shows the percentage difference in the likelihood of Blacks being searched as compared to Whites by purpose of stop.

Figure 4a. Percentage Searched by Race, Gender, and Age



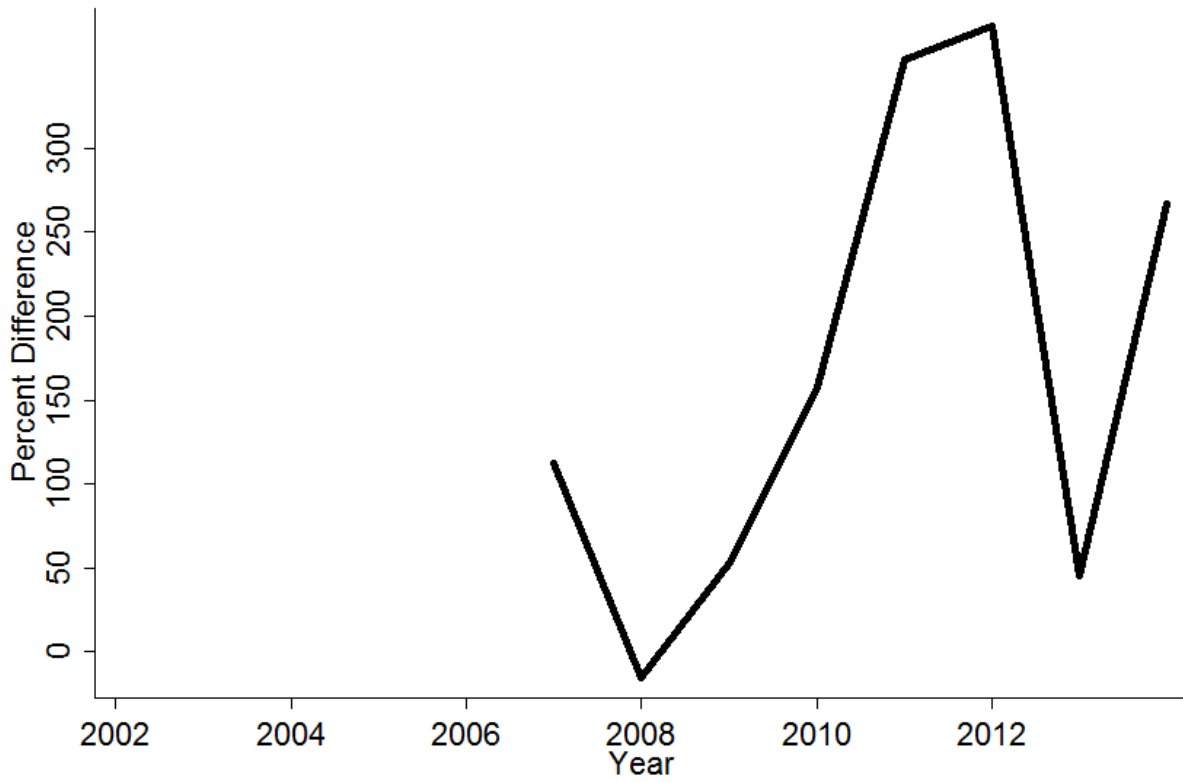
Based on 27,986 traffic stops from 2002 through 2013, and 282 searches. Overall rate of search: 1.01 percent. No data are presented for categories with fewer than 10 searches.

Figure 4b. Percentage Searched by Race, Gender, and Age



Based on 27,986 traffic stops from 2002 through 2013, and 282 searches. Overall rate of search: 1.01 percent.

Figure 5. 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 6. Number of Stops, by Race and Gender

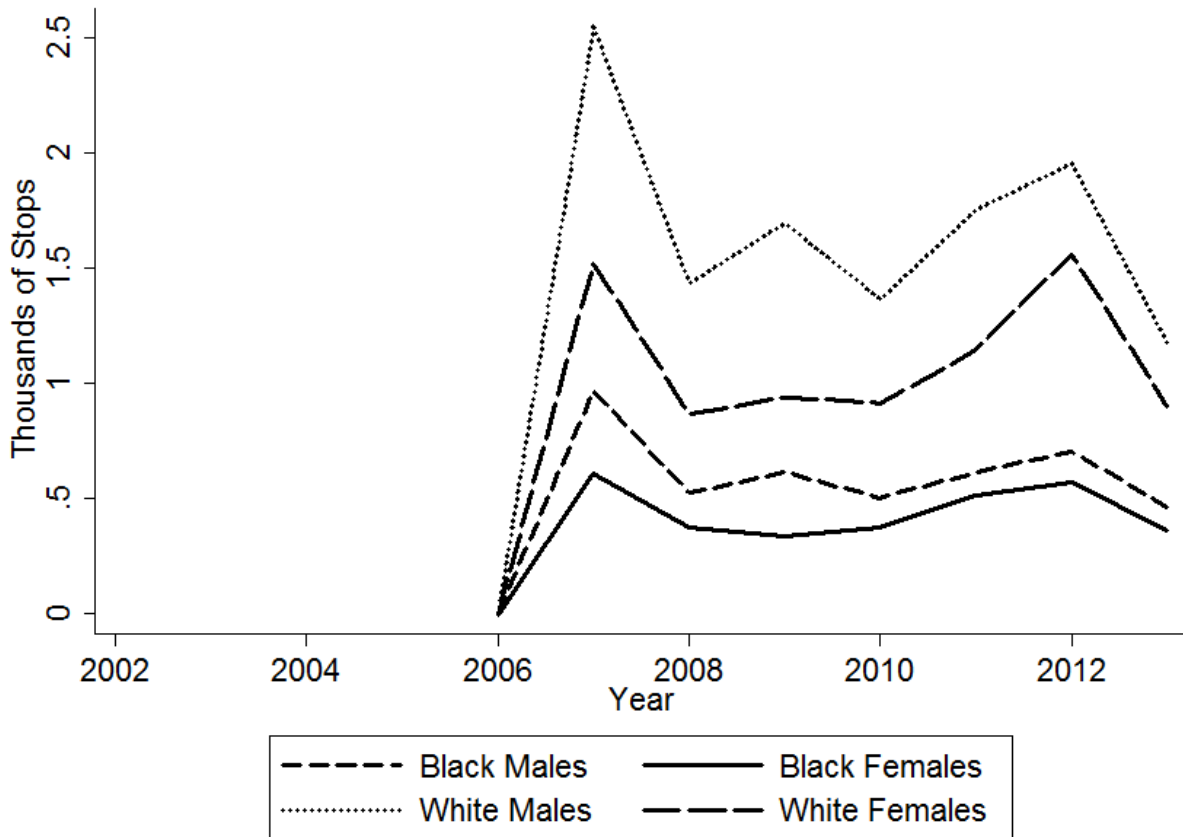
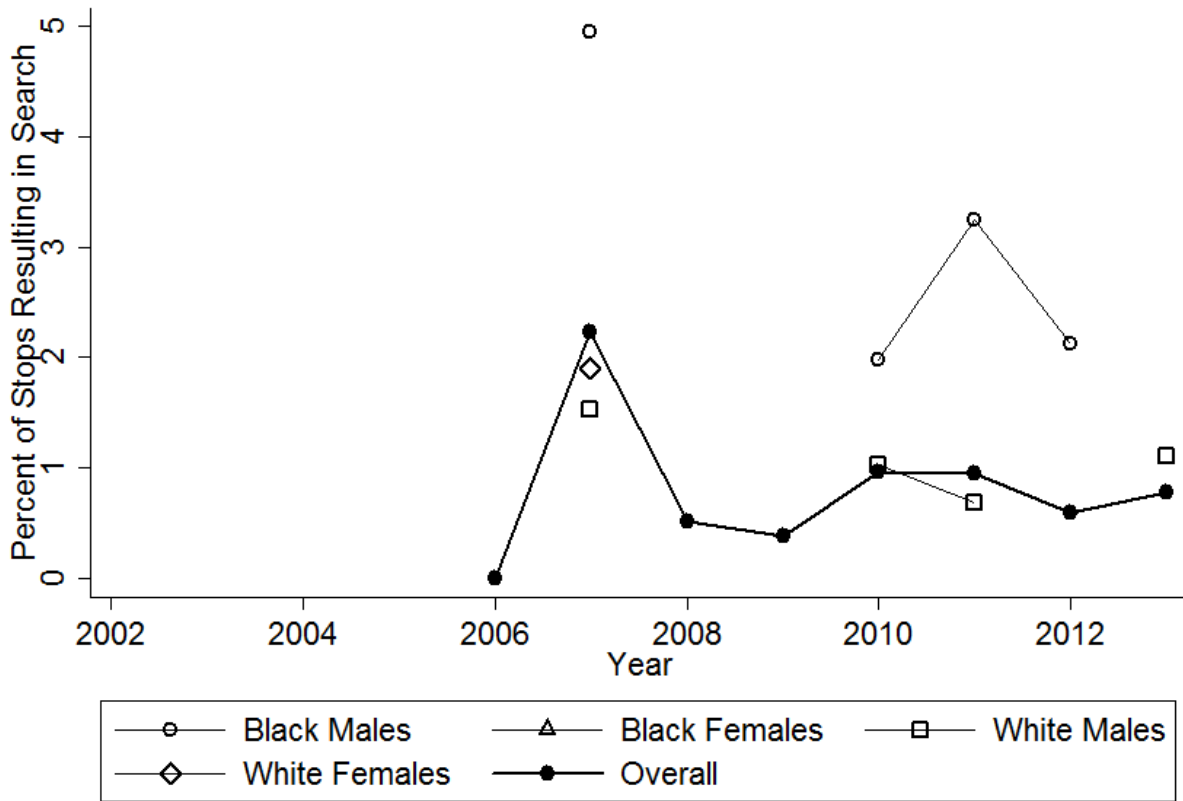




Figure 7. Percent Searched, by Race and Gender



Note: No rate is calculated if based on fewer than 10 searches.

Table 4. Type of Search by Race

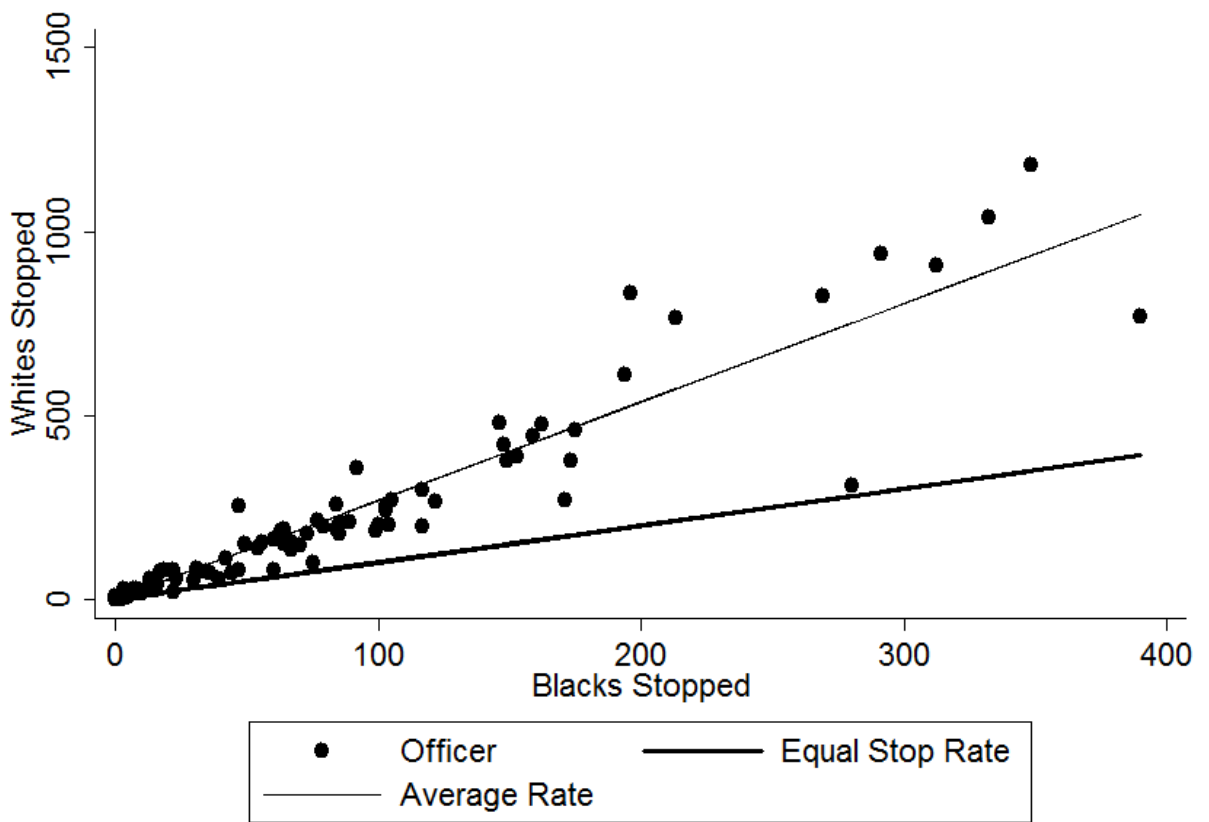
| Search Type        | Number | % Total | % White | % Black | Ratio       |
|--------------------|--------|---------|---------|---------|-------------|
|                    |        |         |         |         | Black:White |
| Total Stops        | 27,986 | -       | 70.62   | 27.00   | -           |
| Total Searches     | 282    | 1.01    | 0.73    | 1.73    | 2.37        |
| Consent            | 84     | 0.30    | 0.23    | 0.48    | 2.09        |
| Search Warrant     | 8      | 0.03    | 0.02    | 0.05    | 2.50        |
| Probable Cause     | 67     | 0.24    | 0.18    | 0.42    | 2.33        |
| Incident to Arrest | 119    | 0.43    | 0.29    | 0.77    | 2.66        |
| Protective Frisk   | 4      | 0.01    | 0.02    | 0.01    | 0.50        |

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

Table 5. Distribution of Officer IDs by Stop

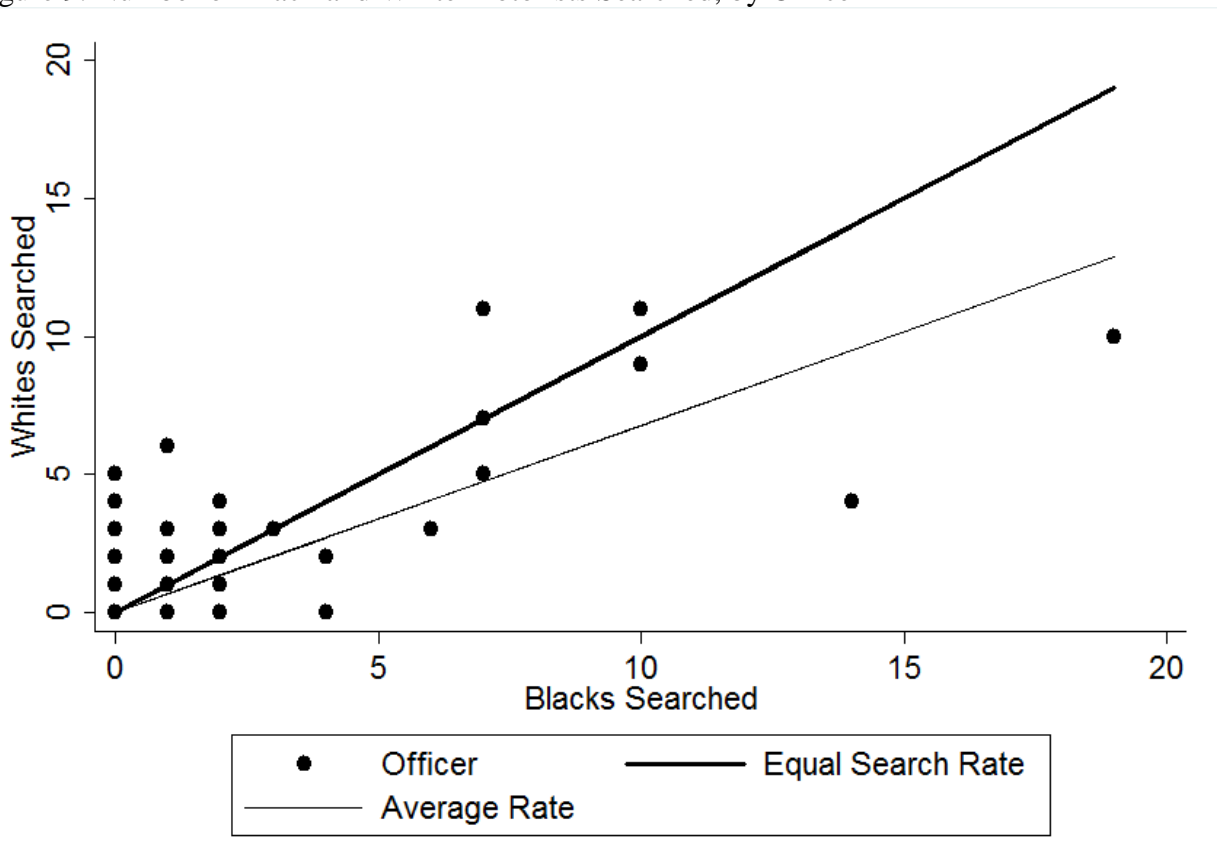
| Number of Stops | Officers w/ this many Stops | Percent of Officers | Cumulative Percent | Percent of Stops | Cumulative Percent |
|-----------------|-----------------------------|---------------------|--------------------|------------------|--------------------|
| 1               | 25                          | 18.94               | 18.94              | 0.09             | 0.09               |
| 2 – 10          | 21                          | 15.91               | 34.85              | 0.35             | 0.44               |
| 11 - 100        | 25                          | 18.94               | 53.79              | 3.71             | 4.15               |
| 101 – 1,000     | 53                          | 40.15               | 93.94              | 60.72            | 64.87              |
| 1,001 +         | 8                           | 6.06                | 100.00             | 35.13            | 100.00             |
| Total           | 132                         | 100.00              | -                  | 100.00           | -                  |

Figure 8. Number of Black and White Motorists Stopped, by Officer



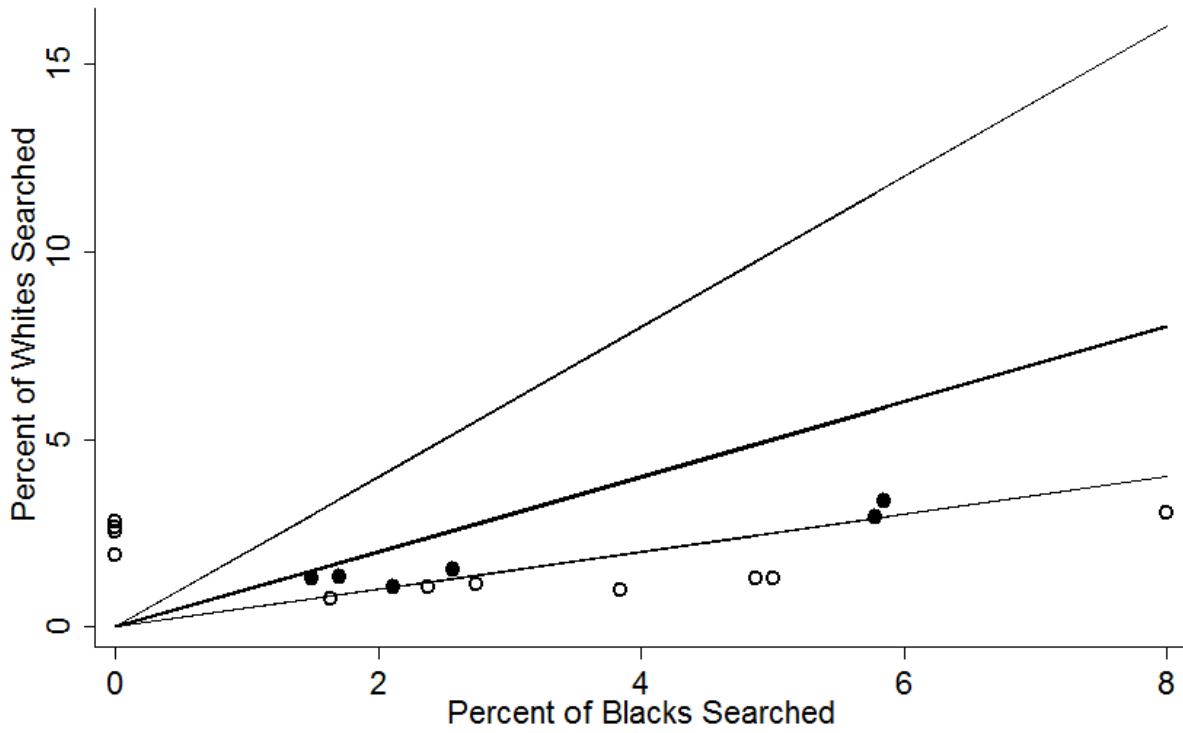
On average, officers stop 2.69 Whites for each Black stopped.

Figure 9. Number of Black and White Motorists Searched, by Officer



On average, officers search 0.68 Whites for each Black searched.

Figure 10. Percent of White and Black Drivers Searched, by Officer



Includes 17 officers with a minimum of 50 White stops, 50 Black stops, and a search rate above the department average of 1.01. The hollow circles indicate high disparity officers. 4 officer searches Whites at more than twice the rate that they search Blacks. 7 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       |
|------------------------------|-------------|-------------|---------------|---------------|---------------|
| <b>Demographics</b>          |             |             |               |               |               |
| Race                         | 3.11*(0.46) | 3.04*(0.45) | 2.83*(0.44)   | 2.67*(0.41)   | 2.67*(0.43)   |
| Hispanic                     | 1.71*(0.41) | 1.55(0.37)  | 1.06(0.27)    | 1.02(0.26)    | 1.01(0.26)    |
| Age                          | -           | 0.97*(0.01) | 0.96*(0.01)   | 0.96*(0.01)   | 0.97*(0.01)   |
| <b>Stop Purpose</b>          |             |             |               |               |               |
| Speed Limit                  | -           | -           | -             | -             | -             |
| Stop Light                   | -           | -           | 0.97(0.36)    | 0.94(0.35)    | 0.97(0.36)    |
| Impaired                     | -           | -           | 78.64*(22.20) | 85.21*(24.32) | 66.67*(21.16) |
| Movement                     | -           | -           | 1.30(0.54)    | 1.20(0.50)    | 1.19(0.50)    |
| Equipment                    | -           | -           | 1.71*(0.40)   | 1.55(0.36)    | 1.41(0.35)    |
| Regulatory                   | -           | -           | 1.60(0.39)    | 1.49(0.37)    | 1.55(0.39)    |
| Seat Belt                    | -           | -           | 0.92(0.29)    | 0.93(0.29)    | 1.11(0.37)    |
| Investigation                | -           | -           | 6.17*(1.64)   | 5.41*(1.45)   | 5.19*(1.45)   |
| Other                        | -           | -           | 4.79*(1.29)   | 4.58*(1.24)   | 4.13*(1.17)   |
| <b>Officer Type</b>          |             |             |               |               |               |
| Black Disparity <sup>†</sup> | -           | -           | -             | 2.40*(0.42)   | 2.64*(0.47)   |
| White Disparity <sup>†</sup> | -           | -           | -             | 2.15*(0.66)   | 2.32*(0.72)   |
| <b>Time</b>                  |             |             |               |               |               |
| Hour of Day                  | -           | -           | -             | -             | Included      |
| Day of Week                  | -           | -           | -             | -             | Included      |
| <b>Constant</b>              | 0.01*(0.00) | 0.02*(0.01) | 0.02*(0.00)   | 0.01*(0.00)   | 0.02*(0.01)   |
| <b>N</b>                     | 16,318      | 16,318      | 16,318        | 16,318        | 15,987        |
| <b>Pseudo R<sup>2</sup></b>  | 0.03        | 0.04        | 0.14          | 0.15          | 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         |
|------------------------------|-------------|-------------|-----------------|-----------------|-----------------|
| <b>Demographics</b>          |             |             |                 |                 |                 |
| Race                         | 1.52(0.39)  | 1.50(0.39)  | 1.35(0.37)      | 1.26(0.35)      | 1.31(0.39)      |
| Hispanic                     | 1.00(0.53)  | 0.89(0.47)  | 0.68(0.37)      | 0.64(0.36)      | 0.67(0.40)      |
| Age                          | -           | 0.93*(0.01) | 0.94*(0.01)     | 0.94*(0.01)     | 0.94*(0.01)     |
| <b>Stop Purpose</b>          |             |             |                 |                 |                 |
| Speed Limit                  | -           | -           | -               | -               | -               |
| Stop Light                   | -           | -           | 1.27(1.00)      | 1.23(0.97)      | 1.34(1.09)      |
| Impaired                     | -           | -           | 269.63*(137.14) | 296.91*(153.06) | 245.23*(143.11) |
| Movement                     | -           | -           | 6.78*(4.18)     | 6.22*(3.85)     | 4.94*(3.46)     |
| Equipment                    | -           | -           | 4.94*(2.20)     | 4.21*(1.89)     | 4.87*(2.36)     |
| Regulatory                   | -           | -           | 1.87(1.01)      | 1.74(0.95)      | 1.87(1.06)      |
| Seat Belt                    | -           | -           | 3.41*(2.10)     | 3.41*(2.10)     | 2.59(1.83)      |
| Investigation                | -           | -           | 32.14*(15.02)   | 26.61*(12.69)   | 25.76*(13.13)   |
| Other                        | -           | -           | 8.26*(5.10)     | 7.40*(4.59)     | 5.97*(4.20)     |
| <b>Officer Type</b>          |             |             |                 |                 |                 |
| Black Disparity <sup>†</sup> | -           | -           | -               | 3.49*(1.01)     | 3.42*(1.06)     |
| White Disparity <sup>†</sup> | -           | -           | -               | 1.66(1.02)      | 1.17(0.88)      |
| <b>Time</b>                  |             |             |                 |                 |                 |
| Hour of Day                  | -           | -           | -               | -               | Included        |
| Day of Week                  | -           | -           | -               | -               | Included        |
| <b>Constant</b>              | 0.01*(0.00) | 0.05*(0.02) | 0.01*(0.01)     | 0.01*(0.01)     | 0.00*(0.00)     |
| <b>N</b>                     | 11,002      | 11,002      | 11,002          | 11,002          | 8,998           |
| <b>Pseudo R<sup>2</sup></b>  | 0.00        | 0.05        | 0.22            | 0.24            | 0.27            |

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.

Appendix

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

| Purpose            | Number | Percent |       |
|--------------------|--------|---------|-------|
|                    |        | White   | Black |
| Total Stops        | 184    | 51.09   | 48.91 |
| Speed Limit        | 31     | 74.19   | 25.81 |
| Stop Light/Sign    | 14     | 35.71   | 64.29 |
| Driving Impaired   | 15     | 73.33   | 26.67 |
| Safe Movement      | 7      | 28.57   | 71.43 |
| Vehicle Equipment  | 31     | 19.35   | 80.65 |
| Vehicle Regulatory | 16     | 62.50   | 37.50 |
| Seat Belt          | 13     | 76.92   | 23.08 |
| Investigation      | 30     | 36.67   | 63.33 |
| Other Vehicle      | 20     | 60.00   | 40.00 |

Figure A1. Stops by Day of the Week

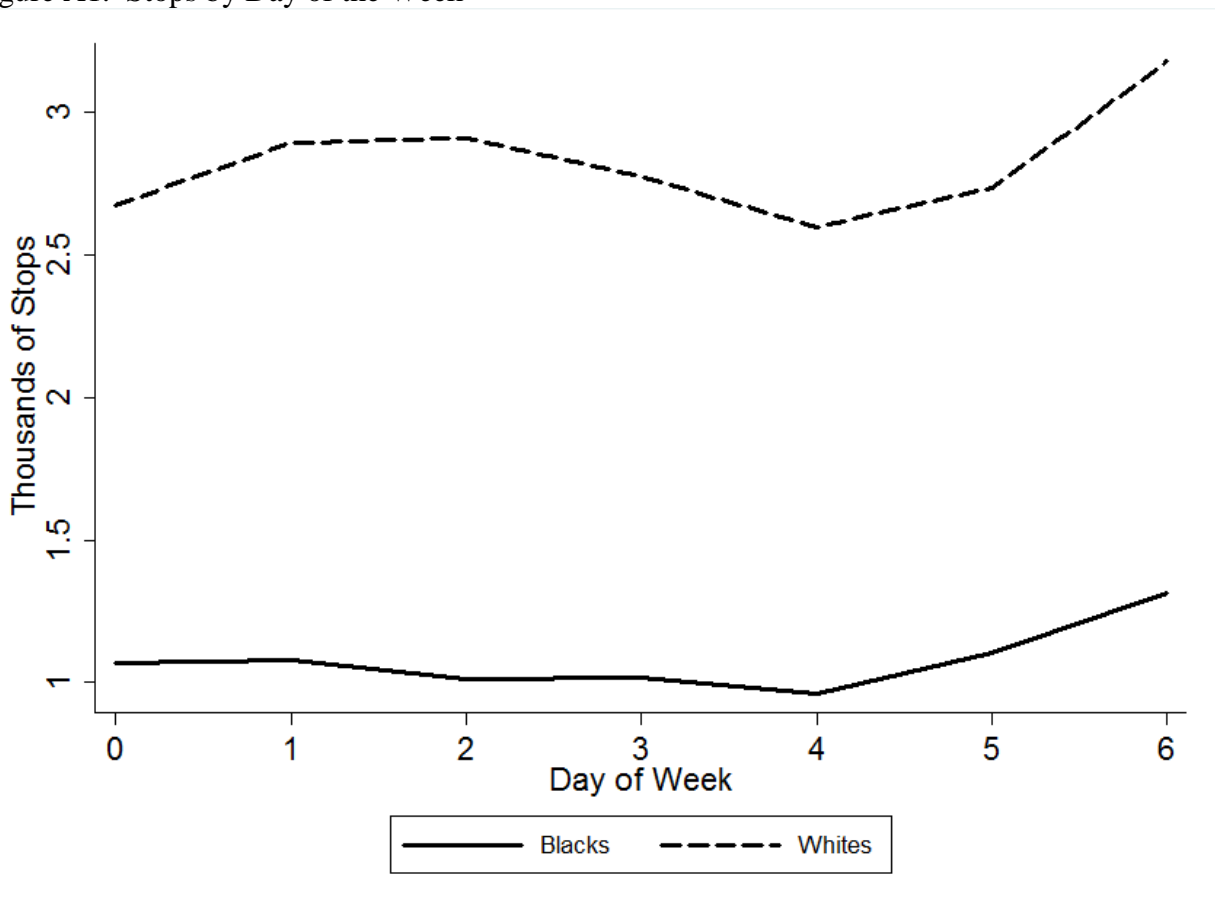




Figure A2. Searches by Day of the Week

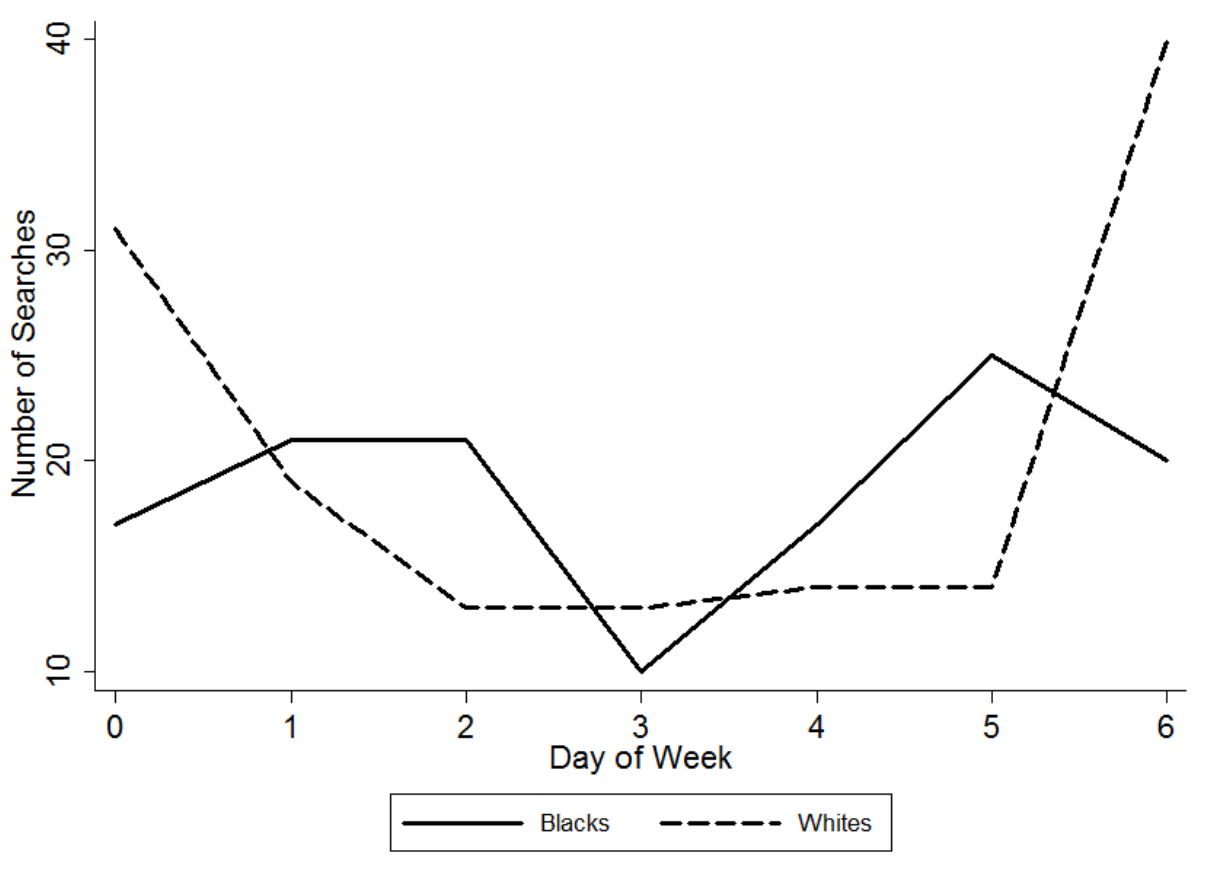
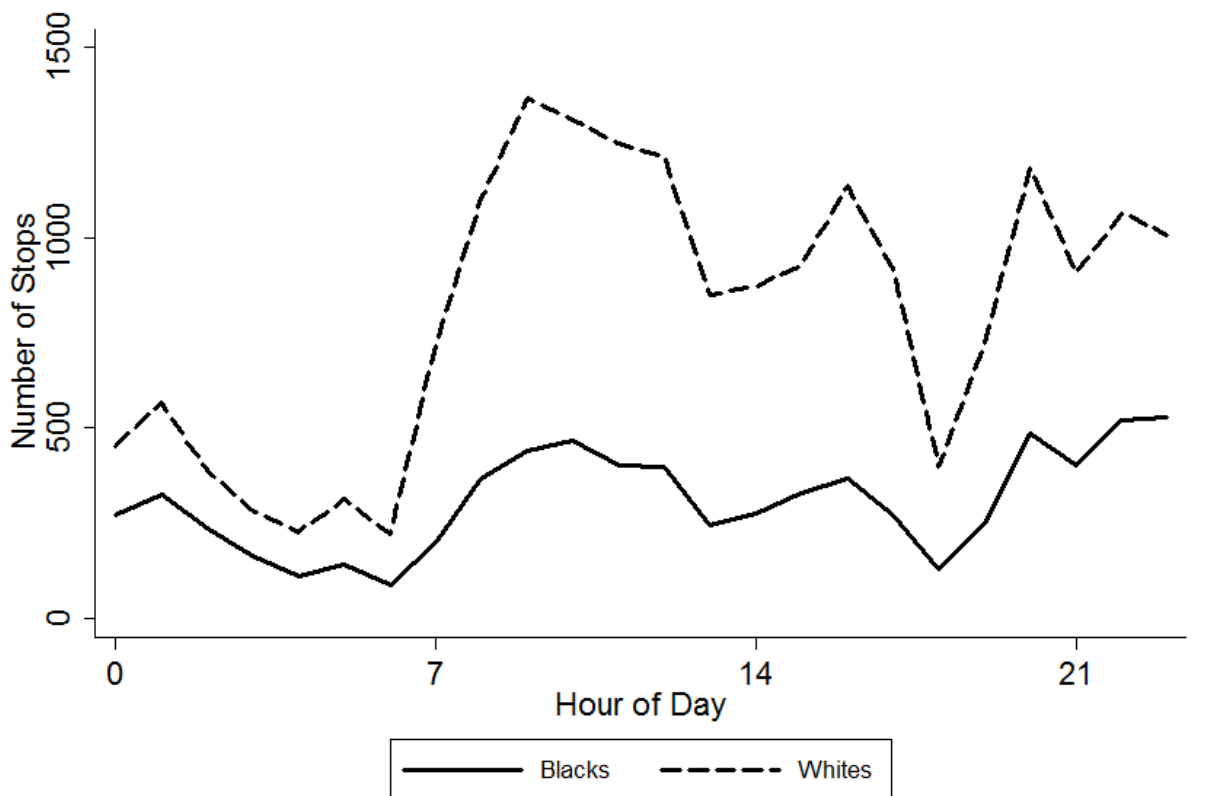
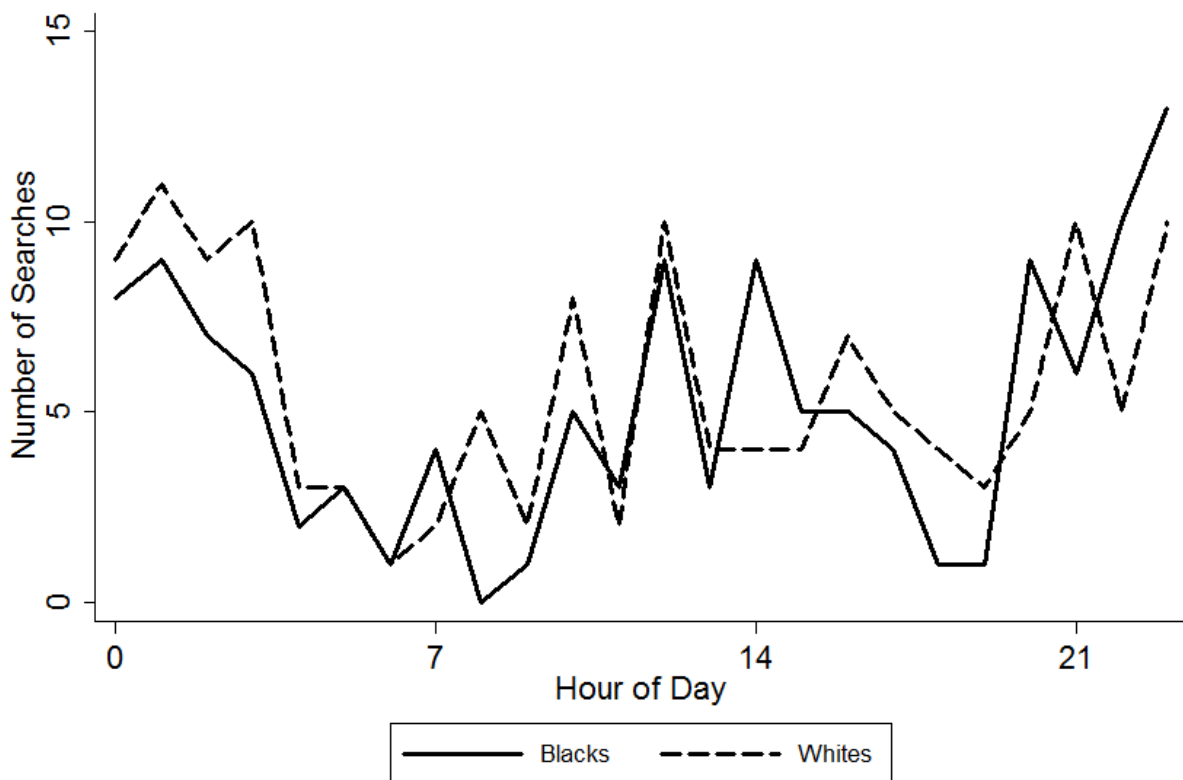


Figure A3. Stops by Hour of the Day



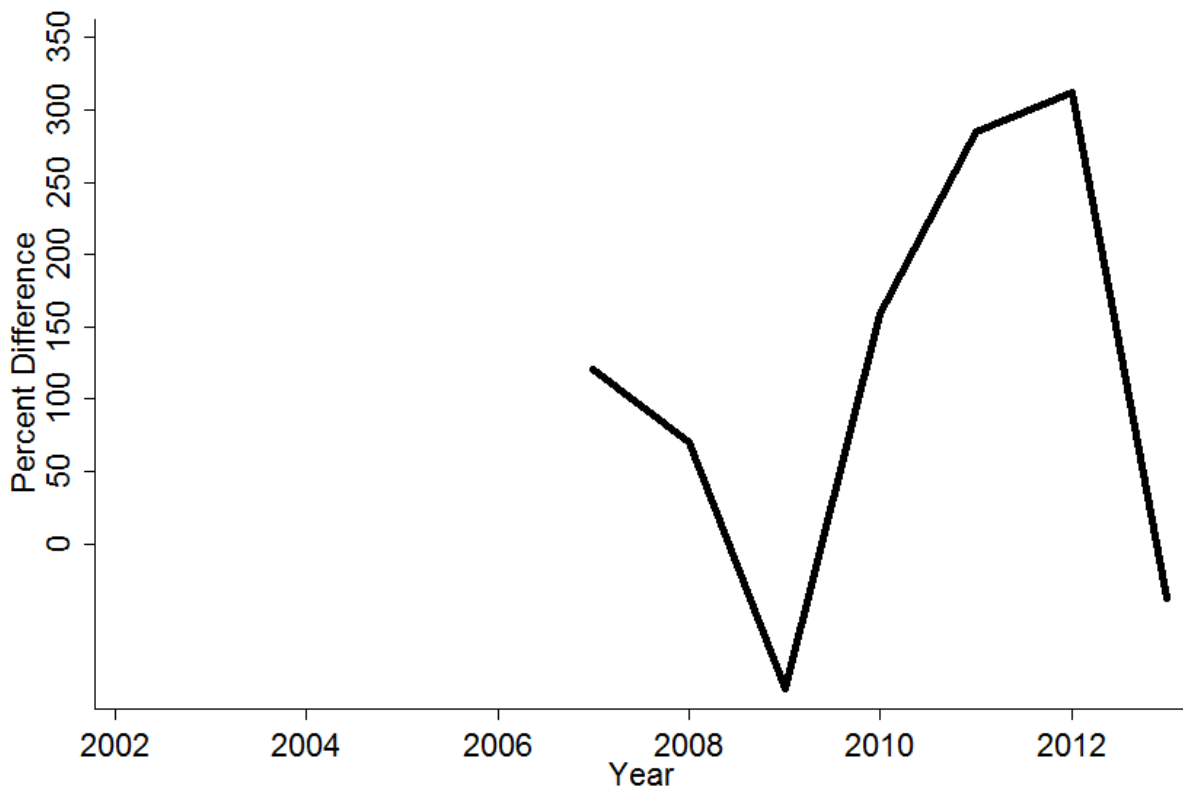
The figure excludes cases where the hour and minute was exactly 0:00. These cases were presumed to be missing data.

Figure A4. 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 A5. 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 A2. Likelihood of Finding Contraband Given a Search, by Race

| Contraband | Number | % Total | % White | % Black |
|------------|--------|---------|---------|---------|
| Yes        | 92     | 32.62   | 38.89   | 26.72   |
| No         | 190    | 67.38   | 61.11   | 73.28   |
| Total      |        | 100.00  | 100.00  | 100.00  |

Table A3. 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           | 19,621 | 0.30      | 26.98          | 4.18            | 68.03           | 0.51   | 100.00 |
| Black | No           | 7,424  | 0.59      | 32.97          | 4.53            | 61.14           | 0.77   | 100.00 |
| Total | No           | 27,704 | 0.38      | 28.50          | 4.27            | 66.27           | 0.58   | 100.00 |
| White | Yes          | 144    | 1.39      | 4.86           | 3.47            | 38.89           | 51.39  | 100.00 |
| Black | Yes          | 131    | 0.00      | 11.45          | 1.53            | 38.17           | 48.85  | 100.00 |
| Total | Yes          | 282    | 0.71      | 8.16           | 2.48            | 38.30           | 50.35  | 100.00 |