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Traffic Stops in Black and White

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- Derek Epp, PhD 2015, post-doc at Dartmouth
- Kelsey Shoub, PhD expected 2018
- Book in progress: Stopped By Police
- Undergraduate students here at UNC:
- Ashley Simpson, Morgan Herman, Dean Murphy, Julio Zaconet, Colin Wilson, Emily Williams, Justin Cole, Kate Elliott, Arvind Krishnamurthy, Amirah Jiwa, Gabrielle Thornton, Dory Macmillan, Katie Brown







Background on NC Traffic Stops Data Collection

- "Driving While Black" on national agenda in late-1990s
- NC the first state in the nation to mandate the collection of traffic stops data, in 1999.
 - Highway Patrol, since Jan 1, 2000
 - Other agencies, since 2002
- However, no Attorney General Reports
- I was asked to volunteer on a racial equity task force in 2011, and this was the first time the data were analyzed





- Initial findings: 77 percent increased likelihood of search for black drivers, 96 percent for Hispanic drivers.
- Rebuttal from NC Assn of Chiefs of Police and Sheriffs: analysis is "deeply flawed."
- Bill introduced in NC Senate to stop all data collection.
- Like the stages of grief, the initial response can be said to be ANGER and DENIAL.
- Today, we are in a later stage of the conversation, more productive. But it is certainly a difficult conversation.





- From Trayvon Martin to Michael Brown to Eric Garner to Freddie Gray, attention to violence and police—community relations is not going away.
- US DOJ investigation of Ferguson showed a +70 percent likelihood of search, for black motorists compared to whites.
- Police officials recognize that much can be learned by looking at these patterns.
- In any case, the numbers are there and will be discussed.
- Considerable talk with leaders in Durham, Fayetteville, Chapel Hill, Carrboro, Greensboro, Charlotte, Roanoke Rapids





The Data

SBI-122 form

Agency, officer ID number, purpose of stop, outcome of stop, search, contraband, age, race, gender, ethnicity of driver, time, date, other variables 18,000,000 records so far

Passengers and checkpoint stops excluded, only collected when a search occurs

State web site: <u>http://trafficstops.ncdoj.gov/</u> My web site: <u>http://www.unc.edu/~fbaum/traffic</u>





The Focus of My Analysis Today

- Given a traffic stop, what are the odds of search, arrest, citation?
- For drivers of different age, gender, and race categories, what are the odds of each outcome?
- What are trends over time?
- For individual police officers, what is their pattern of stops and searches, by race?
- Do the bivariate results remain when we control statistically for other factors?
- Can we predict search rates by race based on other aspects of officer behavior?
- (Note: My focus here is on Black-White comparisons but the same can be done for Hispanics.)





Overview of NC Traffic Outcomes

	Number	Percent
Total Traffic Stops, 2002-13 Excludes passengers		
Excludes checkpoints	15,992,317	100.0
Citations	10,616,581	66.3
Searches	511,813	3.2
Arrests	349,136	2.1
Contraband "hits"	128,918	0.8



Percent Black Stopped, by Purpose

	Number	Percent Black
Total Stops	15,992,305	30.64
Driving Impaired	158,264	22.32
Seat Belt	1,492,624	26.56
Speed Limit	6,665,939	26.65
Safe Movement	886,090	29.82
Stop Light/Sign	758,136	31.18
Investigation	1,130,736	31.43
Other Vehicle	851,550	33.53
Vehicle Equipment	1,422,461	38.12
Vehicle Regulatory	2,626,505	38.41

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Percent Searched, Cited, Arrested

	White	Black	Ratio
Searched	2.61	4.57	1.75
Cited	66.88	63.43	.95
Arrested	1.90	2.71	1.43

Ratio = (Black Percent – White Percent)*100 / White Percent A Simple Measure of Racial Disparity in Outcomes Percent Difference in the Likelihood of the Outcome





Percent of Men Searched

	Number	White	Black	Ratio
Total Searches	427,677	3.23	6.38	1.97
Incident to Arrest	148,326	1.23	1.90	1.55
Warrant	1,127	0.01	0.01	1.61
Protective Frisk	14,316	0.11	0.21	1.94
Consent	194,236	1.47	2.94	2.00
Probable Cause	69,672	0.42	1.33	3.16





Percent of Men Searched Who Have Contraband

Contraband Hits as percent of:	(Number of Searches)	White	Black	Ratio
All Searches	427,677	25.64	26.07	1.02
Incident to Arrest	148,326	18.68	20.39	1.09
Warrant	1,127	38.19	42.28	1.11
Protective Frisk	14,316	15.79	17.76	1.12
Consent	194,236	23.30	19.13	0.82
Probable Cause	69,372	56.39	50.68	0.90





Odds of Search, by Age, Gender, Race



Based on 15,992,317 traffic stops from 2002 through 2013, and 511,813 searches. Overall rate of search: 3.20 percent.



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Young Black Men Beware

Charlotte



Greensboro





It's the same in every city

• Raleigh, Durham

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• Chapel Hill, Carrboro

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Black Female

Black Female

White Female

White Female

White Male

20-24 25-29 30-34 35-39 40-49 50+

White Male





Searches, Citations, Arrests by Age, Gender, and Racial Group

• Searches, Arrests









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Racial Disparities in Outcomes by Purpose of Stop

• Searches, Arrests





Citations









Disparities in Outcomes for Black Males Compared to White Males





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The figure shows the percentage difference in the likelihood of different outcomes for Black Males as compared to White Males.



Probable Cause Searches Increasingly Targeted, but Continued Low Hit Rate







Similar Pattern for Consent Searches

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Simple percent differences in odds of search, for males

City	Stops	White Pct Searched	Black Pct Searched	Percent Increase for Blacks
Charlotte	822 K	4.65	10.48	125
Durham	146 K	5.03	11.07	120
Chapel Hill	38 K	4.43	8.64	95
Carrboro	17 K	7.37	16.18	120
Raleigh	456 K	3.28	5.69	74
SHP	5.4 M	0.77	1.19	55
North Carolina	10.3 M	3.23	6.38	98







Multivariate Analyses

- Control for other factors, logistic regression
 - Race
 - Hispanic
 - Age
 - Purpose of the stop (speeding, equipment, etc., 9 categories defined)
 - High disparity officer
 - Hour of the day
 - Day of the week





Predicting Searches, Citations, and Arrest

Variable	Search	Citation	Arrest
Black	1.75*	1.08*	1.51*
Hispanic	1.16*	1.83*	1.72*
Age	0.97*	0.99*	0.99*
Speed Limit	-	-	-
Stop Light	1.45*	0.52*	1.25*
Impaired	23.65*	0.08*	59.21*
Movement	2.96*	0.21*	2.04*
Equipment	2.38*	0.17*	1.27*
Regulatory	1.90*	0.55*	1.57*
Seat Belt	2.10*	0.89*	1.26*
Investigation	5.38*	0.27*	3.98*
Other	2.61*	0.47*	2.38*
Black Disparity Officer	1.20*	0.98*	1.12*
White Disparity Officer	0.84*	0.97*	1.32*
Contraband Found	-	0.88*	23.49*
Hour of Day	Included	Included	Included
Day of Week	Included	Included	Included
Constant	0.09*	2.63*	0.03*
N	4,752,908	4,752,908	4,752,908
Pseudo R ²	0.10	0.10	0.23





Results: Focus on Young Black Men

City	Increased Odds of Being Searched, for Black Males compared to White Males, controlling for relevant factors	
Charlotte	136 %	
Durham	164 %	
Chapel Hill	111 %	
Carrboro	273 %	
Raleigh	130 %	
SHP	66 %	
State-wide	75 %	
Arrest, controlling for same factors as well as whether contraband was found (state-wide)	51 %	





Officer – by – Officer Analyses

- Each officer has a unique ID number
- Linking to the identity of that officer requires legal work, but can be done
- Agencies can use data to review patterns
- Many typos in the officer ID numbers
- I analyze only if:
 - Greater than the department average search rate
 - At least 50 Black and 50 White Stops





Hypothetical data Equal search rates (left) Twice the rate for Blacks (right). Dots represent individual officers.





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Real data show significant disparities

Charlotte













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State Highway Patrol shows somewhat lower disparities compared to others







Charlotte, like most agencies, sees huge variation by officer: some never search anyone.







Predicting Officer Search Rates (Charlotte)

Purpose of Stop	Coefficient	Significance
Speeding	009	n.s.
Stop sign / stop light	067	.001
DWI	.484	.000
Safe movement (e.g. lane changes)	.052	.022
Equipment (e.g., broken tail light)	.223	.000
Regulatory (e.g., expired tags)	.026	.000
Seat belt	.293	.000
Investigation	.275	.000
Other	.083	.000
N = 1,569 officers with at least 100 stops	Adj. R-Sq. =	.5775
Average search rate: 6.4 percent; range 0.0 to 38.8		

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Black Drivers Stopped (Charlotte)

Predictor variables	Coefficient	Significance
White drivers stopped	+.647	.000
Percent Speeding	+1.34	.000
Percent Stop sign / stop light	923	n.s.
Percent DWI	401	n.s.
Percent Safe movement (e.g. lane changes)	568	n.s.
Percent Equipment (e.g., broken tail light)	+3.19	.000
Percent Regulatory (e.g., expired tags)	+2.49	.000
Percent Seat belt	+2.92	.002
Percent Investigation	+1.42	.051
Percent Other	059	n.s.
N = 2,212	Adj. R-Sq. =	.6086





Black and White Search Rates Predicted (Charlotte)

Predictor variables	White	Black
Search rate for the other racial category (Black / White)	+.675***	+.918***
Percent Speeding	0004 <i>,</i> n.s	+.002, n.s.
Percent Stop sign / stop light	032*	+.008, n.s.
Percent DWI	+.532***	331***
Percent Safe movement (e.g. lane changes)	+.011, n.s.	+.028, n.s.
Percent Equipment (e.g., broken tail light)	+.007, n.s.	+.069***
Percent Regulatory (e.g., expired tags)	002, n.s.	+.011**
Percent Seat belt	010, n.s.	+.098***
Percent Investigation	+.007, n.s.	+.073***
Percent Other	025*	+.071***
N = 889	R-sq = .79	R-sq = .83





What did all those numbers mean?

- Some traffic stops are to maintain safety: speeding, stop sign violations, dwi.
- Others appear more pretextual: lane changes, broken tail light, expired tag, seat belts
 - (Of course there are exceptions: driving without headlights is dangerous!)
- We can use the mix of stops in an officer-by-officer analysis to predict, quite well actually:
 - Search rates, which are surprisingly variable by officer
 - The number of Blacks targeted (controlling for the number of Whites)
 - Percent of Blacks searched; percent of Whites searched
 - (these are predicted by different factors)
- Police Chiefs can affect racial disparity numbers by asking officers to focus on safety, not pretexts. State Highway Patrol has low bias, focus on speeding.

Discussion Points

- Great differences in search rates by
 - Agency
 - Officer
 - Race, Gender, Age of Driver
 - Purpose of the traffic stop: safety or pretext?
- War on drugs has made many traffic stops pretexts for something else
- It is extremely inefficient in identifying drug couriers, the purported reason for the focus on searching those fitting a "profile"
- It has come with a high cost in community trust
- Police supervisors can indeed affect this if they choose to do so

Contraband hits: Usually very small amounts





Drug Couriers and King-Pins, or your Son?

- Diverting the resources of the police to the war on drugs
 - Justified on the idea of finding drug couriers and major drug dealers
 - But these individuals rarely travel the roads with significant amounts of contraband
 - If they do, apparently they don't fit the "profile" and why would they?
- Contraband hits: 0.8 percent of NC traffic stops
 - Significant amounts of contraband: perhaps 2 percent of that: 0.016 percent
 - That is, a 99.84 percent chance that the driver of that car does not have a significant amount of contraband.
 - Millions of traffic stops are part of a cat and mouse where the odds are so low that it should be seen as a massive waste of taxpayer resources, with disastrous consequences in community trust of the police.
- The Cost of the Inefficient War on Drugs
 - Alienation of entire generations of men of color and the people who love them.







Discussion Points

- Can the sustained national conversation we have been having lead to a constructive solution to these problems?
- Police at the hard end of the sword where interactions with different racial groups are conditioned on differences based on housing, education, poverty, and other disparities not controlled for here.
- "Difficult conversations" such as those we are engaged in nationally are needed to improve our country and our trust of the police.





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