Preliminary Findings of the Urbana IDOT Traffic Stop Data Task Force

June 30, 2015

In January 2014, the Urbana City Council established a Traffic Stop Data Task Force to examine data regarding racial disparities in traffic stops by the Urbana Police Department. The data we were tasked with examining was collected by the Police Department, in part to provide to the Illinois Department of Transportation for their study of traffic stops. In June 2014, the Task Force met to begin its work. The Task Force divided its work into four major areas of study:

- A survey of wider literature regarding traffic stops and racial disparities
- An analysis of the collected statistics regarding traffic stops in order to look for racial disparities and possible causes of any such disparities
- A study of the impact to the community of racial disparities in traffic stops, regardless of the causes of the disparities
- A review of current police procedures and how the police engage with the community

This report is a compilation of the results of those four areas of study over the past year, along with the Task Force's conclusions and recommendations.

The Task Force considers its work as the beginning, rather than the end, of this endeavor. While we have been able to do a significant review of the statistics, community impact, and police procedures and public engagement, the most we could do in the very short amount of time we were given was to identify areas of further exploration and give recommendations for future action. There is a great deal of work ahead to address the issues we have identified in this report.

This report compiles the preliminary findings of the Task Force. Public comment and review is invited.

Members of the Task Force:

Dr. Nicole Anderson-Cobb	Patricia Avery	Sgt. Andrew Charles
Dr. Shinjinee Chattopadhyay	Alejandra Coronel	Dr. Eric Jakobsson
Will Kyles	Peter Resnick (Chair)	Shandra Summerville
Paul Testa		

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Executive Summary

Context of This Report

Viewed from a historical context, the relationship between law enforcement agencies and minority communities has been problematic. From the perspective of minority communities, law enforcement agencies throughout our history were all too often employed as a mechanism to control and suppress the democratic aspirations of marginalized communities. Law enforcement agencies reflected the pervasive racial and ethnic prejudice of American society; and did so with the full authority and weight of the criminal justice system.

Nationally, we are witnessing the inevitable social tension and strain associated with transitioning from law enforcement as a method of controlling minority communities, to law enforcement that collaborates with minority communities as full participants in our society. Communities agree to standards for lawful conduct. Communities determine the consequences for breach of lawful conduct. Communities grant law enforcement authority to enforce standards of conduct. Communities articulate the acceptable methods by which authority is exercised. Thus, in a very real sense, law enforcement is the community's mechanism to enforce its own standards. Significant discontinuity between the community's sanctioned methods and law enforcement's utilized methods raises serious concerns about the legitimacy of particular law enforcement methods.

It is within this context that the Task Force has been called upon to review Urbana's traffic stop statistics. The Task Force acknowledges that Urbana Police Department is generally reputed to be a good example of a law enforcement agency that is committed to serving all elements of its community. Notwithstanding that reputation, the Department's traffic stop data reveal a pattern of stopping minorities at a higher rate than their proportion in the population. These patterns raise several critical questions that bear directly upon the legitimacy of the Department's traffic enforcement methods from the perspective of the minority community and the Urbana community as a whole. This report attempts to explore some of the questions raised by the data from a community perspective.

As a final note, the Task Force's is sensitive to the recent tragic encounters between law enforcement and minority citizens which culminated in the deaths of Kiwane Carrington in Champaign, Illinois, Michael Brown in Ferguson, Missouri, and Eric Garner in Brooklyn, New York. The Task Force seeks to learn from the IDOT data to positively contribute to the improvement of community-police relations in Urbana so that we might avoid similarly tragic encounters in our community.

Terminology

We will be using the following terms as described:

"Racial disparity": For a particular race, there is a difference between the number of traffic stops actually made and the expected number of traffic stops given the population of that race.

"Bias" and "racial profiling": These terms simply mean that the race of the driver is a factor in deciding whether and how a driver is stopped for a traffic violation. Neither term necessarily implies an official policy on the part of officers to stop drivers based on their race, or even conscious intent to do so.

"Hot-spot policing": The practice described in much of the literature on the topic whereby police officers are deployed to areas with higher crime rates or specific criminal activity.

"Investigatory stop": The practice of officers making discretionary traffic stops in situations where they might otherwise not do so; while these discretionary traffic stops are based on actual observed traffic violations, the primary reason for making an investigatory stop is to engage in further investigation of other potential crimes in the area where the stop was made.

Summary of Conclusions

Statistical Analysis

Like analyses that have been done in the past, our statistical analysis of the traffic stop data also shows a disproportionately large number of traffic stops are made of African-American drivers in our community as compared to any other racial group of drivers. Our analysis shows that this disparity is mostly due to differences in policing tactics. Specifically, a majority of the racial disparity in traffic stops can be attributed to the increased policing of neighborhoods that have predominantly African-American populations, due not only to police presence on the basis of specific service calls to those neighborhoods, but also due to the use of "hot-spot policing" and "investigatory stops". When officers made stops with a specific purpose of monitoring particular traffic problems, the racial disparities in traffic stops were much smaller. We only found a marginal difference in stops based on demographic factors such as the relative age of the drivers in different racial groups, or socio-economic factors such as the age and condition of vehicles. Our analysis has also shown some evidence of bias in traffic stops when comparing African-American drivers to Caucasian drivers, not attributable to policing tactics or location of the traffic stop. The disparity in these cases only accounts for a small portion of the disparity we see overall. Regarding the results of traffic stops, our statistical analysis found a disproportionately higher number of searches performed during traffic stops of African-American drivers. We also found that African-American and Hispanic drivers paid disproportionately higher fines for traffic violations, mostly due to the fact that the specific violations carry higher fines and that they were more likely to be charged with multiple violations.

Community Impact

Through our interviews of community members and our review of data and literature, we found that having a disproportionate number of traffic stops of African-American drivers imposes profound negative impacts to the community that exist *independent of whether this disparity in traffic stops is otherwise justified*. A driver who happens to live in a neighborhood where police do additional patrols, either due to calls for service or hot-spot policing, is more likely to be stopped and ticketed that a driver who lives in a different neighborhood, even if the two drivers had identical vehicles and driving behavior. This means that drivers in such neighborhoods end up having greater financial hardships simply because of where they happen to live. Compounding this problem is that drivers in these neighborhoods tend to have comparatively lower incomes: Not only does having a lower income mean that the additional financial burdens hits one especially hard, the violations associated with the inability to afford insurance or license fees carry higher fines than other violations, making the situation even worse.

In addition to financial impact, there are also significant psychological and safety impacts of African-American drivers being pulled over disproportionately. Though traffic stops are rarely good experiences for anyone, we have found that African-American drivers experience a great deal of fear for their physical safety during traffic stops. These fears can be based on previous personal experiences with traffic stops that have gone poorly, as well as the knowledge of terrible police-public interactions that have taken place both historically and in current news. These fears are problematic in and of themselves, and repeated stops of a driver can make the situation worse. But those fears also create a situation with real physical danger: Because of these fears, drivers are on edge when interacting with officers. Officers, likewise, can behave negatively in response to fearful drivers, either as a result of poor interactions during a traffic stop or in anticipation of them. Our review of recent cases in the news indicates that interactions between officers and the public with such heightened emotions can spiral and end tragically. A disproportionate number of traffic stops, particularly when drivers are especially fearful, increases the risk of injury or death.

Police Procedure and Public Engagement

Urbana police officers perform "hot-spot policing" and "investigatory traffic stops". Our review of the relevant legal research indicates that investigatory stops are legal, and there is evidence in the literature that certain kinds of hot-spot policing does lower crime rates. Our review of local procedures indicates that hot-spot policing in Urbana has been done on an ad-hoc basis and not systematically. Police command is not directing officers to particular areas to do hot-spot policing, but instead it is done at the discretion of individual officers, with the officer making the decision to police areas where they have observed higher crime rates. Furthermore, outcomes have not been consistently monitored due to a lack of police resources to do the kind data collection necessary. It is not clear whether the particular kind of hot-spot policing done, particularly the use of investigatory traffic stops, is actually having an

effect on crime rates. We find that the benefits of engaging in these practices must be measured and weighed against the negative impacts that such practices make in the community. Insofar as hot-spot policing continues to be used, and we recognize that there are benefits in doing so, we find that the Police Department does not currently engage in a sufficient amount of community engagement to minimize the negative experiences that many African-American drivers have due to the resulting increased number of traffic stops that occur from the practice.

As part of our discussions with the Police Department regarding different types of policing, we found that traffic stops were not tracked as to type, whether hot-spot policing, specific traffic details, or other sorts of engagements. While we recommend in this report several additional kinds of information the Police Department should be collecting and reviewing to improve police procedures, the Department has already instituted a procedure to collect traffic stop type as part of their regular collection of traffic stop data due to our discussions with them.

Summary of Recommendations

There are detailed recommendations at the end of this report. This is a high-level summary of some of the key recommendations.

- The Police Department should continue and expand the programs it has already initiated during the existence of the Task Force, particularly trainings on implicit bias, the collection and monitoring of additional traffic stop data (beyond IDOT requirements) to help eliminate disparities, and reviews of traffic stops with officers to assess the motivations, efficacy, and results of traffic stops.
- A statistician should be enlisted to continue the review of traffic stop statistics on an annual basis to find any trends and identify biases that may exist.
- Crime statistics should be regularly reviewed to assure that any differences in police tactics are justified by significant reductions in crime rate as compared to the negative impact such tactics have on the communities where they are used.
- Police Department policies should be reviewed to be sure that ticketing for traffic stops is done proportionally, across race or ethnicity, where traffic stops are disproportional due to specific police procedures.
- The City Council should review the disproportional economic impacts of citations for traffic violations and examine changes that might ameliorate those impacts. For example, fines for different traffic violations should be reviewed with an eye toward reducing fines that disproportionately impact the African-American and Latino communities.
- The Police Department should engage with the communities affected by disparate traffic stops, both to help educate the community on traffic stop expectations and how community members can help to reduce the number of traffic stops and citations, as well as to help educate officers on the experiences of the communities affected by disparate numbers of traffic stops.

See the “Recommendations” section on page 28 under “Police Procedure and Public Engagement” for a more detailed discussion of policy recommendations.

Literature Review

Traffic Stop Rates

Based on studies conducted in many parts of the United States, African-American drivers have been found to be subject to traffic stops out of proportion to their representation in the population.[1] On the other hand, a nationwide survey of just under 58,000 individuals on police-civilian contacts throughout 2008 found no such disparity in numbers of traffic stops, either for White, African-American, or Hispanic drivers, but did show a major disparity in searches.[2] African-American drivers were approximately 4 times as likely to White drivers to undergo a search, either of vehicle or person or both, and about twice as likely as Hispanic drivers. Assuming both the local studies and the national study had equally good methodology (and neither on careful reading had obvious flaws) it appears there is substantial variability in communities across the nation in how race and ethnicity play out in traffic stops. In any event, as described in the next section of this report, there is no doubt that statistical disparities in stops exist in Urbana, where African-American drivers are stopped disproportionately relative to drivers of other races.

One hypothetical reason for racial or ethnic disparities might be driving habits. One might reasonably guess that death rates for drivers would be a good measure of reckless driving. Statistics gathered by the Centers for Disease Control over a several year period show no significant difference in age-adjusted driver deaths between African-Americans, Hispanic-Americans, and European-Americans.[3] African-Americans are not more reckless drivers than European-Americans.[4]

Note that the statistics cited above are age-normalized. Younger drivers have more accidents than older drivers (except for drivers over 75 year old).[5] The African-American population in the U.S. is younger than the White population. Thus the fractional population of African-Americans is higher in the "dangerous driving" age range (up to 24) and lower in the "safe driving" age range (35-74).[6]

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[1] http://www.nij.gov/topics/law-enforcement/legitimacy/pages/traffic-stops.aspx

[2] Eith, Christine, and Matthew R. Durose. "Contacts between police and the public, 2008." Washington, DC (2011). Available at http://bjs.gov/content/pub/pdf/cpp08.pdf

Eith, Christine, and Matthew R. Durose. "Contacts between police and the public, 2008." Washington, DC (2011). Available at http://bjs.gov/content/pub/pdf/cpp08.pdf

[3] http://www.cdc.gov/mmwr/preview/mmwrhtml/su6001a10.htm

[4] The national highway death data show that Asian-Americans are only about half as likely, relative to their proportion in the population, to be drivers in fatal accidents.

[5] http://www.census.gov/compendia/statab/2012/tables/12s1114.pdf

[6] http://en.wikipedia.org/wiki/Demographics_of_the_United_States

It is instructive to examine the case of one city with similar demographics to Urbana that, for a number of years, had no racial disparity in traffic stops. This is Iowa City, population approximately 72,000, home of the University of Iowa. A comprehensive study of racial disparity in traffic stops was done by Barnum, et al.[7] The authors found that from 2005 through 2007 there was only a very slight disparity in traffic stops, perhaps small enough to be accounted for by the black population being younger and therefore having a higher fraction of the population violating traffic laws. But in 2008 and 2009 there was a surge in violent crimes in the black neighborhood that was statistically modest but received prominent coverage in local news media. This resulted in increasing patrols in black neighborhoods and a significant increase in statistical racial disparity in stops. The crime incidence soon returned to its previous level, but the traffic stop disparity persisted through 2012, the last year covered by the study. It may persist to the present day.

This study illustrates both the strength and weakness of statistical analysis. The statistics are very good at telling us what happened but fall short in telling us why it happened. To what extent was the end of the surge in violent crime in Iowa City due to the increased patrols and arrests and to what extent did it simply "play itself out" or decline due to other factors? Is the continued increase in patrols and arrests in the black neighborhoods responsible for the sustained reduced crime rate, or is it a practice that has outlived its policy usefulness but is maintained for political reasons?

Possible Reasons for Disparities

Weisburd and Eck[8] attempted to deal with the "why" issue by reviewing a broad range of studies on the relationship between police practices and crime rates. They concluded that employing a broad range of strategies in a coordinated focus on "hot spots" of crime is effective in reducing crime rates. Investigative traffic stops comprised a component in this strategy. One of the studies cited was especially strong in its validity in that it did a study of 24 randomly selected different regions in Jersey City, in which 12 were assigned intensive hot spot policing and 12 were not.[9] The results were unequivocal. Targeted hot-spot policing reduced crime in those areas where it was done. However, the evidence for efficacy of investigatory traffic stops as part of this policing strategy is less clear. In the published controlled experiments on hot spot policing, local police departments typically did what they

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[7] Barnum, Chris, Robert Perfetti, and Matt Lint. "Iowa City Police Department Traffic Study." (2014).

[8] Weisburd, David, and John E. Eck. "What can police do to reduce crime, disorder, and fear?." *The Annals of the American Academy of Political and Social Science* 593.1 (2004): 42-65.

[9] Braga, Anthony A., David L. Weisburd, Elin J. Waring, Lorraine Green Mazerolle, William Spelman, and Francis Gajewski. "PROBLEM-ORIENTED POLICING IN VIOLENT CRIME PLACES: A RANDOMIZED CONTROLLED EXPERIMENT*." *Criminology* 37, no. 3 (1999): 541-580.

did before, but more intensely, so that traffic stops were not controlled for separately.

Although to our knowledge the Urbana Police Department does not have a policy of "hot spot policing" explicitly by name, it does appear to be doing it in practice. Since (as shown in the statistical section of our report) there is a strong correlation between police calls for service and traffic stops in the geo codes that make up our city, it appears that investigatory stops are part of the hot spot policing practice.

In the studies cited by Weisburd and Eck, it was found that community policing was not effective in reducing crime, at least in the short run, but did improve community-police mutual trust. It is reasonable to hypothesize that this increased trust could lead to a long-term reduction in crime by improving the effectiveness of enforcement, but long term trends are hard to deal with statistically since many factors are changing, for example the composition of neighborhoods, the overall economic climate, etc.

Epp et al[10] published a major study on the causes and effects of racial disparities in traffic stops. They concluded that there was no disparity in stops that were made for purely traffic safety reasons. Essentially all of the disparities were due to stops with an investigative component, where the officer used a minor safety issue as a reason to stop a vehicle that was suspected, for other reasons, to be connected to some illegal activity. They concluded that, due to the fact that in most stops the suspicions are not substantiated, these stops have a corrosive effect on relationships between the police and the black community. This is especially so because blacks are under-represented on police forces across the nation.[11] Thus many black residents have had the experience of being stopped by white officers on the basis of suspicions that proved to be unfounded.

Legal Issues

It should be noted that the constitutionality of making such pretextual stops, for minor moving or equipment violations that would not in themselves usually prompt a stop except for some other suspicion of illegal activity, are firmly rooted in settled law. The relevant Supreme Court case is Whren vs. United States, which was a unanimous decision.[12] Some legal scholars have criticized this decision. [13] [14] [15]

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[10] Epp, Charles R., Steven Maynard-Moody, and Donald P. Haider-Markel. *Pulled Over: How Police Stops Define Race and Citizenship*. University of Chicago Press, 2014.

[11] http://www.nytimes.com/interactive/2014/09/03/us/the-race-gap-in-americas-police-departments.html

[12] http://en.wikipedia.org/wiki/Whren_v._United_States

[13] Sklansky, David A. "Traffic stops, minority motorists, and the future of the Fourth Amendment." *The Supreme Court Review* (1997): 271-329.

[14] LaFave, Wayne R. "The" Routine Traffic Stop" from Start to Finish: Too Much" Routine," Not Enough Fourth Amendment." *Michigan Law Review* (2004): 1843-1905.

However because it was unanimous, it is not likely to be overturned any time soon, so it is part of the legal context in which traffic stop disparities must be considered. A recent Supreme Court decision modified the Whren decision to some extent. This was RODRIGUEZ v. UNITED STATES[16], decided on April 21,2015. In this decision, the Court held that even if a stop has an investigative component, its duration couldn't be extended beyond the time needed to process the traffic violation that served as the nominal reason for the stop.

Economic Implications

Our committee also considered the issue of economic impact on drivers of fines due to violations uncovered at traffic stops. We note that the present system of fixed fines for particular offenses hits people of limited means much harder than people who are well off financially. In several nations in Northern Europe, fines are assessed according to a "day fine" system.[17] In this system, a fine for a particular offense is set at a certain number of days' income rather than a fixed amount. The logic is that a fine of, for example, $120, would be pocket change for a well-salaried professional, but might make the difference in being able to pay the rent for a minimum-wage worker. Under a day-fine system the fine would be much lower for the minimum-wage worker than for the well-salaried professional. Such a system has been experimented with in the United States with promising results.[18] Our committee will recommend that the City of Urbana seek to modify traffic-stop related fine schedules to be more equitable to people in various economic situations.

Related Criminal Justice Issues

Because of the role of investigatory traffic stops in the criminal justice system, they unavoidably become entangled with other criminal justice issues, especially with how the criminal justice system deals with drug use and mental illness. While those issues are beyond the scope of the Task Force, perhaps they merit mention by virtue of how they interact with investigatory stops.

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[15] Donahoe, Diana Roberto. "Could Have, Would Have: What the Supreme Court Should Have Decided in Whren v. United States." *Am. Crim. L. Rev.* 34 (1996): 1193.

[16] http://www.supremecourt.gov/opinions/14pdf/13-9972_p8k0.pdf

[17] Lappi-Seppälä, Tapio. "Penal policy in Scandinavia." Crime and justice 36, no. 1 (2007): 217-295. See also http://www.theatlantic.com/business/archive/2015/03/finland-home-of-the-103000-speeding-ticket/387484/

[18] Winterfield, Laura A., and Sally T. Hillsrnan. "The Staten Island Day-Fine Project." (1993); McDonald, Douglas. Day fines in American courts: the Staten Island and Milwaukee experiments. Vol. 100, no. 4. US Department of Justice, Office of Justice Programs, National Institute of Justice, 1992.

Carl Hart describes racial disparities in both the letter and the enforcement of drug laws in his book, "High Price".[19] Hart has a unique perspective as a black man who dealt drugs in his youth in Miami but ultimately became a respected neuroscientist whose work focuses on the science of addiction. He combines his personal experience with his professional expertise to analyze the problems with how our criminal justice system deals with drugs in the black community.

In addition to racial disparities in drug issues, mental health problems are under-treated in the African American community.[20] [21]

Reflecting the interplay between all these issues, our jail and prison populations are over-represented in African-Americans and in people suffering from mental health and drug problems. [22]

Fortunately there is currently interest in Champaign County in criminal justice reform, which would improve how the criminal justice system deals with the issues described above. This is exemplified by the visit and presentations from Leon Evans, the CEO of the Center for Health Care Services in San Antonio, Texas.[23] He talked about their very successful jail diversion program.[24] [25] While not a direct subject of our study, improvement of the criminal justice and mental health systems in Champaign County would undoubtedly have an effect (we believe beneficial) on the issues we address in this study.

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[19] Hart, Carl L. High Price: A Neuroscientist's Journey of Self-discovery that Challenges Everything You Know about Drugs and Society. Harper, 2013. A summary of Hart's research and his conclusions can be found at http://www.nytimes.com/2013/09/17/science/the-rational-choices-of-crack-addicts.html?_r=0

[20] Snowden, Lonnie R. "Barriers to effective mental health services for African Americans." *Mental health services research* 3.4 (2001): 181-187.

[21] Lasser, Karen E., David U. Himmelstein, Steffie J. Woolhandler, Danny McCormick, and David H. Bor. "Do minorities in the United States receive fewer mental health services than whites?." *International Journal of Health Services*32, no. 3 (2002): 567-578.

[22] http://en.wikipedia.org/wiki/Incarceration_in_the_United_States

[23] http://www.chcsbc.org/who-we-are/ceo-message/

[24] http://www.chcsbc.org/innovation/jail-diversion-program/

[25] http://www.npr.org/blogs/health/2014/08/19/338895262/mental-health-cops-help-reweave-social-safety-net-in-san-antonio

Statistical Analysis

The State of Illinois requires that police departments collect information on traffic stops for the purpose of assessing racial bias, disparities and profiling in policing. One approach to measuring racial disparities with these data is to compare the proportion of minorities who are stopped to the estimated proportion of minority drivers in the population.[26] The disparity measured by this ratio for Urbana, IL, from 2004 to 2013 ranges between a high of 1.7 in 2010 and a low of 1.07 in 2012. The observed disparity among minorities as a whole is due almost entirely to disparities in the rates at which African-American drivers are stopped, which ranges from a low of 1.71 in 2012 and 2013 to a high of 2.18 in 2010.

All else equal–that is, if the probability of being stopped was equal for all drivers–we would expect that these ratios to be close to one, with numbers higher than one suggesting that minorities are more likely to be stopped than we would expect given their relative distribution in the population. All else is rarely equal, however, and there are many factors that could produce the patterns we observe in the IDOT data. In this report, we consider three broad categories of explanations that could give rise to the observed racial disparities in traffic stops in Urbana:

1. Demographic and socio-economic differences
2. Patterns of policing
3. Racial profiling

These factors are by no means the only explanations for racial disparities nor are they mutually exclusive, but they are some of the most commonly considered causes. In fact it is possible, if not probable, that all of these factors (as well as some we have not or cannot address with the data at hand) have a role to play in explaining disparities in traffic stops.

We have two goals for this analysis. First, we wish to understand how much the data either do or not support these explanations for disparities in traffic stops. Second, we wish to use these data to better understand the outcomes of these stops and the broader legal and economic impacts of traffic stops in our community. The summary of our findings is presented below, the full analysis that supports these conclusions is provided in the report's statistical appendix.

Demographic and Socioeconomic Differences

Demographic and socio-economic differences across racial groups may explain part of the disparity in stops. Older cars are more likely to have equipment failures like a broken taillight or a faulty turn signal. If some racial groups are more likely to drive

[26]From 2004 to 2011 the minorities were estimated to make up 30.6 percent of the driving population in Urbana. In 2012, that baseline was raised to 39.5 percent.

older cars, then we might expect that these groups would be more likely to be pulled over for equipment violations. Similarly, if younger drivers are more inexperienced and more likely to commit traffic violations, then to the extent that some racial groups are demographically younger than others, this might also produce disparities in the rates at which these groups are stopped.

The data provide some support for this claim. African-American and Hispanic drivers in our data do tend to drive older cars and are more likely to be pulled over for equipment violations. African-American and Latino drivers who are stopped also tend to be younger than White drivers, possibly reflecting underlying demographic differences in the age of these driving populations. For all races, men tend to be stopped more frequently than women. The differences between genders are particularly large among Asian and Hispanic drivers and smaller among White and African-American drivers.

We believe it is unlikely, however, that demographic differences alone explain the racial disparities in traffic stops that we observe. For example, if socioeconomic differences were the only factor at play, we would expect African-American and Hispanic drivers–two groups that possess similar demographic profiles in our data–to be stopped at roughly the same rates. In fact, African-American drivers are stopped at rates nearly twice what we would expect given their relative distribution in the population, while Hispanic drivers are stopped at rates somewhat below what we would expect. Demographic and socioeconomic differences may play a role in explaining differences in the type of stops minority drivers experience, but likely play only a marginal role in explaining overall disparities.

Patterns Of Policing

Some areas of Urbana have a higher police presence then others. This is due both to calls for service from citizens and tactical decisions by the Urbana Police Department (UPD) about where their resources are most effectively used to reduce accidents and crime. To the extent that minorities live in areas with a higher police presence, this could account for some of the disparity in the rates at which minorities are stopped.

The data provide some support for this view. Urbana is divided into five police beats. Each beat is divided into smaller regions called geocodes, which are used to report the locations of both stops and calls for service.[27] Data for calls for service are available for 2010 to 2013 with positive correlations between stops and calls for service ranging from a low of 0.41 in 2012 to a high of 0.53 in 2011. We combine this data with information from the 2010 U.S. Census to provide an estimate of the racial composition of each geocode. We see that geocodes with more calls for service

[27]There are around a 140 unique geocodes in the data depending on the year. Geocodes vary in size. In residential neighborhoods, they generally correspond to several city blocks, and are somewhat larger in more commercial areas or sparsely populated sections of Urbana.

tend to have more traffic stops and a higher percentage of residents who are minorities.

The Census data also allow us to construct local measures of the racial disparity in traffic stops for geocodes. As with the measures reported for the City of Urbana, for each geocode, we compare the proportion of stops involving a minority driver to the estimated minority population living in that area. As one might expect, in areas with a higher concentration of minority residents, more stops tend to involve minority drivers. However, in neighborhoods with relatively few minorities, minority drivers appear to be stopped at rates higher than we would expect.

Some caution is required interpreting these results. Both these local estimates and the IDOT measures of disparity rely on Census data to produce a baseline estimate of the racial composition of the driving population. While this may be reasonable baseline when estimating disparities for Urbana as whole, the assumption is more questionable when trying to produce neighborhood specific estimates of disparities.

For example, the geocode associated with Meadowbrook Park, contains a residential community with very few minorities (about 3 percent). However, the actual racial composition of drivers along Windsor Road is likely far more diverse, and so the persistently high estimates of disparities our localized measure produces for this geocode may simply reflect the fact that the baseline we are using here is an inaccurate estimate the true racial composition of drivers passing through Meadowbrook Park along Windsor Road. Still, not all neighborhoods with small estimated minority populations have high measures of disparity, and the ones that do tend to be the same from year to year, providing some evidence that minorities are more likely to be stopped when driving in neighborhoods where minorities are less likely to live.[28]

For 2013, we are also able to assess the relative disparities in stops when police are focused specifically on enforcing traffic safety laws through the Selective Traffic Enforcement Program (STEP). The UPD describes the program as follows:

> The STEP project is a course of action, by the Urbana Police Department, in which specific sites in the city are slated for concentrated traffic enforcement. These sites are normally selected by statistical data which indicates an area with high traffic accidents, in particular, is the Lincoln Avenue corridor from Bradley Avenue to Florida. Other sites are selected

[28]Note that when there are relatively few traffic stops and or/few minorities in a geocode, small changes in either of these amounts can have a large effect on the estimated disparity for that geocode. One way to account for the inherent volatility of this measure is to calculate the variance of our estimate and use that variance to construct confidence intervals around our estimate. The substance of our findings remains unchanged when we limit our consideration to geocodes where the 95-percent confidence interval for the estimate of racial disparity does not include one (i.e. no racial disparity in stops).

based on input from citizens of traffic concerns in a particular area or neighborhood.[29]

Looking at this subset of STEP stops, we see that minorities are stopped at relatively lower rates in the program although African-American drivers are still about 25 percent more likely to be stopped than we would expect. Outside of the STEP program, the disparity estimates are significantly higher for African-American drivers.

Racial Profiling

Minority drivers, and in particular African-American drivers, are significantly more likely to be stopped given their relative representation in the driving population of Urbana. This fact may be evidence that racial profiling is occurring, but it may also reflect other factors like demographic differences and patterns of policing more broadly, or some observed characteristic not captured in the data. Disentangling these factors and ruling out potentially unobserved factors, is difficult. Here we consider one test for racial profiling designed to overcome these challenges.[30].

The basic logic of the test–sometimes called the "veil of darkness"– is relatively simple: If we think racial profiling is occurring, then it should be harder to do when it is dark out than when it is light out. Since the sun sets at different times during the year, traffic stops that occur during this inter-twilight period (times when it could be light or dark out depending on the time of year) provide a sort of natural experiment in which to test for racial profiling. In theory, the only thing that should differ between drivers stopped at 7 pm in December and 7 pm in the June, is that it was light out in June and dark out in December.[31] If minorities are less likely to be stopped when it is dark out, than this provides evidence that profiling is occurring.

While the basic logic of this approach is relatively simple, actually implementing the test requires us to make some substantive and statistical choices for which there are not clear right or wrong answers. We conduct this test on 10 years of data, and so we would like to separate the effects of the veil of darkness from any year-to-year variation in traffic stops that may be do to changes say in the size of the police force. Similarly, while the test assumes that the types of drivers on the road at 5 pm when it is light out will be similar to those on the road at 5 pm when it is dark out, we might expect that drivers on the road at 5 pm differ in meaningful ways from drivers at 8 pm, and so we would also want to control for the effects of the time of day when conducting our tests. Finally, we might ask whether our test for racial profiling

[29]See http://urbanaillinois.us/departments/police/police-systems

[30]See Grogger, Jeffrey, and Greg Ridgeway. "Testing for racial profiling in traffic stops from behind a veil of darkness." *Journal of the American Statistical Association* 101.475 (2006): 878-887.

[31]The validity of this assumption may be questionable, particularly in a college town where the minority population varies with the school year.

should assume that officers are more focused on stopping minority drivers in general, or African-American drivers in particular?

We address these questions by estimating a number of different models to test our hypothesis. We start with the most basic model, simply asking whether in the subset of stops that occur during the inter-twilight period (between approximately 4:30 and 8:30 pm), the probability that a stopped driver will be a minority varies according to whether the driver was stopped when it was light or dark out. We then proceed to more complex models that seek to address concerns about the effects of year-to-year variation and the time of day. We then repeat this analysis but this our indicator of whether the stop occurred during the day or night to predict whether the driver was African-American or not.

The results from these various approaches and specifications unfortunately do not provide a definitive, consistent answer to the question of racial profiling. When the outcome of interest is whether the driver stopped is a minority, the different tests generally do not find evidence of profiling (i.e. minorities appear to be no less likely to be stopped when it is dark out compared to when it is light out). Looking just at the probability that a driver stopped will be African-American, some of the models that control for appear to provide evidence that is consistent with the presence of racial profiling. For example in some of our more complex models, we allow the "effects" of the veil of darkness in these models to vary conditionally on the year of the study and the time of day, we end up with results suggesting that during some years of the study at some times of the day the data provide evidence of profiling.

Disparity in Outcomes

The disparity in the rates at which minority drivers are stopped persists in outcomes after the stop. African-American and Hispanic drivers are more likely to receive citations as opposed to written warnings when stopped.[32] They are also more likely to be searched and more likely to be subject to stops of longer duration.[33] Relatively few stops (1 to 3 percent of all stops) result in contraband being found with the majority of cases where contraband is found occurring during stops of White and African-American drivers.

[32]Again the data are somewhat limited in explaining why these disparities citations exist. At least part of the explanation may come from the types of stops different groups are likely to experience. Rates of citation for moving violations are roughly similar (~66 percent) for African-American and White drivers, while rates of citations for other stops (Equipment violations or license and registration) are much higher for African-American and Hispanic drivers relative to White and Asian drivers.

[33]It should be noted, however, that duration of stops is not always an indicator of poor or unequal treatment. Some stops, for example when a driver lacks a license or proper identification, simply take longer to process than a simple speeding ticket. During our Task Force meetings we also discussed some cases in which a longer traffic stop reflected an officers attempt to help the driver, for example, by waiting with them until a towing company arrived or helped the driver avoid a ticket for driving without car insurance by allowing them to use their smartphone to track down proof that they had paid for car insurance. While these stops may be longer in duration, the outcomes are probably more preferable from the driver's perspective.

In terms of the financial impact of traffic stops, African-American and Hispanic drivers on average pay higher fines. This appears to be due primarily to the fact that these minorities are charged with offenses that carry higher fines (such as driving without insurance or a license), are more likely to be charged with multiple offenses, and more likely to be stopped and charged multiple times. Within a particular offense, however, the average fines across racial groups are relatively similar.

Summary

Complex social problems rarely have simple answers. The traffic stop data show that minority drivers, and in particular African-American drivers, are more likely to be stopped by the police. The extent to which racial profiling is the cause of these disparities, is a difficult question to answer with these data alone. As discussed above, there are many possible reasons for why we could observe the patterns of traffic stops that we do in Urbana. Socio-economic factors may play a role. The fact that minorities live in neighborhoods with a larger police presence almost certainly increases the rates at which they are stopped. Whether these disparities also reflect evidence of racial profiling is more difficult to say.

The fact that minorities are more likely to be stopped in neighborhoods where they are less likely to live is consistent with racial profiling, but may also reflect inaccurate estimates of the population driving through a neighborhood. Further tests of profiling using the veil of darkness approach are inconclusive, and tend to vary based on the assumptions of a specific model. Overall, this particular analysis can neither rule out the possibility that racial profiling is occurring, nor can it conclude that racial profiling is the sole or root cause of Urbana's racial disparities in traffic stops. Moving forward, both the possibility and perception of racial profiling (whether through conscious decisions or implicit bias) remains a real and significant concern for our community and police.

What the data clearly show is that there is a disparate impact in the rate and outcome of traffic stops in Urbana. While this evident in the IDOT data alone, it becomes particularly clear when one considers the economic impact of traffic stop disparities in Urbana. Minorities are more likely to be stopped multiple times and charged with multiple offenses that tend to carry higher average fines. Regardless of whether one chooses to interpret the traffic stop data as strong, weak or inconclusive evidence of racial profiling, the disparate impact of these stops likely contribute the perception that policing is racially motivated or unfairly targeting minorities. Addressing these concerns requires a deeper understanding of both policing and community impact.

Community Impact

The Merriam-Webster dictionary defines the word "impact" as to have a strong and often bad effect on something or someone. Racial disparities, as they relate to traffic stops, particularly in communities of color, often times can have a profound impact when it comes to emotional, physical, psychological, financial, and police and community relations.

The Department of Justice recently released a scathing report[34] that described the impact traffic stops have on the African-American residents in Ferguson, MO. Over the past year, just three hours east of Ferguson, MO in Urbana, IL, the Community Impact subcommittee of the Task Force examined what impact racial disparities have on Urbana residents.

The committee has worked with other Task Force members, and Urbana City staff from the Human Relations Department, to conduct interviews, review data and research materials, collect surveys, host a town hall meeting and canvass highly impacted neighborhoods. The committee was in search of answers on how racial disparities in traffic stops impact communities of color emotionally, physically, psychologically, financially, and the effect this disparity has on police and community relations.

According to the U.S. Department of Justice or the Illinois Department of Transportation Reports, the racial disparities in Ferguson's traffic stops are not unusual.

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For years, black residents of Ferguson, MO, have been disproportionately targeted by the city's police officers for traffic stops, according to the Justice Department

[34] http://www.justice.gov/sites/default/files/opa/press-releases/attachments/2015/03/04/ferguson_police_department_report.pdf

Report. While we do not see evidence that the Urbana Police Department and the Champaign County court system exhibit the systematic and purposeful targeting of African-Americans exhibited by their counterparts in Ferguson, it would be naïve to assume that our local criminal justice system is completely free of such biases, or that we could not benefit from a thorough examination of our system in that regard, given the pervasive racial biases that persist in our society. Data from the Bureau of Justice Statistics (BJS) suggests that police behavior in Ferguson may not be that unusual. According to the IDOT report, the same can be said about racial disparity that exists in traffic stops in Urbana. The rate at which African-Americans are stopped in Urbana range from a low of 1.71 in 2012 and 2013 to a high of 2.18 in 2010.

It may be hard to believe racial profiling exists because it's profoundly inconsistent with the principle of equal treatment under the law. However, if you were to ask many of the citizens who attended the Task Force town hall meeting held in February 2015, they would tell you it does exist, and that their only charge or moving violation was "driving while black."

In most cases when people are "pulled over" for a traffic stop, they suffer some temporary emotional anxiety for fear of being ticketed for speeding, failure to signal, equipment violation, improper lane usage, traveling through a red light, failure to stop, etc. However, if you are African-American and get "pulled over," many people report their anxiety levels are heightened and real fear of the unknown settles in; and, they suffer more long term effects. Depending on the circumstance and the interaction that occurs during the stop, fear from getting a traffic ticket and fear of physical safety reverberate throughout responses by African-American drivers, particularly African-American males.

Not all traffic stops are bad interactions, and according to rates of citation for moving violations, the impact is roughly similar (~66 percent) for African-Americans and Whites, while rates of citations for other stops (Equipment violations or license and registration) are much higher for African-Americans and Hispanics relative to Whites and Asians. However, it is the rate at which African-Americans are stopped which range from a low of 1.71 in 2012 and 2013 to a high of 2.18 in 2010 that increases the contact and the negative interactions that reportedly occur during those stops.

It was a snowy wintry day in February 2015 when approximately 45 individuals made their way to the Urbana Civic Center to share their stories on how traffic stops had impacted their lives. The Task Force members heard from many people in attendance about their psychological experiences when being "pulled over" for a traffic stop, both here in Urbana as well as their experiences elsewhere. There were reported feelings of fear, frustration, humiliation, mistrust, helplessness, and hopelessness.

Many people shared those stories.

Testimonial Accounts

Testimonial #1 – Psychological and Financial Impact

An African-American professional woman shared her story about her son who was home from college and who was pulled over by six officers for an improper lane change. Even though there was no ticket given, she stated since that experience her son has never been the same. She said she learned of his changed behavior and driving patterns when he called to ask her if she wanted some food from a nearby restaurant. When it took over an hour to get the food, she questioned "Why?" It was then she learned that her son was taking the long way home to avoid being stopped again. It was also at that time she learned the traffic stop had taken place two-three years earlier and how it has impacted her son not just psychologically but also financially. She said she knew he was using an extra gallon of gas just going out of his way to get home. She went on to say how it also has affected them as a family and, even though he is a grown man, she still does not sleep when he drives late at night.

Testimonial #2 – Emotional and Psychological Impact

We heard from Cathy, a Caucasian mom whose son she describes as an African-Brazilian American (who identifies himself as African-American). Her son was a senior at Eastern University who returned home after finals in December to work a seasonal job at Macy's. He was coming home from eating late one evening and was stopped. She said during the stop he was made to stand out in the cold for a long period of time. Cathy stated her son had been stopped more times than she could recount since he was 15 years old. Many times he was frisked but not his white friends.

She recounted how she witnessed on another occasion her son being harassed by the police. They were leaving Crystal Lake Park, and each of them were walking to their separate vehicles when she noticed the police pull up and started to question her son. She heard them asked him how much he had been drinking. When she walked over to let the police know they were fishing in the Park, and he had not been drinking, she stated she was told to shut up and at one point thought she might even be arrested. She said the police rummage through her diabetic grandson's bag and stated the smell of alcohol must have been from the baby wipes. Each time Cathy their encounters with the police left them feeling frustrated at how rude and disrespected her son was treated by the police officers. She stated neither she nor any of their white relatives had ever been treated in the way her son was treated by a police officer.

Testimonial #3 – Psychological and Financial Impact

A single mom with three children stated she was a former Urbana resident. She testified she moved out of state because of her interactions with police. She said she eventually came back to Champaign County but moved to Rantoul, IL where she once again was stopped multiple times by the police. As a result of the number of stops, she was placed on house arrest. Because of that, she lost her job and had to

drop of school. She stated on one hand she was thankful and felt lucky she was able to remain at home and not in jail, but it was difficult for her and the children to deal with the stigma and shame of wearing an ankle bracelet. Even though she stated she had corrected all her problems and got her license reinstated, she was overwhelmed with the financial burdens. The cost associated with multiple citations, and the inability to afford driver's license fees or insurance can carry higher fines and only made matters worse.

The financial impact according to the statistical data provided by the committee shows that African-Americans and Hispanics are more likely to be charged with offenses that carry a higher fine. Driving without insurance or on a revoked license carry higher average fines than other violations, and are more common among African-American's and Hispanics than Whites and Asians.

The psychological and financial toll on single parents can also be exacerbated by the fact that 37% of them live below the poverty rate.

To talk about the financial burdens traffic stops placing on African-Americans and Latinos requires speaking briefly to the disparity in unemployment rates. In May 2015 the rate of unemployment among African-Americans was 10.2%, more than double the rate for Whites (4.7%) and Asians (3.9%) and considerably higher than the rate among Hispanics at (6.7%).

The intense psychological, emotional and financial impact on individuals and their lives need to be reconciled. Most citizens believe police officers are hired to protect and serve. When negative racial bias is perceived to enter into decision-making during traffic stops, this can shatter trust straining the relationships between citizens and police.

It was stated during the town hall meeting that traffic stops have an adverse effect on community and police relationship.

There were stories from attendees who believed they were racially profiled and "pulled over," because of the type of vehicle they were driving. People claimed having being stopped due to their histories. One attendee called it "offender profiling." In a survey a black male motorists reported being pulled over because his license plate was registered to a woman who turned out to be his wife.

African-American and Latino drivers are stopped and searched in all categories at a rate up to twice that of White drivers. Multiple "investigative stops and searches" that do not result in findings further erode trust and respect between communities of color and police.

According to a report by Joseph A. Ritter and David Bael[35], people make judgments about each other all the time and for many purposes. This report states we usually

[35] Ritter, Joseph A., Bael, David. "Detecting Racial Profiling in Minneapolis Traffic Stops: A New Approach", Spring/Summer 2009.

do this on the basis of very incomplete information. Sometimes we use information that is not directly related to the matter we are judging.

For example, an employer may take into account that a job applicant attended Harvard University even though having attended Harvard is not directly relevant to the job. Why? Perhaps Harvard graduates are, on average, very capable employees. The employer is not able to observe the applicant's ability directly, so instead bets on the average, using a signal that is, in itself, irrelevant. The signal need not be as obvious as a Harvard degree; indeed, it may even be subconscious. Economists refer to this kind of process **as statistical discrimination,** i.e. the process of using perceived characteristics of a population to make decisions about individuals.[36]

Racial profiling refers to the use of race or ethnicity in this way for law enforcement; race is used as a conscious or subconscious signal of an elevated probability that an individual has violated the law and deserves further scrutiny. Racial profiling in traffic stops is used to "get a closer look" at certain drivers or their passengers to glean more information about whether they are intoxicated or to ascertain indications that a search might be justified and so forth. A statistical consequence of racial profiling is disproportionate targeting certain groups, more notably, communities of color.

Testimonial #4 – Physical and Social Impact: Damage to Police and Community Relations

A judgment call was made by an African-American father who reported, during the town hall meeting, his daughter wanted to become a police officer until she watched how her brother was treated by the police for years during traffic stops. The father stated his son was physically abused on multiple occasions by the police, and to this day, his son has a deep fear of law enforcement. He stated his daughter would have made a good police officer but decided against pursuing law enforcement even though her best friend is now a police officer. He said her decision was strictly based on her brother's treatment by the police.

Testimonial #5 –Social Impact: Damage to Police and Community Relations

A middle-aged, African-American woman said she was going to dinner with a white male colleague, who drove a Subaru, noticed they were being followed by the police. Eventually the lights came on and they were pulled over. The officer asked the driver for license and insurance and then asked her for her ID. She stated she knew the drill so she just complied. They were released to go without incident. She identified the stop as racial profiling.

She recalled another incident when she and her son were running errands. They were on Main and Cottage Grove in Urbana when she noticed she was being followed. She became alarmed and was sure to take precaution to do everything

[36] Bertrand, Marianne, Chugh, Dolly, and Mullainathan, Sendhil. "Implicit Discrimination." *American Economic Review* 95 (May 2005): 94-98.

right. She and her son both did not know what to make of this police following them. As a result, she continued to drive and stay in a well-populated area so that if anything happened there would be witnesses around.

She stated the patrol car followed her to County Market but must have gotten a call because the car turned away. She said she was fearful and didn't trust the police because she didn't know what would happen. She stated her son didn't drive, and she was scared for him to get his license.

Historical Context

America has a long history of racial bias and racial profiling. The testimonials that were heard in Urbana IL in February 2015 were reminiscent of stories from the past.

On a hot summer afternoon in August 1998, 37-year-old U.S. Army Sergeant First Class Rossano V. Gerald and his young son Gregory drove across the Oklahoma border into a nightmare. A career soldier and a highly decorated veteran of Desert Storm and Operation United Shield in Somalia, SFC Gerald, a black man of Panamanian descent, found that he could not travel more than 30 minutes through the state without being stopped twice: first by the Roland City Police Department, and then by the Oklahoma Highway Patrol.

During the second stop, which lasted two-and-half hours, the troopers terrorized SFC Gerald's 12-year-old son with a police dog, placed both father and son in a closed car with the air conditioning off and fans blowing hot air, and warned that the dog would attack if they attempted to escape. Halfway through the episode – perhaps realizing the extent of their lawlessness – the troopers shut off the patrol car's video evidence camera.

Perhaps, too, the officers understood the power of an image to stir people to action. SFC Gerald was only an infant in 1963 when a stunned nation watched on television as Birmingham Police Commissioner "Bull" Connor used powerful fire hoses and vicious police attack dogs against nonviolent black civil rights protesters. That incident, and Martin Luther King, Jr.'s stirring "I Have a Dream" speech at the historic march on Washington in August of that year, were the low and high points, respectively, of the great era of civil rights legislation: the 1964 Civil Rights Act and the 1965 Voting Rights Act.

How did it come to be, then, that 35 years later SFC Gerald found himself standing on the side of a dusty road next to a barking police dog, listening to his son weep while officers rummaged through his belongings simply because he was black?

"I feel like I'm a guy who's pretty much walked the straight line and that's respecting people and everything. We just constantly get harassed. So we just feel like we can't go anywhere without being bothered... I'm not trying to bother anybody. But yet a cop pulls me over and says I'm weaving in the road. And I just came from a friend's house, no alcohol, nothing. It just makes you wonder – was it just because I'm black?"

Rossano and Gregory Gerald were victims of discriminatory racial profiling by police. There is nothing new about this problem. Police abuse against people of color is a legacy of African-American enslavement, repression, and legal inequality. Indeed, during hearings of the National Advisory Commission on Civil Disorders ("The Kerner Commission") in the fall of 1967 where more than 130 witnesses testified about the events leading up to the urban riots that had taken place in 150 cities the previous summer, one of the complaints that came up repeatedly was "the stopping of Negroes on foot or in cars without obvious basis."

Significant blame for this rampant abuse of power also can be laid at the feet of the government's "war on drugs," a fundamentally misguided crusade enthusiastically embraced by lawmakers and administrations of both parties at every level of government. From the outset, the war on drugs has in fact been a war on people and their constitutional rights, with African-Americans, Latinos and other minorities bearing the brunt of the damage. It is a war that has, among other depredations, spawned racist profiles of supposed drug couriers. On our nation's highways today, police, looking for drug criminals, routinely stop drivers based on the color of their skin. This practice is so common that the minority community has given it the derisive term, "driving while black or brown" – a play on the real offense of "driving while intoxicated."[37]

One of the core principles of the Fourth Amendment is that the police cannot stop and detain an individual without some reason – probable cause, or at least reasonable suspicion – to believe that he or she is involved in criminal activity. But recent Supreme Court decisions have ruled that the Fourth Amendment does not prohibit the police from using traffic stops as a pretext in order to search for evidence of criminal activity. Both anecdotal and quantitative data show that nationwide, the police exercise this discretionary power primarily against African-Americans and Latinos.

[Ed. Note: Insert discussion of Fourteenth Amendment here.]

No person of color is safe from this treatment anywhere, regardless of their obedience to the law, their age, the type of car they drive, or their station in life. In short, skin color has become evidence of the propensity to commit crime, and police use this "evidence" against minority drivers on the road all the time.

Racial profiling, as evidenced, has a severely profound impact on individuals and communities, especially communities of color.

[37] Harris, David A. "Driving While Black: Racial Profiling On Our Nation's Highways", An American Civil Liberties Union Special Report June 1999, https://www.aclu.org/report/driving-while-black-racial-profiling-our-nations-highways

Police Procedure and Public Engagement

Introduction

The Police Procedure and Public Engagement subcommittee reviewed police procedures related to traffic stops. Members met individually with local law enforcement stakeholders, law enforcement officials and officers to gain information and their perspectives on this work. The subcommittee also reviewed the work of the Statistical Analysis, Community Impact, and Social Science Literature subcommittees, and arrived at the following conclusions and series of recommendations.

Current Procedures

As cited earlier, there is a good deal of literature that talks about hot-spot policing. Through our review of local procedures, we have found that the Police Department does engage in hot-spot policing: Officers do additional patrols in areas of the city that have higher incidence of crimes overall, as well as in areas that have had recent incidents of crime. We do have several concerns about the Department's use of hot-spot policing. We found that hot-spot policing in Urbana has been done on an ad-hoc basis and not systematically. Police command is not directing officers to particular areas to do hot-spot policing, but rather it is done at the discretion of individual officers, with the officer making the decision to police areas where they have observed higher crime rates. Furthermore, outcomes have not been consistently monitored due to a lack of police resources to do the kind data collection and analysis necessary. Without directed and organized efforts at hot-spot policing, and without measurements as to effectiveness (given that there is little evidence that investigatory stops as part of hot-spot policing are effective), we suspect that the negative effects on the community as described earlier in this report might far outweigh the benefits (if any) that these additional traffic stops might bring.

The concept of implicit bias was raised in the Task Force and it pointed out a need for training within the Police Department. At the annual department wide training, an instructor was brought into speak on the concept of implicit bias. The groundwork was laid to improve departmental understanding of implicit bias, identifying bias and confronting bias so that the impact on decision-making can be lessened.

The Task Force review of issues regarding traffic stops pointed out a need to train officers on the entire process of traffic stops, with an emphasis on why stops are made. Part of this process was identifying the reason for the stop. In the second session of the department wide training, a block of time was allotted for traffic stop review. The review process covered everything from why traffic stops are made to reviewing the effectiveness of stops with an overall goal of raising the awareness of officers as to why each traffic stop is made.

The Task Force began to recognize that there were different kinds of stops and that some types of stops would be more likely to increase the racial disparity. In response the Police Department changed the data collection for IDOT to include the type of stop being conducted. The additional data collected now includes a breakdown of stop type into the following categories; Traffic (identified traffic issues), Patrol (for target patrol/hot spot policing), Community Caregiving stops. The data collection has begun and it should yield insight into what types of stops contribute to the overall racial disparity.

One member of the subcommittee participated in a ride-along. A traffic stop that occurred during the ride-along led to some interesting conclusions about police procedure and how we should view some of the traffic stop data that we collect. The driver, an African-American woman, was stopped for a non-functioning headlight. When asked, the driver was unable to produce proof of insurance. The officer asked the driver if she had a smart phone and if so, whether she could research her last insurance payment as proof. The driver was able to do so, showing the officer and avoiding a citation.

While these sorts of interactions are not average, and are done at the officer's discretion, this encounter leads to an interesting view of the "length of stop" data that is collected. In many cases, an especially long traffic stop can indicate a very negative outcome for a driver, because a car is towed or the driver is arrested. However, a longer traffic stop might also indicate a more positive outcome for the driver than otherwise expected: The officer might try to work out solutions that avoid a citation, or might wait with the driver to have someone pick them up instead of towing a vehicle. Conversely, extremely short stops that result in a citation can be cause for concern, particularly ones in the "Community Caregiving" category, as the officer might not be engaging with the driver to an appropriate extent. Data to determine the differences are not currently available.

Meeting With The Chief Of Police

Police Chief Connolly agreed to meet with members of the taskforce to discuss his philosophy about police engagement, the process of changing procedures, and the engagement and collaboration with other police departments and community led groups such as the Champaign County Community Coalition. Chief Connolly was very receptive that Task Force is doing and is looking forward to forthcoming recommendations.

Chief Connolly openly shared his thoughts about the allocation of police officers and community policing should be balanced in order to reduce crime. Chief Connolly requires officers to be more engaged within their communities that they patrol. As a result, the city has seen an increase in neighborhood watch programs. To date the watch programs had increased from 11 to 28.

Chief Connolly also stated that the Department needs to do a better job of deploying social media. Currently there are community engagement programs such as Cop's Corner, Citizen's Police Academy, and other community collaborations. This will

ensure that community we receive messaging about engagement efforts of the Urbana Police Department. There is also a need to enhance the resources for Non-English speaking in order to communicate about the resources of the Urbana Police Department.

Public Engagement

To date, there has not been sufficient engagement between the Police Department and the public on the topics of police procedures and traffic stops in particular. During the February Town Hall event, it was clear that many members of the community have had interactions with law enforcement that reflect fear, concern, mistrust, frustration, and hopelessness. While this might not be entirely (or even chiefly) due to bad interactions with Urbana officers, even simply being repeatedly subject to routine traffic stops can have significant negative impact, as described in the Community Impact section of this report. Groups like the Champaign Community Coalition and other such citizen-led field teams do provide some engagement with the community, but do not provide the kind of interaction that other modes of communication might offer. There have been some good efforts to engage the public, including programs like the "Cop's Corner" videos. Further social media programs would be beneficial, as well as more educational programs. The major barrier to expansion of these sorts of community engagements appears to be staffing levels and budgetary constraints.

Recommendations

We have collected together the following recommendations based on our examination of current statistics, the community impact of the disparity in traffic stops, our review of current procedures, and a review of existing literature regarding policing and traffic stops.

Continuation and Expansion of Recently Instituted Changes

- The collection of traffic stop "category" data as instituted is a good addition to the data collected by the Police Department. These categories should be reviewed and changed as necessary. In addition to category of stop, additional pieces of data (for example, reason for length of stop) should also be collected.
- Implicit bias trainings and workshops are essential to continue. Officers need to understand that they are subject to biases even if their intentions are pure. Being able to identify those biases and act to mitigate them will result in far less negative impact to the community. Officers should have required ongoing training about how biases affect their policing practices on an annual basis. Such trainings should be provided with compensation and support of the City of Urbana, and should be a required part of officer's continuing education. They should be elements of an officer's evaluations and promotion.

- Training on the proper use of traffic stops appears to be effective; this should be continued. Such training should include information on the negative impacts of traffic stops, particularly for African-American drivers.

Statistics

- A key recommendation is to hire or enlist the services of a statistician to provide the Police Department with an annual assessment of trends in traffic stops so that they can be aware of trends and traffic stops and examine any biases that may exist in training and policing.
- The data collected by the Police Department should be made available to the public to the greatest extent possible. Use of the Urbana Open Data web portal seems like a natural way to do this.
- The City Council or an appointed commission should review statistical data regarding traffic stops bi-annually or annually and publicly report on progress.
- Statistical evidence should be gathered on how often traffic stops lead to arrests for non-traffic crimes, and that those arrests be classified according to drug crimes, property crimes, and violent or weapons crimes. Gathering these particular statistics would permit an evaluation of the efficacy of investigatory stops as a crime-fighting tool, which could be used as a basis for future policy decisions.

Policy and Procedure

- The City Council and the Police Department should undertake a review of municipal government policies regarding ticketing to be sure that all citizens—regardless of race or ethnicity—be ticketed at nearly the same rates. This must be done in order to avoid disparate citations and disparities in citations and rates of payment by race.
- The City Council should examine its fine schedule for traffic violations and attempt to adjust it so that fines do not disproportionately impact African-American and Latino drivers. In particular, a reduction in fines for operating an uninsured vehicle and driving unlicensed should be considered.
- The City Council should investigate programs that will allow lower-income drivers to obtain auto insurance more affordably, thus lowering the likelihood of a disproportionate number of citations being issued to and fines being levied on African-American and Latino drivers.
- The Police Department should undertake a moratorium on the issuing of citations for cannabis possession when it is discovered in the course of traffic stops.

Community Engagement

- The City of Urbana and the Urbana Police Department should engage in pro-active, preventative educational programs to help the most ticketed communities (African-American drivers, Hispanic drivers, young drivers, drivers of older model cars) reduce traffic stops and citations. This can be accomplished through workshops with local cultural organizations (African-American, Hispanic, Asian and youth organizations on campus and in the community) or make online resources available to focus on driver education in these targeted communities to avoid these offenses.
- The City of Urbana and the Urbana Police Department should host a "Walk As One" event with the Champaign County Coalition focused on "Community Education Regarding Traffic Stops" including reviewing traffic stops via s quad car videos; exploring do's/don'ts regarding improper actions exhibited by both law enforcement and citizens; and explaining how both the public and law enforcement can be better informed about conducting and participating in traffic stops.
- Information explaining local traffic stop procedures and expectations should be provided online in multiple languages.
- Participation in ride-along and "Citizen Police Academy" programs can give citizens some insight into police procedure.
- The Police Department should participate in a series of meetings with community members where they discuss their strategies to improve police community relations and to decrease racial disparities in their policing practices and the disparate economic impacts on minorities in Urbana.

Any of these activities that involve meetings between the community and members of the Police Department should avoid using the police station as a meeting venue. Advancing a message of transparency and improved community engagement will by necessity involve law enforcement leaving their comfort zones to engage with the community in community-based venues.

Acknowledgements

The Task Force gratefully acknowledges the many people who contributed to this report. In particular, we would thank the many members of the public who attended our Town Hall meeting to give their input into the Community Impact section of this report. Also, our thanks to all of the members of the public for their contributions during the public input section of our meetings, with a special note of thanks to Mr. Durl Kruse who not only provided valuable feedback during meetings but also contributed a great deal of research and information throughout our work. We are also grateful to the entire staff of the Urbana Human Relations Office for all of their support. Our thanks to the members of the Urbana Police Department staff who collected the statistical data that went into this report, and to Chief Patrick Connolly for his support of this process and willingness to engage with the Task Force. Finally, we would like to thank the Urbana City Council and Mayor Laurel Prussing for their courage and confidence in creating the Task Force and giving us the opportunity to address this important issue.

Statistical Appendix

[To be inserted]

Urbana IDOT Traffic Stop Data Task Force

Statistical Appendix

Revised June 27, 2015

Overview

This appendix contains the analyses reported in the Urbana IDOT Traffic Stop Data Task Forces final report. The appendix is organized as follows:

Section 1: IDOT Disparities presents the yearly disparity ratios from the IDOT report, as well as disparties for each racial group (Whites, African Americans, Hispanics, and Asians). Both the total and race-specific figures are calculated by comparing the proportion of stops that involve a minority driver (or specific racial group) to the estimated proportion of the driving population in Urbana that are minorities or from a specific racial group.

Section 2: Demographic and Socio-economic Differences explores demographic and socio-economic differences that may factor into the observed disparities in traffic stops. Specifically, this section examines differences in the driver age, vehicle age, and gender of drivers stopped. It also provides a description of driver residency.

Section 3: Traffic Stops and Patterns of Policing examines the relationship between calls for service, traffic stops, and the racial composition of neighborhoods in Urbana. The analysis is limited to 2010-2013 (the years for which data on calls for service are available). The primary unit of analysis here is the Urbana Police Department's geocode. Urbana is divided into five police beats. Each beat is divided into smaller regions called geocodes, which are used to report the locations of both stops and calls for service There are around a 140 unique geocodes in the data depending on the year. Geocodes vary in size. In residential neighborhoods, they generally correspond to several city blocks, and are somewhat larger in more commercial areas or sparsely populated sections of Urbana. Estimates for the minority population of each geocode were obtained from the 2010 U.S. Census. The data for the race of residents in Urbana are avaialbe at the Census block level. Estimates of the racial compositin of each geocode were obtained by taking a weighted average of corresponding census blocks contained within that geocode. The section also explores whether, conditional on the number of calls for service, the precent of minoirities living in a geocode also predicts the number of traffic stops, through regression analyses, some of which control for the possibility of spatial dependence in the data.

This section also provides local estimates of the disparity in traffic stops for each geocode. As with the measures reported in Section 1, for each geocode, we compare the proportion of stops involving a minority driver to the estimated minority population living in that area. Finally, the section also explores disparities in the Urbana Police Department's Selective Traffic Enforcement Program (STEP), a project designed to address high levels of accidents and other community concerns through concentrated policing.

Section 4: Testing for Racial Profiling Using the Veil of Darkness presents the results from a series of tests designed for racial profiling using a procedure called the "Veil of Darkness."[1]. The logic of this test is outlined in the main body of the report. The first pair of figures show the set of stops that occur during the inter-twilight period that are used in the analysis. The three tables correspond to set of logistic regressions with three different outcomes:

- Whether the driver stopped was a minority (1 if minority, 0 if white)
- Whether the driver stopped was African American (1 if African American, 0 if not)

[1] See Grogger, Jeffrey, and Greg Ridgeway. "Testing for racial profiling in traffic stops from behind a veil of darkness." *Journal of the American Statistical Association* 101.475 (2006): 878-887.

- Whether the driver stopped was African American or White (1 if African American, 0 if white, Asian and Hispanic drivers are excluded from these models)

The first column in each table presents the simplest model, testing whether whether drivers stopped when it is dark out are more or less likely to be minority or African American. A negative coefficient here would suggest evidence of profiling since when it is dark out, it should be harder to determine the driver's race. The next model adds a control for time of day, since the driving population at 5 pm may differ from the driving population at 8 pm. The third model, also this effect to vary non-linearly through a cubic spline. The fourt model, then alows the effects of darkness to vary conditionally on the time of day. The final model then allows these conditional effects to vary by year as well. The figures associated each table are produced from the estimates of the fifth model. The solid line shows the predicted effect of darkness on the log-odds that a driver is a minority or African American at different times of day. The dotted lines provide a 95 percent confidence interval for these estimates. When the prediction (solid line) and its confidence interval (dotted lines) are below zero (dashed line) this provides evidence that is consistent with the presence of racial profiling.

Section 5 Disparities in Financial Impact examines the average fines and types of fines associated with traffic stops for each racial group.

Section 6: Additional Analysis contains a number of other descriptive summaries of the data, breaking down the types, rates of citation, searches, contraband and duration of stops by racial group.

Please feel free to contact Paul Testa (ptesta2@illinois.edu), the chair of the Task Force's Statistics Subcommittee, with any questions, comments, or concerns.

Contents

1 IDOT Disparities

IDOT Disparity Ratios by Year

The State of Illinois requires that police departments collect information on traffic stops for the purpose of assessing racial bias, disparities and profiling in policing. One approach to measuring racial disparities with these data is to compare the proportion of minorities who are stopped to the estimated proportion of minority drivers in the population. The disparity measured by this ratio for Urbana, IL, from 2004 to 2013 ranges between a high of 1.7 in 2010 and a low of 1.07 in 2012.

Table 1: Yearly IDOT Disparity Ratios

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
# White Stops	1948	1707	2131	1854	2194	2240	1476	1463	2169	2365
# Minority Stops	1602	1348	1884	1527	1831	2037	1603	1367	1582	1930
% Stops White	54.9	55.9	53.1	54.8	54.5	52.4	47.9	51.7	57.8	55.1
% Stops Minority	45.1	44.1	46.9	45.2	45.5	47.6	52.1	48.3	42.2	44.9
Min % of Driv Pop	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	39.5	39.5
Disparity	**1.47**	**1.44**	**1.53**	**1.48**	**1.49**	**1.56**	**1.7**	**1.58**	**1.07**	**1.14**

Yearly Disparities by Race

The observed disparity among minorities as a whole is due almost entirely to disparities in the rates at which African Americans are stopped, which ranges from a low of 1.71 in 2012 and 2013 to a high of 2.18 in 2010.

Table 2: Yearly Disparities by Race

African Americans	**AA Stops**	**Total Stops**	**% Total**	**Est % Population**	**Disparity**
2004	1227	3548	0.35	0.17	1.99
2005	1005	3049	0.33	0.17	1.9
2006	1401	4014	0.35	0.17	2.01
2007	1160	3380	0.34	0.17	1.97
2008	1332	4024	0.33	0.17	1.9
2009	1458	4275	0.34	0.17	1.96
2010	1169	3077	0.38	0.17	2.18
2011	992	2829	0.35	0.17	2.02
2012	1116	3746	0.3	0.17	1.71
2013	1273	4287	0.3	0.17	1.71
Hispanics	**HS Stops**	**Total Stops**	**% Total**	**Est % Population**	**Disparity**
2004	112	3548	0.03	0.05	0.63
2005	107	3049	0.04	0.05	0.7
2006	138	4014	0.03	0.05	0.68
2007	115	3380	0.03	0.05	0.68
2008	171	4024	0.04	0.05	0.84
2009	186	4275	0.04	0.05	0.86
2010	139	3077	0.05	0.05	0.9
2011	130	2829	0.05	0.05	0.91
2012	133	3746	0.04	0.05	0.71
2013	157	4287	0.04	0.05	0.73
Asians	**AS Stops**	**Total Stops**	**% Total**	**Est % Population**	**Disparity**
2004	261	3548	0.07	0.14	0.52
2005	230	3049	0.08	0.14	0.53
2006	344	4014	0.09	0.14	0.61
2007	251	3380	0.07	0.14	0.53
2008	327	4024	0.08	0.14	0.57
2009	391	4275	0.09	0.14	0.65
2010	293	3077	0.1	0.14	0.67
2011	244	2829	0.09	0.14	0.61
2012	328	3746	0.09	0.14	0.62
2013	492	4287	0.11	0.14	0.81
Whites	**WH Stops**	**Total Stops**	**% Total**	**Est % Population**	**Disparity**
2004	1948	3548	0.55	0.63	0.87
2005	1707	3049	0.56	0.63	0.89
2006	2131	4014	0.53	0.63	0.84
2007	1854	3380	0.55	0.63	0.87
2008	2194	4024	0.55	0.63	0.86
2009	2240	4275	0.52	0.63	0.83
2010	1476	3077	0.48	0.63	0.76
2011	1463	2829	0.52	0.63	0.82
2012	2169	3746	0.58	0.63	0.92
2013	2365	4287	0.55	0.63	0.87

Note: In 29 stops the drivers identified themselves as Native American. These cases are not included in the analysis above.

2 Demographic and Socio-economic Differences

Driver Residency

Table 3: Traffic Stops and Driver Residency

Driver From:	# Stops	% Total
Urbana	18974	0.52
Urbana-Champaign	27242	0.75
Local	28384	0.78
Within 50 Miles	30875	0.85
Chicago	505	0.01
Illinois	35425	0.98

Just over half of the drivers stopped from 2004-2013 had addresses in Urbana, IL. Three-quarters lived in Urbana-Champaign (Local includes Savoy and St Jospeh),about 85 percent lived within 50 miles, and close to 98 percent lived in-state.

Driver Age

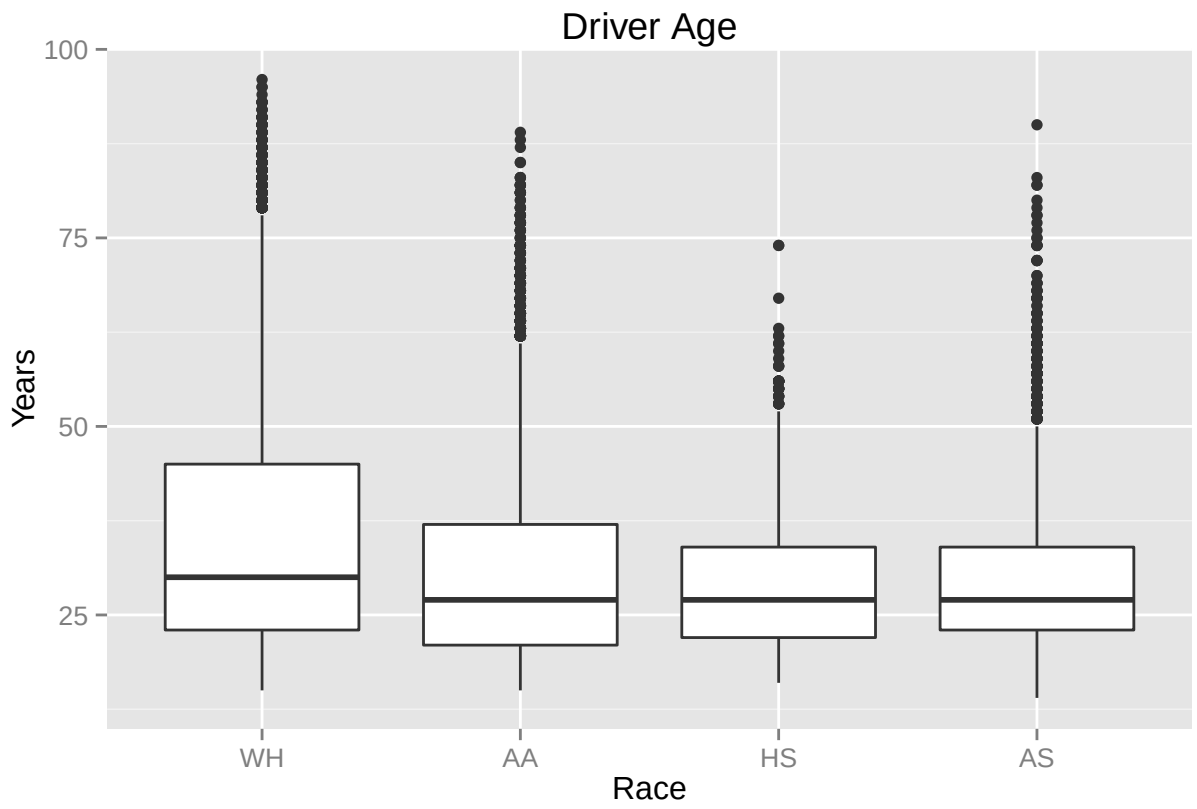


Figure 1: Distribution of Driver's Age by Race

Comments

There's greater variation in the age of white drivers, who also on average, tend to be slightly older than minority drivers.

Vehicle Age

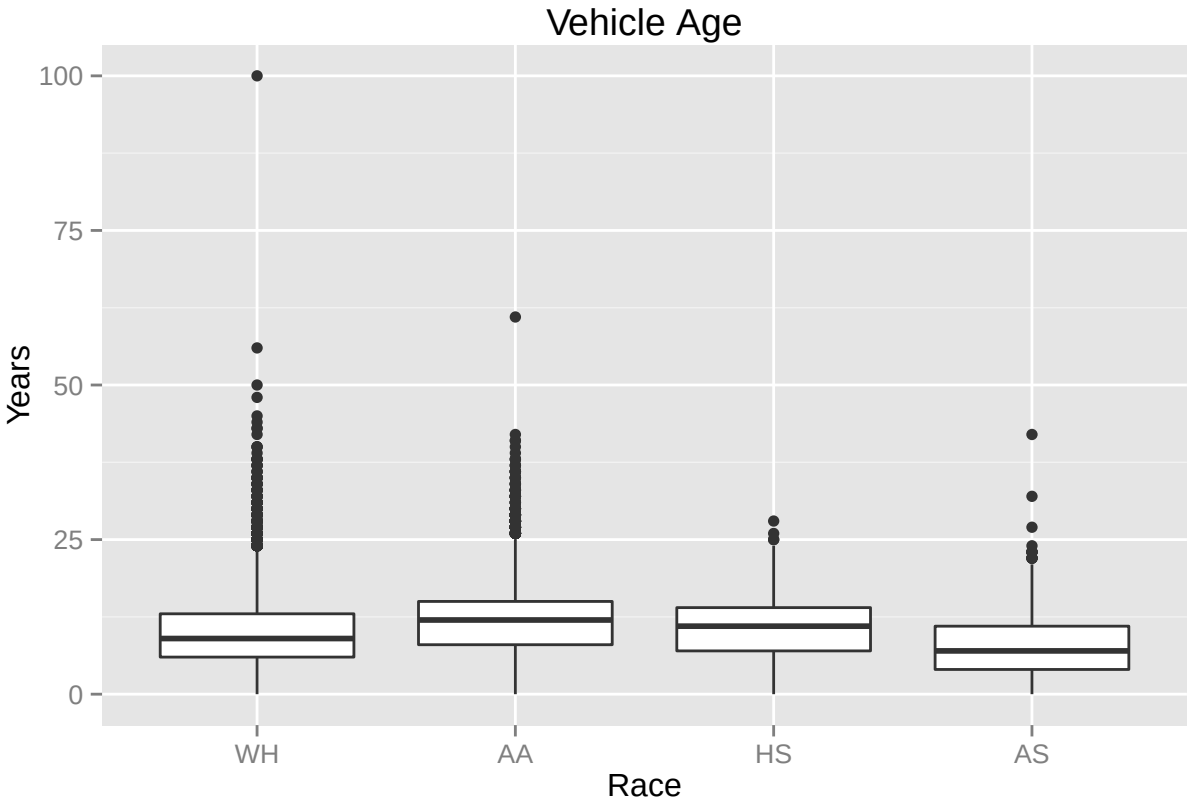


Figure 2: Distribution of Vehicle Age by Race

Comments

African Americans and Hispanics tend to drive slighltly older cars than Whites and Asians.

Gender

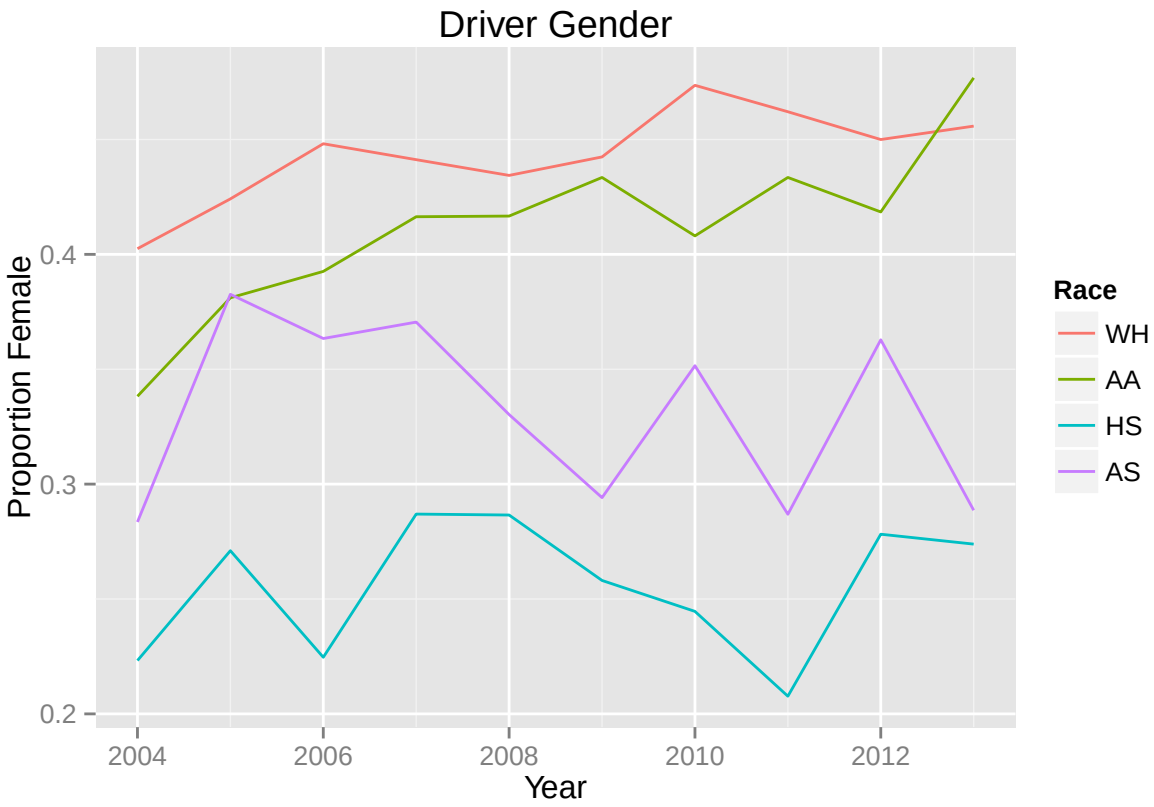


Figure 3: Proportion of Stopped Drivers who are Female

Comments

The figure shows the proportion of drivers stopped who are female for each racial group each year. For the most part, men are more likely to be stopped than women, particularly for Asians and Hispanics.

3 Traffic Stops and Patterns of Policing

Stops and Calls for Service

Calls for service 2010-2013

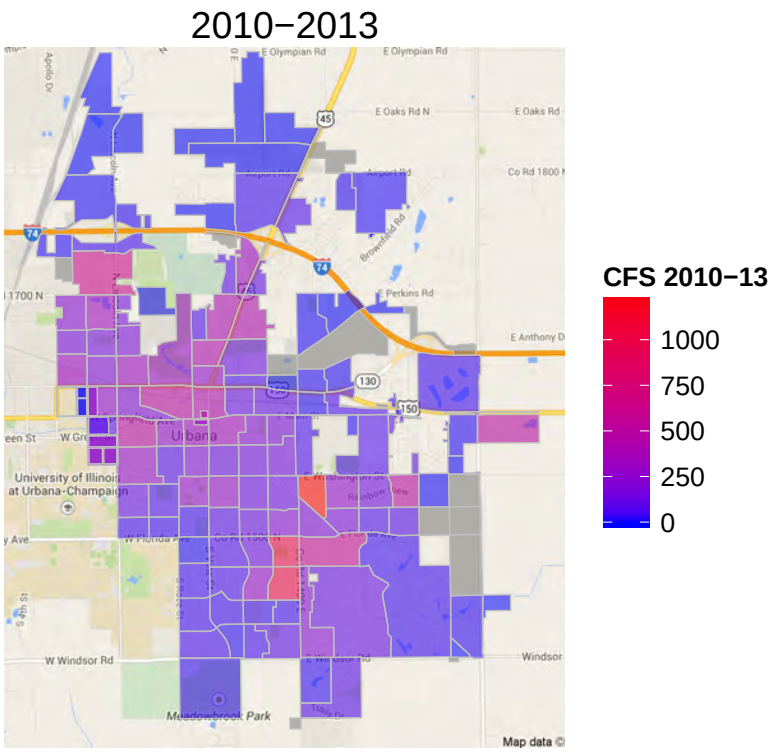


Figure 4: Total Calls for Service 2010-2013

Correlation between Calls for Service and Traffic Stops

Table 4: Correlations between CFS and Traffic Stops

	2010	**2011**	**2012**	**2013**	**2010-13**
Correlation	0.47	0.53	0.41	0.46	0.49

Table 5: Correlations between CFS and Minority Percent of Population

	2010	**2011**	**2012**	**2013**	**2010-13**
Correlation	0.30	0.33	0.29	0.29	0.31

Table 6: Correlations between CFS and Minority Percent of Population

	2010	**2011**	**2012**	**2013**	**2010-13**
Correlation	0.32	0.27	0.25	0.31	0.30

OLS Regressions of Stops on CFS and Minortiy population

The models below present the results from a series of regression analyses, examing how the total number of traffic stops in a police geocode varies accordding to the number of calls for service and the percentage of minorities that live in that geocode. The first set of models ignore the possibility for spatial dependence in the data which can bias the models estimates (i.e. that regions high or low values of our variables may cluster together). Statistical tests suggests there is spatial dependence in the data, and seem to a favor an autoregressive lag model.[2] Without controlling for spatial dependence, the minority population in the geocode is a larger positive predictor of the number of traffic stops in a region, when holding constant the number of calls for service. However, when the spatial dependence of the data is taken into account, the percent of minoirities living in an area is no longer a siginficant predictor of traffic stops.

Table 7

	Dependent variable:				
	TotStops	TotStops10	TotStops11	TotStops12	TotStops13
	(1)	(2)	(3)	(4)	(5)
TotCFS	0.250***				
	(0.056)				
crime2010		0.206***			
		(0.049)			
crime2011			0.194***		
			(0.038)		
crime2012				0.224***	
				(0.066)	
crime2013					0.348***
					(0.079)
Min.p	86.495**	22.731**	10.624	22.898*	32.782**
	(40.804)	(9.151)	(7.532)	(12.673)	(13.680)
pop	0.035	0.011	0.007	0.016	0.003
	(0.035)	(0.008)	(0.007)	(0.011)	(0.012)
Constant	27.335	4.936	7.655**	7.183	6.966
	(16.855)	(3.793)	(3.098)	(5.265)	(5.680)
Observations	138	138	138	138	138
R^2	0.268	0.267	0.298	0.202	0.244
Adjusted R^2	0.251	0.251	0.283	0.184	0.227
Residual Std. Error (df = 134)	107.202	24.133	19.651	33.500	36.159
F Statistic (df = 3; 134)	16.324***	16.302***	18.996***	11.293***	14.422***
Note:					*p<0.1; **p<0.05; ***p<0.01

[2]We also estimated autorgressive error models, and used a n-nearest neighbors weighting matrix. The results are substantively the same to those reported above.

Neighbor Matrix

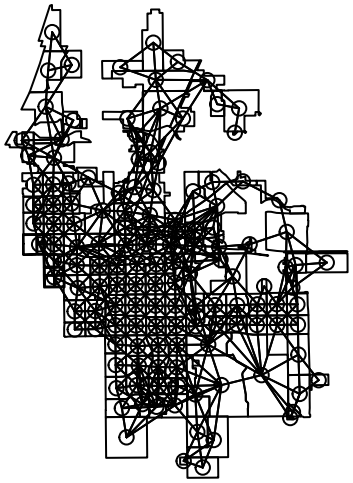


Table 8

	Dependent variable:				
	TotStops	TotStops10	TotStops11	TotStops12	TotStops13
	(1)	(2)	(3)	(4)	(5)
TotCFS	0.196***				
	(0.047)				
crime2010		0.175***			
		(0.041)			
crime2011			0.150***		
			(0.032)		
crime2012				0.169***	
				(0.058)	
crime2013					0.278***
					(0.069)
Min.p	27.400	7.395	3.178	8.045	13.278
	(35.002)	(7.842)	(6.397)	(11.253)	(12.099)
pop	0.005	0.005	0.001	0.008	−0.005
	(0.030)	(0.007)	(0.006)	(0.010)	(0.010)
Constant	1.900	−0.867	0.883	1.435	0.759
	(15.018)	(3.320)	(2.758)	(4.877)	(5.160)
Observations	138	138	138	138	138
Log Likelihood	−822.458	−616.065	−587.257	−666.629	−675.419
σ^2	8,232.247	412.572	271.271	871.020	987.938
Akaike Inf. Crit.	1,656.916	1,244.130	1,186.514	1,345.259	1,362.837
Wald Test (df = 1)	43.458***	46.260***	49.142***	30.576***	32.623***
LR Test (df = 1)	32.874***	34.102***	35.021***	23.495***	26.999***
Note:					*p<0.1; **p<0.05; ***p<0.01

Table 9

	Dependent variable:				
	TotStops	TotStops10	TotStops11	TotStops12	TotStops13
	(1)	(2)	(3)	(4)	(5)
TotCFS	0.217***				
	(0.049)				
crime2010		0.190***			
		(0.044)			
crime2011			0.164***		
			(0.034)		
crime2012				0.194***	
				(0.060)	
crime2013					0.298***
					(0.070)
Min.p	36.337	10.247	4.375	10.703	15.264
	(36.582)	(8.387)	(6.774)	(11.704)	(12.236)
pop	−0.007	0.003	−0.0003	0.006	−0.011
	(0.031)	(0.007)	(0.006)	(0.010)	(0.011)
Constant	2.627	−0.072	1.575	1.538	0.024
	(16.033)	(3.640)	(3.019)	(5.155)	(5.298)
Observations	138	138	138	138	138
Log Likelihood	−826.639	−622.712	−592.971	−670.086	−676.343
σ^2	8,937.304	468.077	302.843	934.684	1,008.693
Akaike Inf. Crit.	1,665.277	1,257.423	1,197.942	1,352.173	1,364.686
Wald Test (df = 1)	28.223***	22.917***	27.467***	17.897***	30.881***
LR Test (df = 1)	24.513***	20.808***	23.594***	16.581***	25.150***

Note: *p<0.1; **p<0.05; ***p<0.01

Disparities by Geographic Region

Working with data from the 2010 census, we've produced population estimates weighted by the census block for the racial composition of the 130+ police geocodes.[3]

Population estimates by Geocode

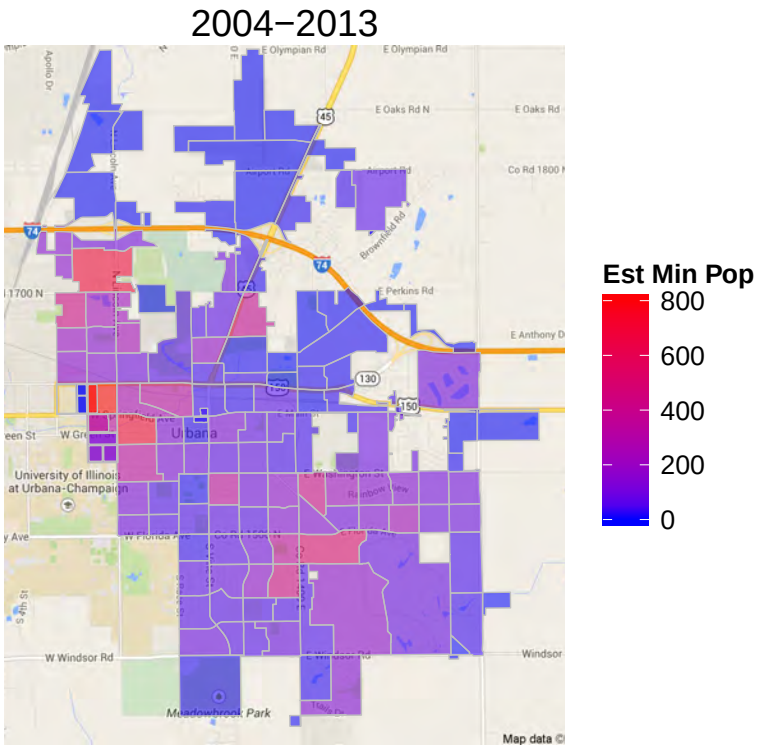


Figure 5: Estimated Minority Population

[3]Specifically, we overlayed the police geocode map onto the census block maps and then weighted populations for each block by the proportion of the blocks total area within the geocode. Consider a block with 10 people. If that block falls entirely within a geocode, all 10 are counted toward the estimated population of the geocode. If only half of the block falls within a geocode, that block would add 5 people to the estimate of the total population of that geocode.

Total Stops by Geocode

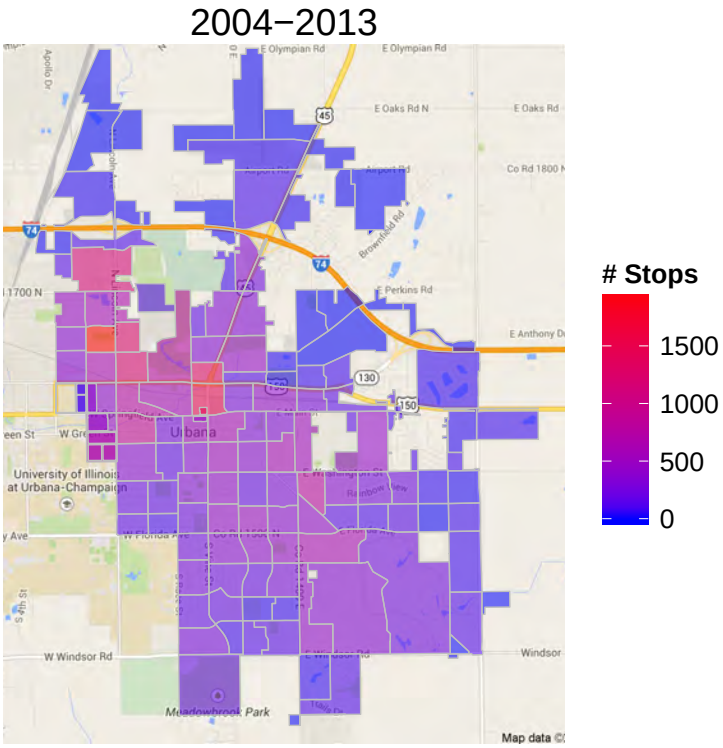


Figure 6: Estimated Minority Population

We can use information from the figures above to produce geocode-level measures of the IDOT disparity or relative risk of a minority being stopped based on the estimated minority population in each geocode. Spefically, for each geocode, i we calculate θ_i, a ratio of two proportions:

$$\theta_i = \frac{\frac{\text{Minority Stops}}{\text{Total Stops}}}{\frac{\text{Minority Population}}{\text{Total Population}}}$$

The figures below shows these estimates for each geocode, with blue being values below 1 (lower than expected risk of being stopped based on relative the proportion of minorities in the geocode's population), white being values close to 1 and red being values above 1 (more than expected risk). The same caveats about the IDOT measures apply to these, and note that when there few stops and/or small population in a geocode these estimates can be quite volatile.

Disparity Ratio 2004-2013

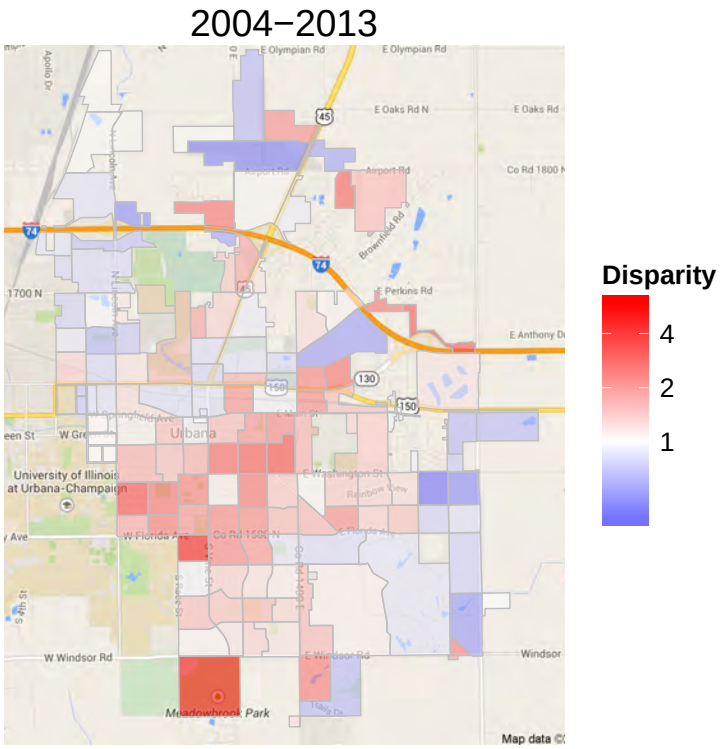


Figure 7: Disparty Ratio by Geocode

Recent Years: 2011-2013

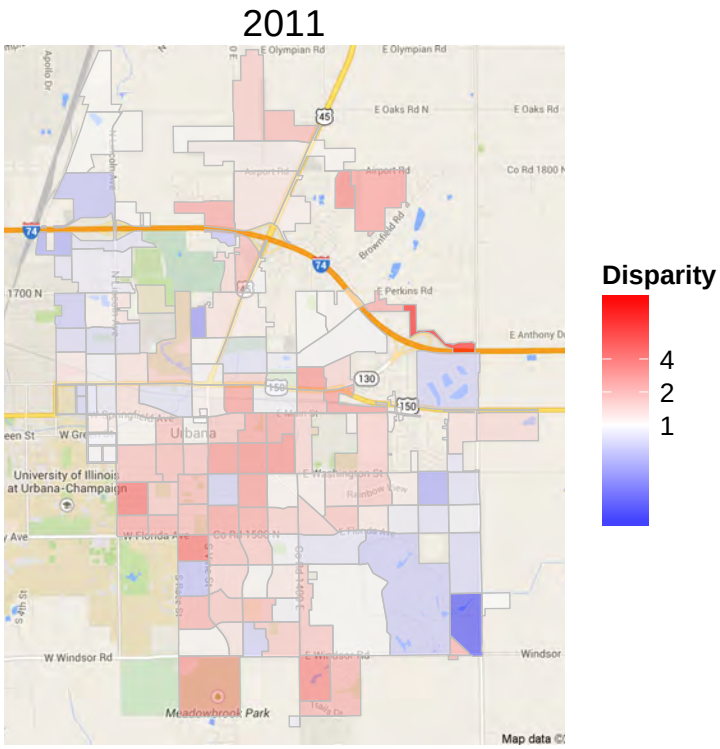


Figure 8: 2011 Disparty Ratio by Geocode

Only statistically significant disparties

To capture this volatility, we also constructed confidence intervals for the point estimates, that reflect the uncertainty of estimates where their are relatively few stops or small populations. The figures below shows the geocodes with $\theta > 1$ (i.e. more than expected risk) whose 95-percent confidence intervals do not include 1.

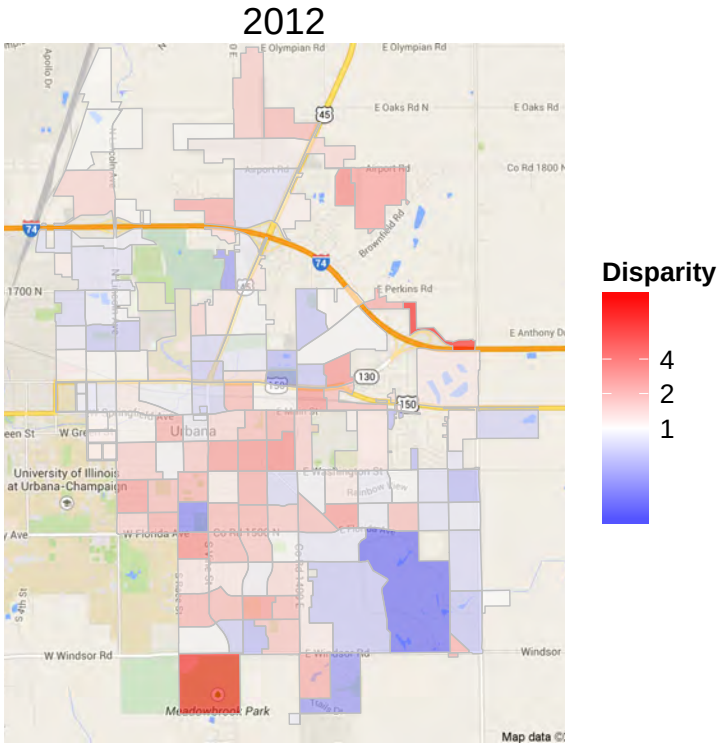


Figure 9: 2012 Disparty Ratio by Geocode

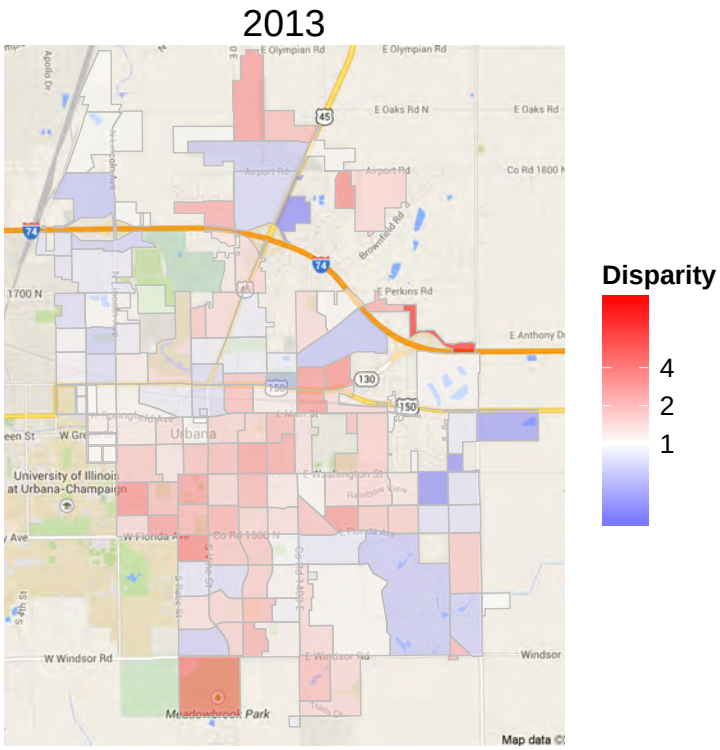


Figure 10: 2013 Disparty Ratio by Geocode

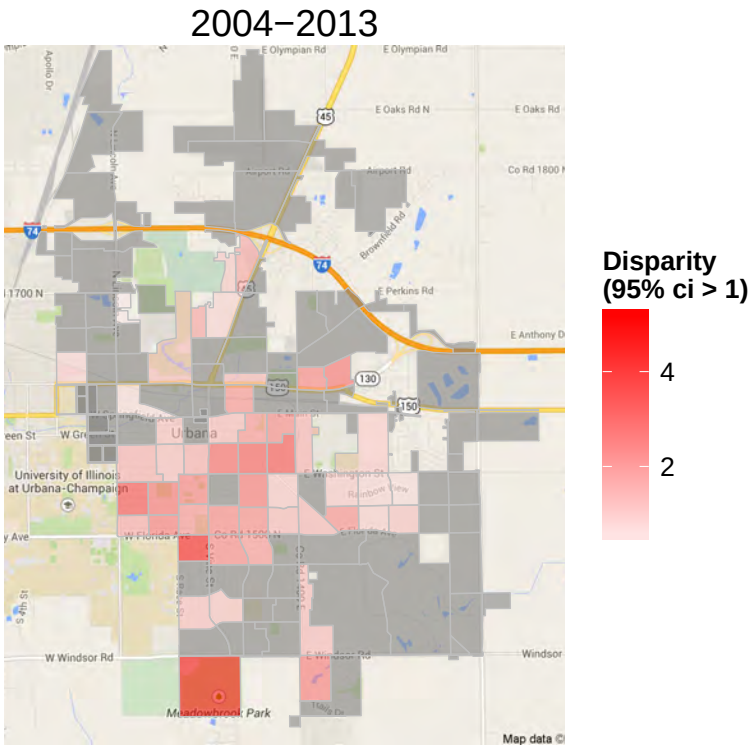


Figure 11: Statistically Significant Disparties by Geocode

Recent Years: 2011-2013 (Only statistically significant disparties)

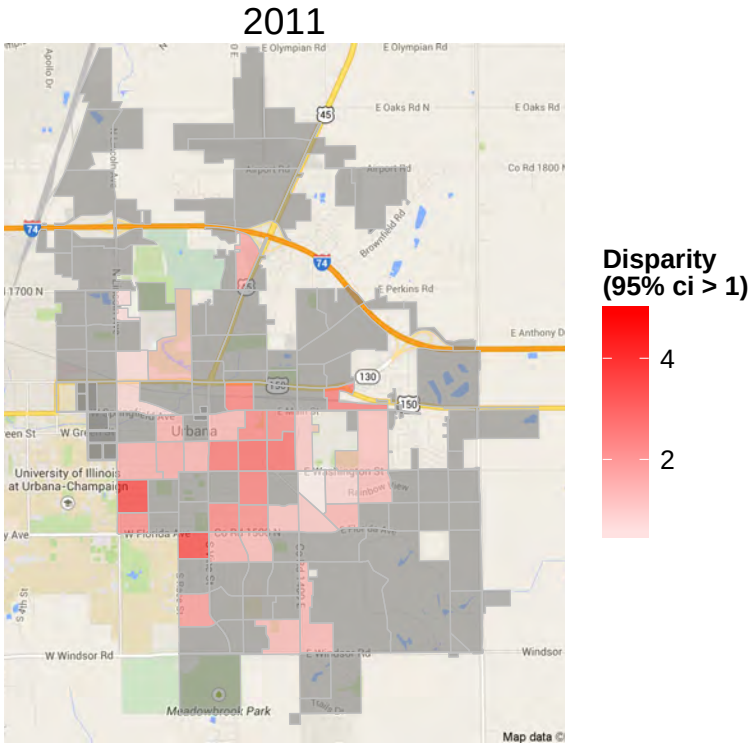


Figure 12: 2011 Disparty Ratio by Geocode

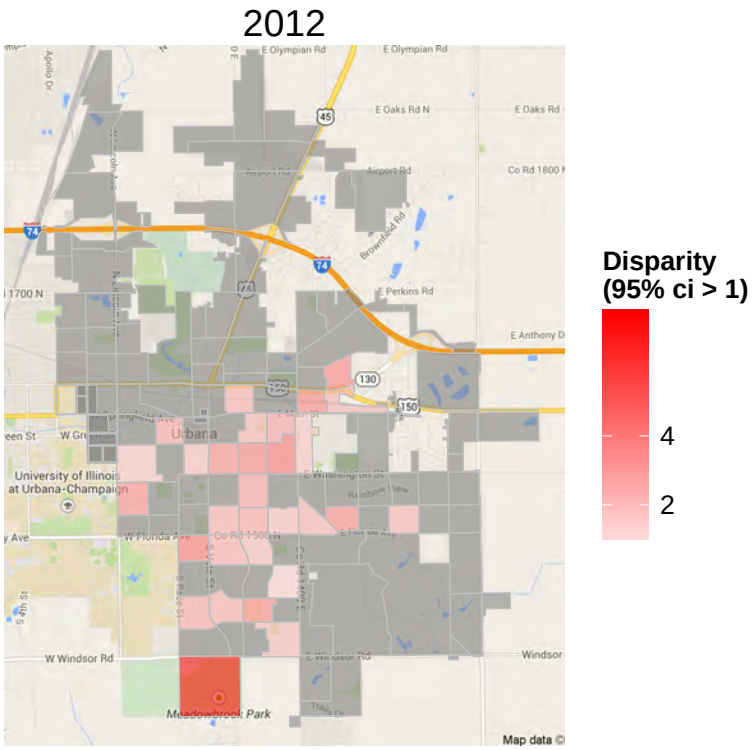


Figure 13: 2012 Disparty Ratio by Geocode

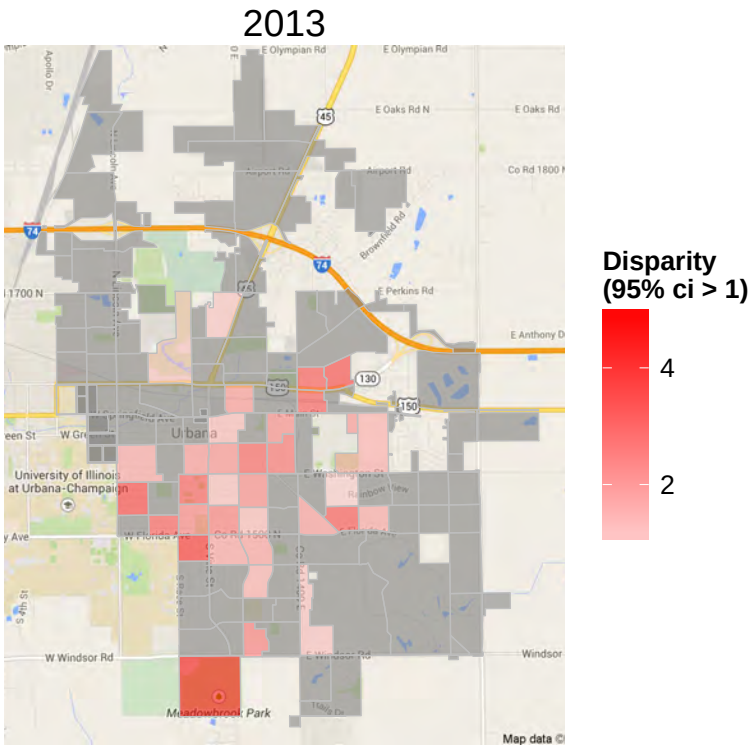


Figure 14: 2013 Disparty Ratio by Geocode

Stops and the STEPS program

Disparities are lower for STEP-stops relative to non-STEP stops

Table 10: Comparing Disparities in Steps vs Non-Steps Stops

	Est Pop %	STEPS	%	**STEPS Disp**	Non-STEPS	%	**Non-STEPS Disp**
White	63.14	588	65.33	**1.03**	1761	52.22	**0.83**
Black	17.39	195	21.67	**1.25**	1077	31.94	**1.84**
Hispanic	5.03	32	3.56	**0.71**	127	3.77	**0.75**
Asian	14.14	85	9.44	**0.67**	407	12.07	**0.85**
Minority	36.86	312	34.67	**0.94**	1611	47.78	**1.3**
Total		900	100		3372	0	

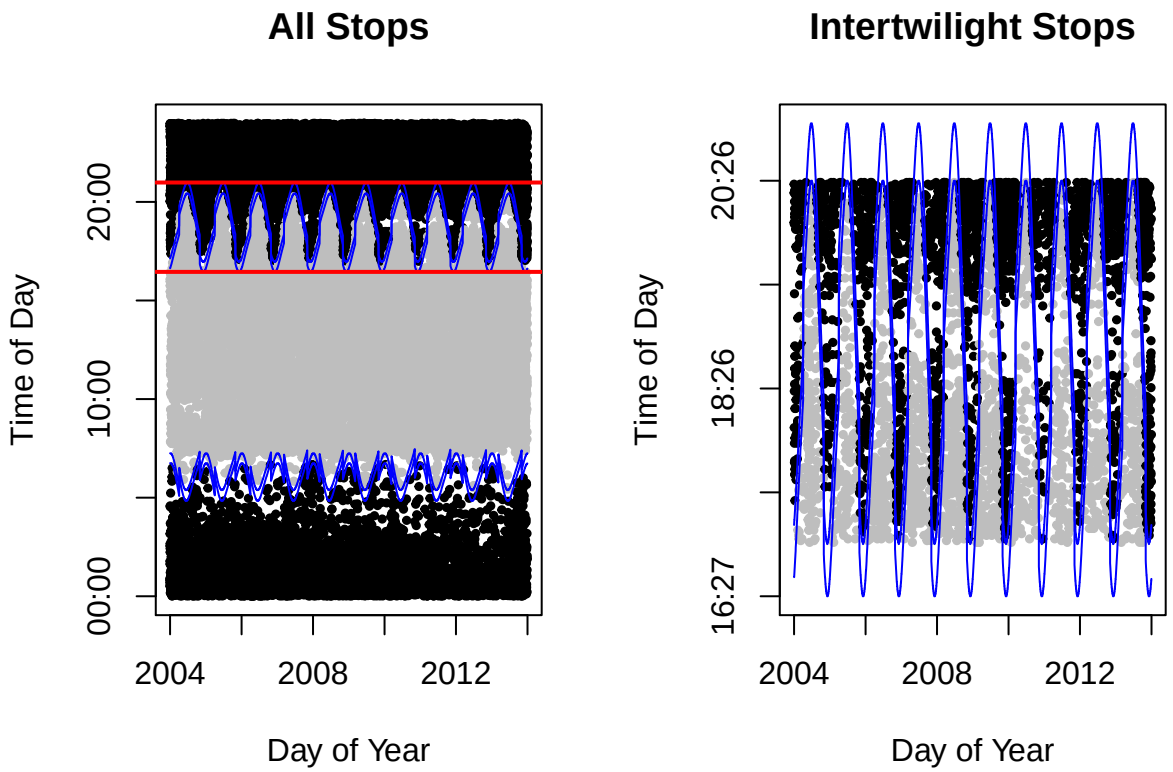


Figure 15: **Traffic Stops by Time of Day:** Grey dots show stops that occured during the day and black dots show stops that occurred at night. Blue lines show dawn,sunrise,sunset,dusk. Red lines (left panel) denote the intertwilight period (right panel) used in the veil of darkness analysis

Models

	No Time of Day	Linear Effect	Cubic Spline	Interaction	Year FE
Dark Out	0.12*	−0.13	−0.12	−0.97	−0.93
	(0.06)	(0.07)	(0.07)	(0.51)	(0.51)
Time of Day		0.00***			
		(0.00)			
Spline(Time of Day) 1			0.27	0.19	0.19
			(0.21)	(0.25)	(0.25)
Spline(Time of Day) 2			0.74*	0.42	0.42
			(0.34)	(0.45)	(0.45)
Spline(Time of Day) 3			0.88***	1.12***	1.12***
			(0.22)	(0.31)	(0.31)
Spline(Time of Day) 4			0.78***	0.32	0.35
			(0.18)	(0.34)	(0.34)
Spline(Time of Day) 5			1.30**	0.98	0.96
			(0.40)	(0.51)	(0.51)
Spline(Time of Day) 6			0.54**	0.63	0.56
			(0.17)	(0.48)	(0.49)
Time of Day X Spline(Time of Day) 1				0.72	0.67
				(0.53)	(0.53)
Time of Day X Spline(Time of Day) 2				1.20	1.22
				(0.81)	(0.81)
Time of Day X Spline(Time of Day) 3				0.30	0.25
				(0.58)	(0.58)
Time of Day X Spline(Time of Day) 4				1.05*	0.98*
				(0.50)	(0.50)
Time of Day X Spline(Time of Day) 5				1.90	1.90
				(1.16)	(1.16)
Time of Day X Spline(Time of Day) 6				0.01	0.08
				(0.53)	(0.54)
AIC	5991.48	5940.06	5945.93	5951.22	5948.63
BIC	6004.24	5959.19	5996.95	6040.52	6095.33
Log Likelihood	-2993.74	-2967.03	-2964.96	-2961.61	-2951.32
Deviance	5987.48	5934.06	5929.93	5923.22	5902.63
Num. obs.	4351	4351	4351	4351	4351

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

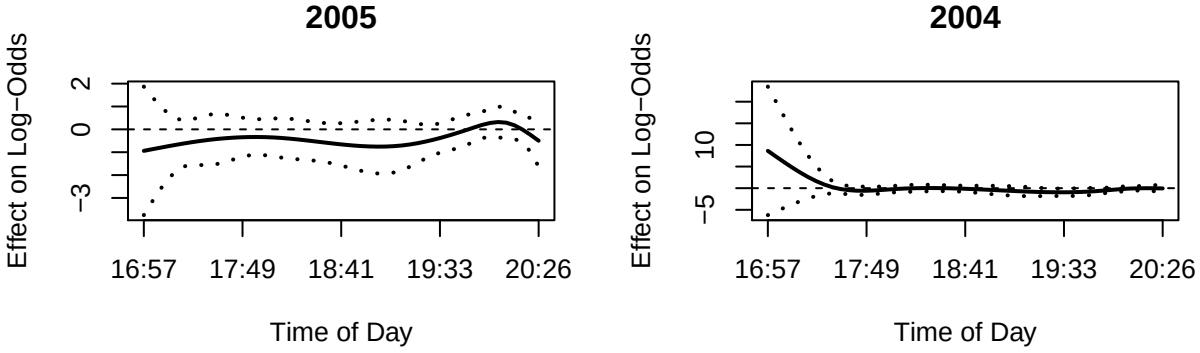
Table 11: Testing for Racial Profiling of Minorities

Yearly Estimates of Racial Profiling of Minorities with Log-Odds

	No Time of Day	Linear Effect	Cubic Spline	Interaction	Year FE
Dark Out	0.15*	−0.11	−0.10	−1.02	−0.92
	(0.06)	(0.07)	(0.07)	(0.56)	(0.56)
Time of Day		0.00***			
		(0.00)			
Spline(Time of Day) 1			−0.04	−0.11	−0.09
			(0.22)	(0.27)	(0.27)
Spline(Time of Day) 2			0.72*	0.41	0.34
			(0.36)	(0.47)	(0.48)
Spline(Time of Day) 3			0.83***	1.15***	1.18***
			(0.23)	(0.31)	(0.32)
Spline(Time of Day) 4			0.62**	0.06	0.06
			(0.19)	(0.36)	(0.36)
Spline(Time of Day) 5			0.94*	0.43	0.41
			(0.43)	(0.54)	(0.54)
Spline(Time of Day) 6			0.52**	0.52	0.48
			(0.18)	(0.50)	(0.50)
Time of Day X Spline(Time of Day) 1				0.71	0.57
				(0.58)	(0.58)
Time of Day X Spline(Time of Day) 2				1.19	1.21
				(0.87)	(0.87)
Time of Day X Spline(Time of Day) 3				0.23	0.10
				(0.63)	(0.63)
Time of Day X Spline(Time of Day) 4				1.21*	1.11*
				(0.53)	(0.53)
Time of Day X Spline(Time of Day) 5				2.32	2.23
				(1.28)	(1.27)
Time of Day X Spline(Time of Day) 6				0.05	0.06
				(0.55)	(0.56)
AIC	5564.53	5512.76	5513.80	5515.47	5506.23
BIC	5577.29	5531.89	5564.83	5604.76	5652.93
Log Likelihood	-2780.27	-2753.38	-2748.90	-2743.73	-2730.12
Deviance	5560.53	5506.76	5497.80	5487.47	5460.23
Num. obs.	4351	4351	4351	4351	4351

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 12: Testing for Racial Profiling of African Americans



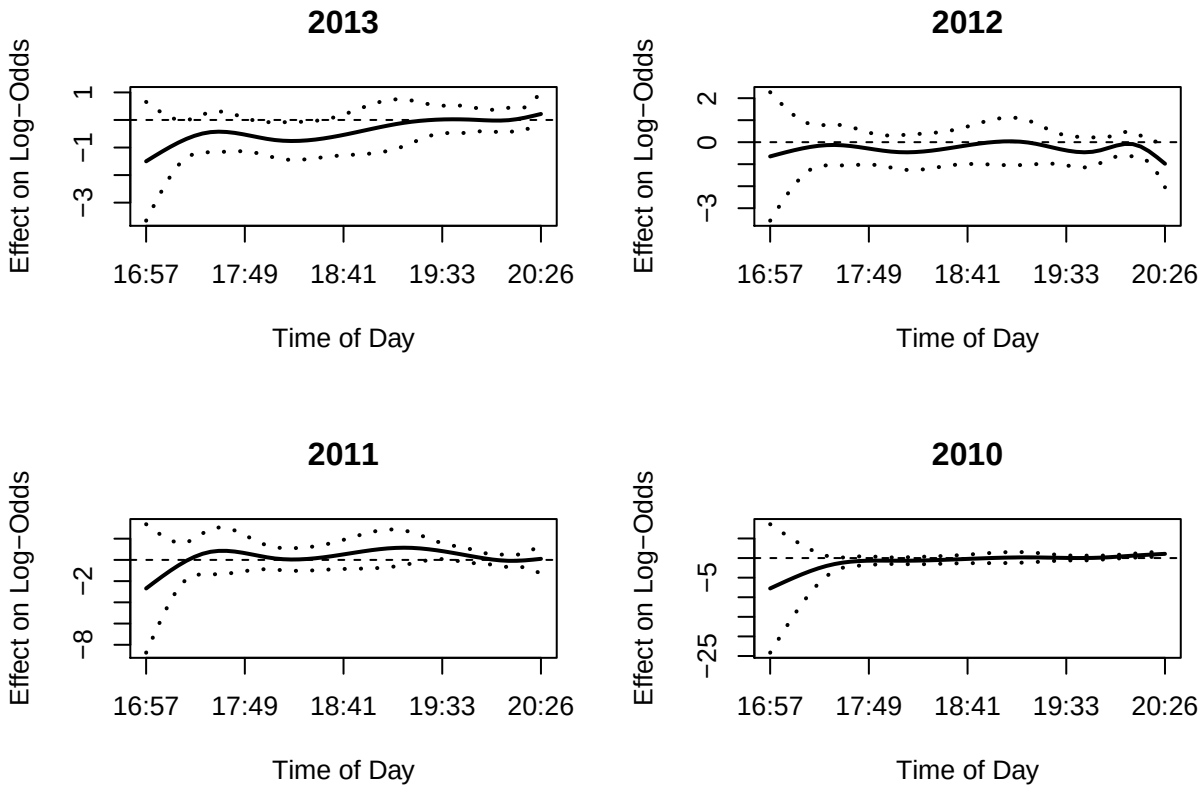


Figure 16: Yearly Estimates of Racial Profiling of Minorities (2000-13)

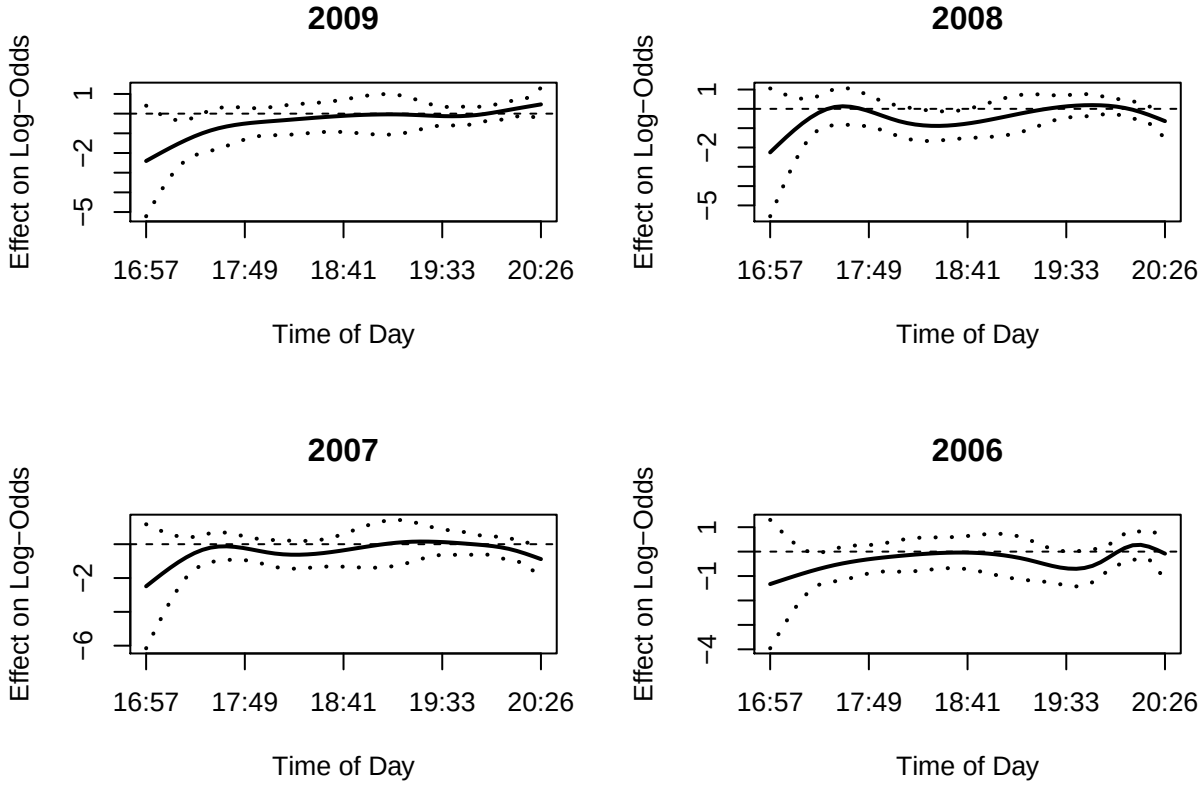


Figure 17: Yearly Estimates of Racial Profiling of Minorities (2006-09)

	No Time of Day	Linear Effect	Cubic Spline	Interaction	Year FE
Dark Out	0.15*	−0.13	−0.12	−1.06	−0.98
	(0.07)	(0.08)	(0.08)	(0.56)	(0.56)
Time of Day		0.00***			
		(0.00)			
Spline(Time of Day) 1			0.07	−0.00	0.01
			(0.23)	(0.28)	(0.28)
Spline(Time of Day) 2			0.81*	0.46	0.38
			(0.37)	(0.49)	(0.49)
Spline(Time of Day) 3			0.92***	1.23***	1.27***
			(0.24)	(0.33)	(0.33)
Spline(Time of Day) 4			0.76***	0.19	0.18
			(0.20)	(0.37)	(0.37)
Spline(Time of Day) 5			1.18**	0.70	0.66
			(0.44)	(0.56)	(0.56)
Spline(Time of Day) 6			0.58**	0.62	0.57
			(0.18)	(0.52)	(0.52)
Time of Day X Spline(Time of Day) 1				0.74	0.61
				(0.59)	(0.59)
Time of Day X Spline(Time of Day) 2				1.27	1.33
				(0.89)	(0.89)
Time of Day X Spline(Time of Day) 3				0.25	0.14
				(0.64)	(0.64)
Time of Day X Spline(Time of Day) 4				1.23*	1.14*
				(0.54)	(0.54)
Time of Day X Spline(Time of Day) 5				2.29	2.24
				(1.29)	(1.29)
Time of Day X Spline(Time of Day) 6				0.03	0.05
				(0.57)	(0.57)
AIC	5123.67	5066.12	5069.45	5072.35	5065.71
BIC	5136.18	5084.89	5119.51	5159.95	5209.63
Log Likelihood	-2559.83	-2530.06	-2526.73	-2522.18	-2509.86
Deviance	5119.67	5060.12	5053.45	5044.35	5019.71
Num. obs.	3855	3855	3855	3855	3855

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 13: Testing for Racial Profiling of African Americans (Other Minorities Excluded)

Yearly Estimates of Racial Profiling of African Americans with Log-Odds

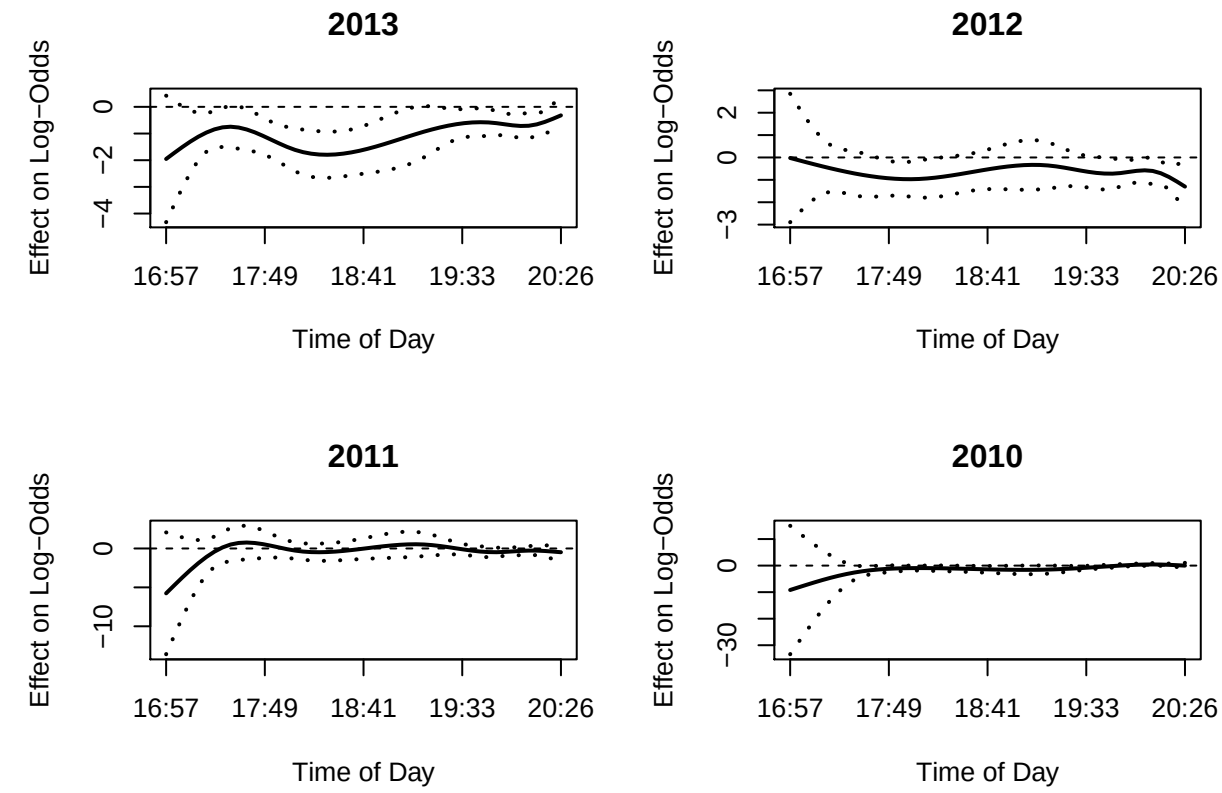
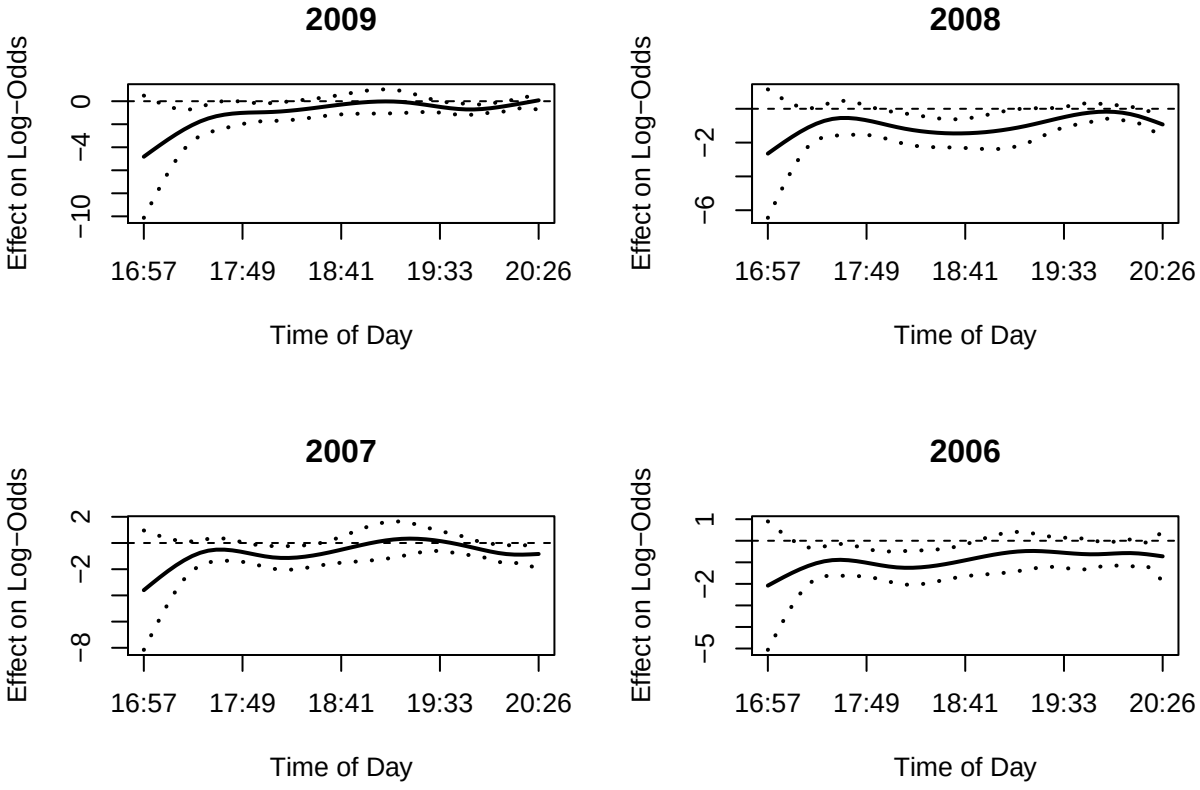


Figure 18: Yearly Estimates of Racial Profiling of African Americans(2000-13)



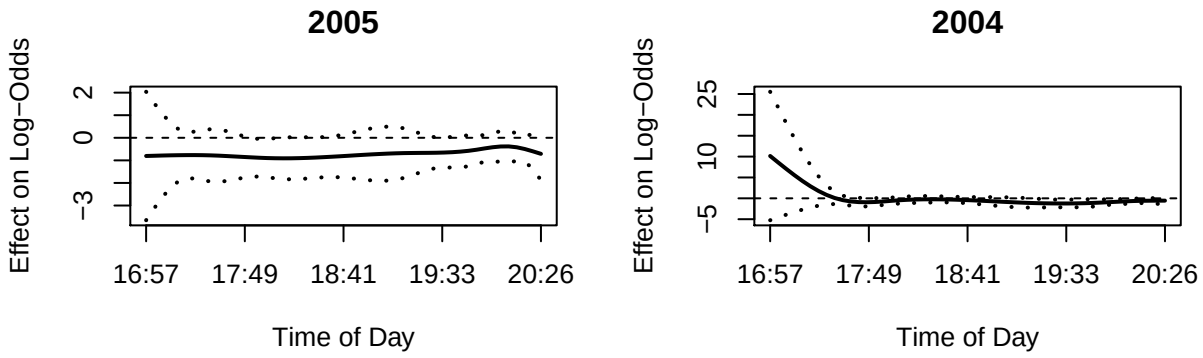


Figure 19: Yearly Estimates of Racial Profiling of African Americans (2004-06)

Yearly Estimates of Racial Profiling of African Americans with Log-Odds (Excluding Other Minoriities from Analysis)

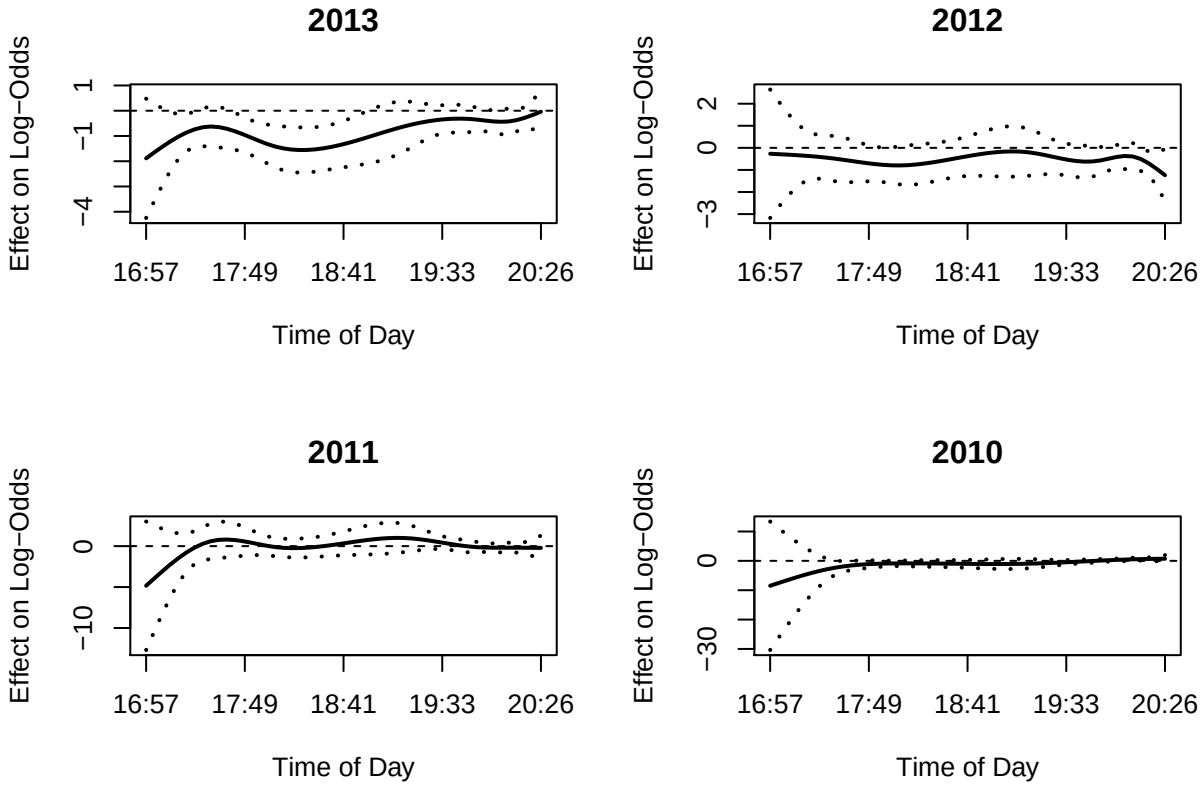
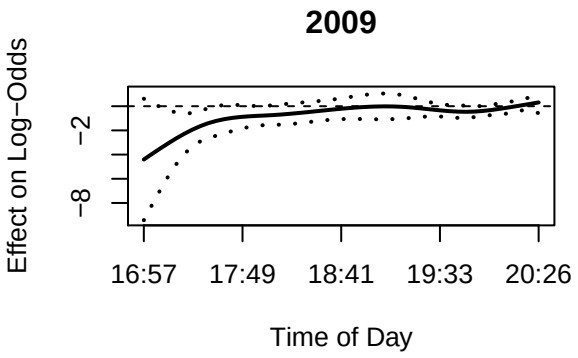
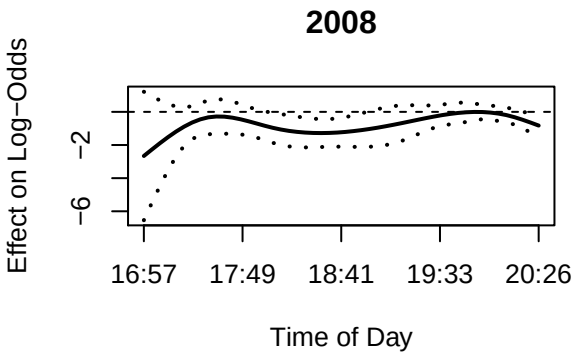
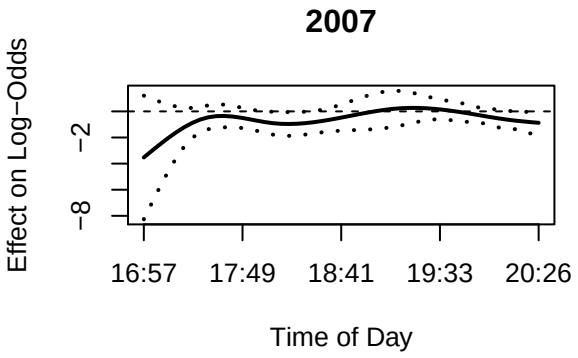
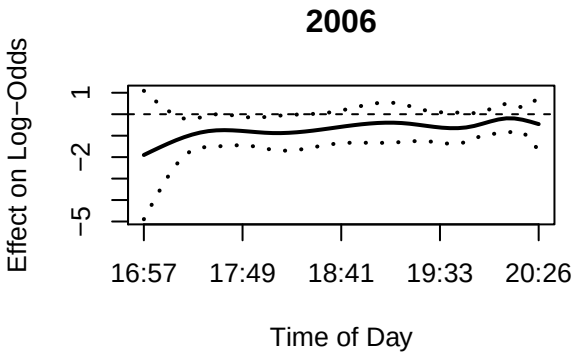


Figure 20: Yearly Estimates of Racial Profiling of African Americans(2000-13)


2009
Effect on Log−Odds
−8
−2
16:57
17:49
18:41
19:33
20:26
Time of Day


2008
Effect on Log−Odds
−6
−2
16:57
17:49
18:41
19:33
20:26
Time of Day


2007
Effect on Log−Odds
−8
−2
16:57
17:49
18:41
19:33
20:26
Time of Day


2006
Effect on Log−Odds
−5
−2
1
16:57
17:49
18:41
19:33
20:26
Time of Day

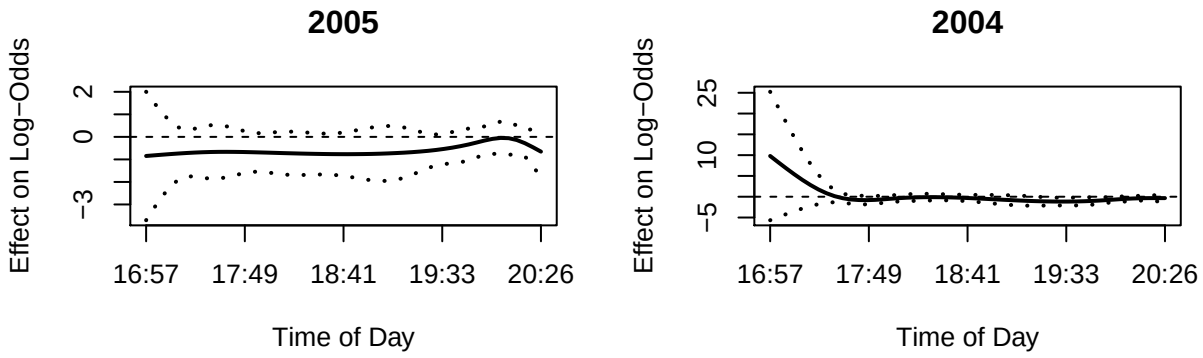


Figure 21: Yearly Estimates of Racial Profiling of African Americans (2004-06)

5 Disparities in Financial Impact

Merging IDOT Data with Court Data

To obtain estimates of the financial impact of traffic stops, we merged data on driver's race from the IDOT data with the Champaign County Court data on traffic citations from 2004 to 2014 using the driver's first and last names.There are a total of 40,868 charges, with 26,389 unique defendants, with some defendants receiving multiple charges. Overall, we were able to match 77 percent of the court records with the IDOT data. In a given year, we are able to match between 15 and 20 percent of the cases, while in 2014, 58 percent of the cases are unknown (labeled "UK" below). Since there are only 13 respondents who identify as Native American or Alaskan, they are excluded from subsquent analyis.

Table 14: Defendants by Race (2004-2013)

	AA	AS	HS	NA	WH	UK
Count	6184	1968	988	13	11060	6176
Proportion	0.23	0.07	0.04	0	0.42	0.23

Average Fine by Race

In the sample, the average fine paid by a person in given case, (for which there may be multiple charges) is about $186.68. The median fine is $77 dollars. The distribution of fines is very skewed. About 22 percent of the sample pay no fine, while 6 percent of the sample pay over $600 in fines.

Looking at the distribution of fines by race, we see that African Americans and Hispancis, on average, are ordered to pay more fines than Whites and Asians. There are several possible reasons for this disparity, each of which we explore in more detail below.

Table 15: Average Fines by Race (2004-2014)

Race	Average Fine	Stnd Dev	50th percentile	75 percentile	Maximum
AA	204.03	516.39	77	164.0	16235
AS	154.50	386.01	120	122.0	12191
HS	295.38	607.29	120	300.0	7593
WH	171.60	388.80	77	121.0	7614
UK	186.72	449.85	115	156.0	17442

Types of Charges by Race

First, the distribution of charges may vary across racial groups. African Americans and Hispanics, may be more likely to be charged with offenses that carry a higher fine. The table below provides some evidence of this. Driving without insurance or on a revoked license carry higher average fines than moving violations, and are more common among African Americans and Hispancis, than Whites and Asians.

Table 16: Top 10 Charges by Race (2004-2014)

White	**Count**	**Mean Fine**
Driving 15-20 Mph Above Limit	2411	$108.25
Operate Uninsured Mtr Vehicle	2125	$100.75
Driving 11-14 Mph Above Limit	2003	$104.17
Disregard Stop Sign	1702	$101.5
Seat Belt Required/driver	717	$52.92
Disreg Traffic Control Light	636	$100.05
Fail To Reduce Speed	578	$112.03
Driving On Suspended License	464	$238.34
Driving 1-10 Mph Above Limit	423	$102.64
Drvg Under Influ Of Alcohol	421	$790.87
African American	**Count**	**Mean Fine**
Operate Uninsured Mtr Vehicle	2503	$186.67
Driving On Suspended License	1121	$209.82
Driving 15-20 Mph Above Limit	969	$92.81
Unlicensed	893	$171.87
Driving 11-14 Mph Above Limit	828	$92.08
Disregard Stop Sign	760	$82.17
Op Veh W/loud System >75 Ft	452	$65.89
Driving On Revoked License	426	$90.45
Seat Belt Required/driver	333	$44.06
Fail To Reduce Speed	297	$83.53
Hispanic	**Count**	**Mean Fine**
Unlicensed	475	$172.02
Operate Uninsured Mtr Vehicle	394	$295.78
Driving 15-20 Mph Above Limit	136	$104.56
Disregard Stop Sign	118	$86.19
Driving 11-14 Mph Above Limit	103	$90.55
Driving On Suspended License	94	$311.28
Drvg Under Influ Of Alcohol	61	$244.93
Improper Traffic Lane Usage	43	$73.86
Disreg Traffic Control Light	41	$88.05
Drvg Under Influ/bac 0.08	41	$179.44
Asian	**Count**	**Mean Fine**
Driving 15-20 Mph Above Limit	528	$107.06
Driving 11-14 Mph Above Limit	317	$105.95
Operate Uninsured Mtr Vehicle	303	$70.73
Disregard Stop Sign	298	$100.96
Disreg Traffic Control Light	160	$107.03
Unlicensed	97	$49.93
Unsafe Equipment/1st and 2nd	90	$243.19
Fail To Reduce Speed	84	$135.35
Driving 21-25 Mph Above Limit	70	$120.86
Improper Traffic Lane Usage	55	$107.73

Number of Charges by Race

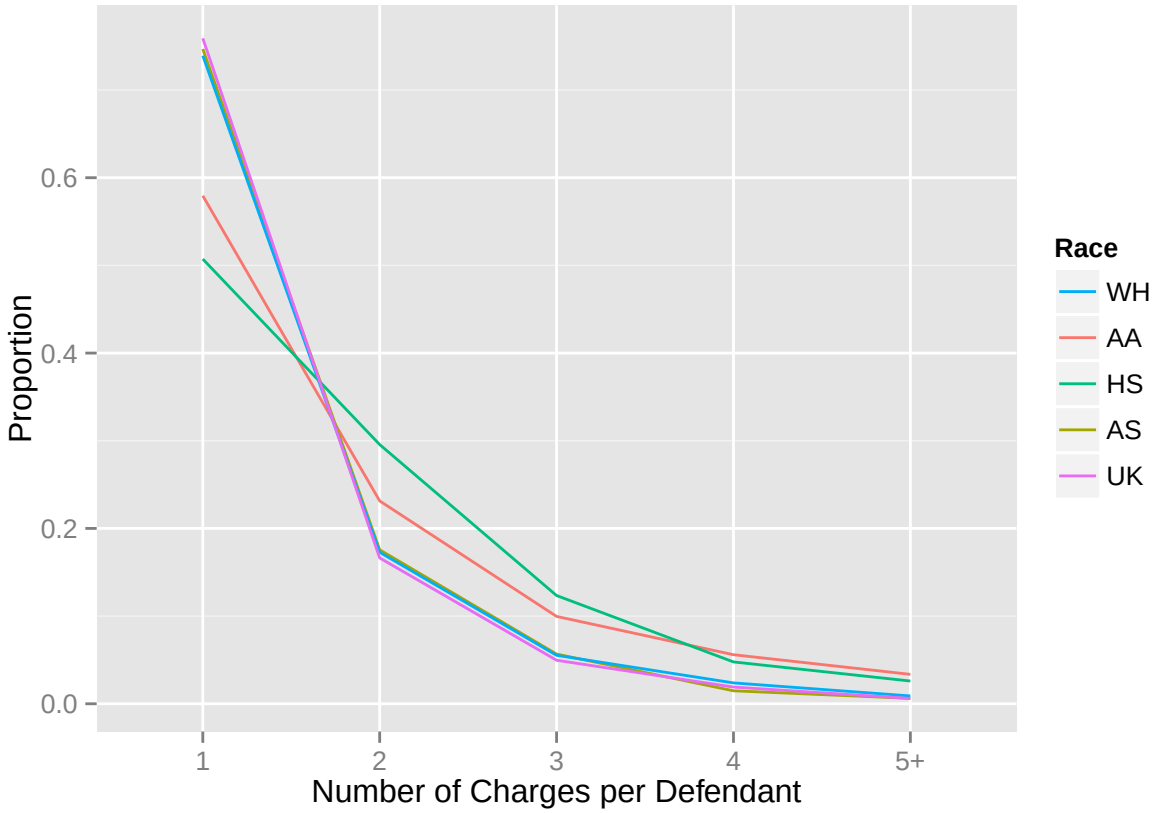
Second, members of different racial groups may be more or less likely to be charged with multiple offenses (e.g. speeding and driving without insurance), which would raise the average fine per person in these groups. Again, the data support this view. Fourty-two percent of African Americans and 49 percent of Hispanics are charged with more than one violation, compared to 25 percent of Asians and 26 percent of Whites. Individuals with one charge, pay between $100 and $130 dollars in fines. Those charged with more than one fine pay about $300 to $400 dollars more

Table 17: Number of Charges by Race (2004-2014)

	One	Two	Three	Four	Five +
AA	3489	1393	600	337	202
AS	1463	344	111	29	12
HS	489	285	119	46	25
WH	8103	1894	606	261	98
UK	4664	1022	305	117	37

Table 18: Proportion of Multipe Charges by Race (2004-2014)

	One	Two	Three	Four	Five +
AA	0.58	0.23	0.10	0.06	0.03
AS	0.75	0.18	0.06	0.01	0.01
HS	0.51	0.30	0.12	0.05	0.03
WH	0.74	0.17	0.06	0.02	0.01
UK	0.76	0.17	0.05	0.02	0.01


Proportion
0.6
0.4
0.2
0.0
1
2
3
4
5+
Number of Charges per Defendant
Race
WH
AA
HS
AS
UK

Average Fine by Violation and Race

Finally, it is possible, that for the same offense, different minorty groups recieve different fines. The evidence here is mixed. African Americans and Hispancis are significantly more likely to pay higher fines for driving without insurance and being unlicensed. Whites pay more for moving violations and DUIs compared to African Americans and Hispanics, but not Asians. Asians are fined more for traffic lane violations

‘‘‘

Table 19: Differences in Average Fines for Selected Charges by Race (2004-2014)

White-African American	**Mean WH Fine**	**Mean AA Fine**	**Difference**
Driving 15-20 Mph Above Limit	108.25	92.81	-15.44*
Driving 11-14 Mph Above Limit	104.17	92.08	-12.09*
Seat Belt Required/driver	52.92	44.06	-8.86*
Disregard Stop Sign	101.5	82.17	-19.32*
Improper Traffic Lane Usage	65.49	63.65	-1.84
Operate Uninsured Mtr Vehicle	100.75	186.67	85.92*
Unlicensed	90.32	171.87	81.56*
Driving On Suspended License	238.34	209.82	-28.53
Driving On Revoked License	121.9	90.45	-31.45
Drvg Under Influ Of Alcohol	790.87	439.77	-351.11*
White-Hispanic	**Mean WH Fine**	**Mean HS Fine**	**Difference**
Driving 15-20 Mph Above Limit	108.25	104.56	-3.69
Driving 11-14 Mph Above Limit	104.17	90.55	-13.62*
Seat Belt Required/driver	52.92	34.71	-18.21*
Disregard Stop Sign	101.5	86.19	-15.31*
Improper Traffic Lane Usage	65.49	73.86	8.37
Operate Uninsured Mtr Vehicle	100.75	295.78	195.03*
Unlicensed	90.32	172.02	81.7*
Driving On Suspended License	238.34	311.28	72.93
Driving On Revoked License	121.9	185.12	63.21
Drvg Under Influ Of Alcohol	790.87	244.93	-545.94*
White-Asian	**Mean WH Fine**	**Mean AS Fine**	**Difference**
Driving 15-20 Mph Above Limit	108.25	107.06	-1.19
Driving 11-14 Mph Above Limit	104.17	105.95	1.78
Seat Belt Required/driver	52.92	50.93	-2
Disregard Stop Sign	101.5	100.96	-0.54
Improper Traffic Lane Usage	65.49	107.73	42.24*
Operate Uninsured Mtr Vehicle	100.75	70.73	-30.03
Unlicensed	90.32	49.93	-40.39*
Driving On Suspended License	238.34	252.15	13.8
Driving On Revoked License	121.9	175.8	53.9
Drvg Under Influ Of Alcohol	790.87	952.8	161.93

Note: *$p < 0.05$

6 Additional Analyses

Complete Summary of Stops, Citations, Searches, and Contraband by Race

Type of Stop

Total Stops

Figure 22: Total Number of Stops by Year and Race

The figure shows the total number of stops by year and type of stop for each racial group.

Comments

- Moving violations are the most common reason for stop, followed by equipment violations, and stops for License plates/Registration (L/R)
- Increase in total stops peaks at 2009, driven by rises in the number of equipment and L/R stops.
- Increase from 2011-2013 reflects increase across all type of stops.
- White and African American drivers make up the majority of stops.

Percent of Total Stops

Figure 23: Proportion of Yearly Stops by Race

The figure shows for a given year and type of stop, what proportion of the stops are from what racial group. - The proportion of total stops by race is relatively constant over the years. - Whites and African Americans account for generally over 90 percent of all stops - Whites make up the majority of moving violations - African Americans account for the plurality of Equipment and L/R stops

Type of Stop by Race

The figure shows the proportion of each racial group's total stops that are for moving violations, equipment, and L/R.

Comments

- Moving violations are the most common type of stop for all races
- Equipment and L/R stops tend to be more common among African Americans and Hispanics

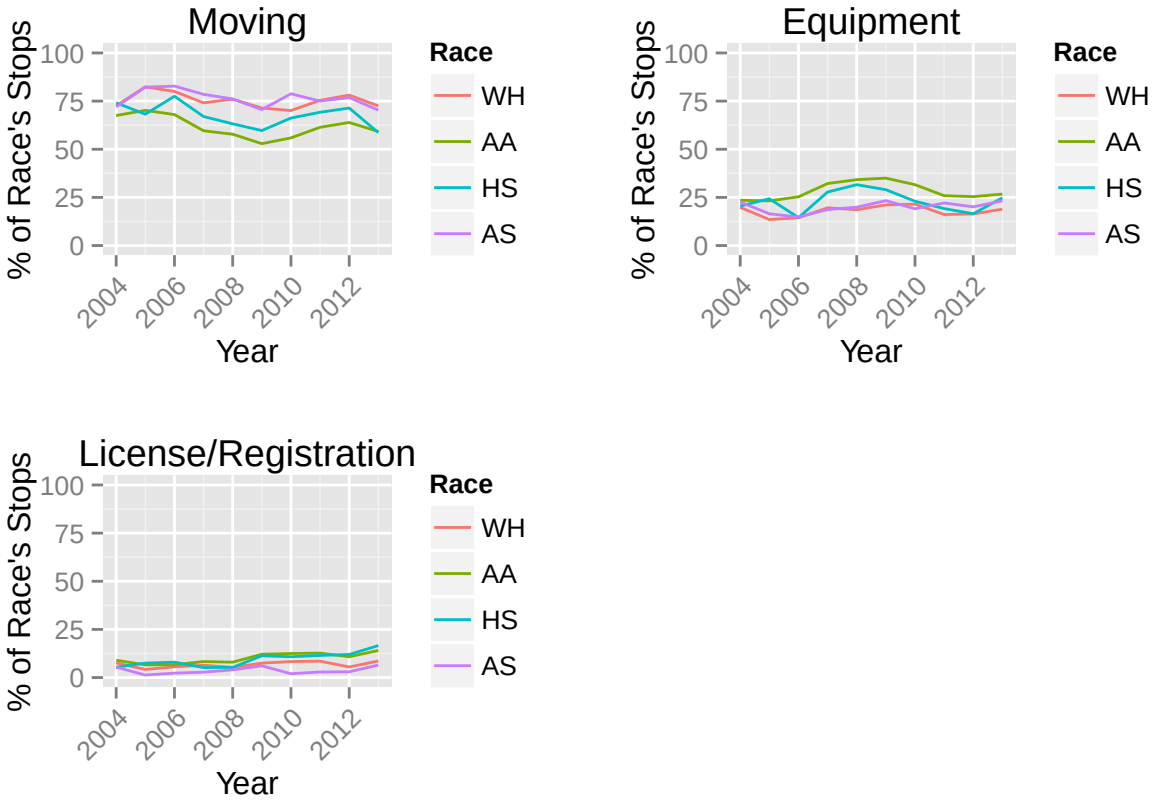


Figure 24: Type of Stop by Race and Year

Table 20: Traffic Stops by Race

		WH		**AA**		**HS**		**AS**	
	Total	#	%	#	%	#	%	#	%
2004	3548	1948	**54.9**	1227	**34.6**	112	**3.2**	261	**7.4**
2005	3049	1707	**56**	1005	**33**	107	**3.5**	230	**7.5**
2006	4014	2131	**53.1**	1401	**34.9**	138	**3.4**	344	**8.6**
2007	3380	1854	**54.9**	1160	**34.3**	115	**3.4**	251	**7.4**
2008	4024	2194	**54.5**	1332	**33.1**	171	**4.2**	327	**8.1**
2009	4275	2240	**52.4**	1458	**34.1**	186	**4.4**	391	**9.1**
2010	3077	1476	**48**	1169	**38**	139	**4.5**	293	**9.5**
2011	2829	1463	**51.7**	992	**35.1**	130	**4.6**	244	**8.6**
2012	3746	2169	**57.9**	1116	**29.8**	133	**3.6**	328	**8.8**
2013	4287	2365	**55.2**	1273	**29.7**	157	**3.7**	492	**11.5**

Table 21: Moving Violations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	2514	1415	**56.3**	828	**32.9**	83	**3.3**	188	**7.5**
2005	2374	1406	**59.2**	706	**29.7**	73	**3.1**	189	**8**
2006	3049	1704	**55.9**	953	**31.3**	107	**3.5**	285	**9.3**
2007	2338	1373	**58.7**	691	**29.6**	77	**3.3**	197	**8.4**
2008	2795	1668	**59.7**	770	**27.5**	108	**3.9**	249	**8.9**
2009	2758	1600	**58**	771	**28**	111	**4**	276	**10**
2010	2012	1035	**51.4**	654	**32.5**	92	**4.6**	231	**11.5**
2011	1985	1103	**55.6**	609	**30.7**	90	**4.5**	183	**9.2**
2012	2754	1694	**61.5**	713	**25.9**	95	**3.4**	252	**9.2**
2013	2906	1715	**59**	753	**25.9**	92	**3.2**	346	**11.9**

Table 22: License and Registration Violations By Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	279	148	**53**	111	**39.8**	6	**2.2**	14	**5**
2005	148	71	**48**	66	**44.6**	8	**5.4**	3	**2**
2006	233	120	**51.5**	94	**40.3**	11	**4.7**	8	**3.4**
2007	227	118	**52**	96	**42.3**	6	**2.6**	7	**3.1**
2008	245	117	**47.8**	106	**43.3**	9	**3.7**	13	**5.3**
2009	389	167	**42.9**	177	**45.5**	21	**5.4**	24	**6.2**
2010	290	123	**42.4**	146	**50.3**	15	**5.2**	6	**2.1**
2011	273	125	**45.8**	126	**46.2**	15	**5.5**	7	**2.6**
2012	265	119	**44.9**	120	**45.3**	16	**6**	10	**3.8**
2013	442	204	**46.2**	180	**40.7**	26	**5.9**	32	**7.2**

Table 23: Equipment Violations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	755	385	**51**	288	**38.1**	23	**3**	59	**7.8**
2005	527	230	**43.6**	233	**44.2**	26	**4.9**	38	**7.2**
2006	732	307	**41.9**	354	**48.4**	20	**2.7**	51	**7**
2007	815	363	**44.5**	373	**45.8**	32	**3.9**	47	**5.8**
2008	984	409	**41.6**	456	**46.3**	54	**5.5**	65	**6.6**
2009	1128	473	**41.9**	510	**45.2**	54	**4.8**	91	**8.1**
2010	775	318	**41**	369	**47.6**	32	**4.1**	56	**7.2**
2011	571	235	**41.2**	257	**45**	25	**4.4**	54	**9.5**
2012	727	356	**49**	283	**38.9**	22	**3**	66	**9.1**
2013	939	446	**47.5**	340	**36.2**	39	**4.2**	114	**12.1**

Citations

Total Number of Citations

Figure 25: Total Number of Citations by Year, Race, and Type of Stop

The figure shows total number of citations issued in a given year to drivers of a certain race.

Figure 26: Proportion of Total Citations by Year, Race, and Type of Stop

The figure shows the proportion of total citations in a year issued to each racial group for all stops, and then separately for moving, equipment and L/R violations.

Comments

- Gaps between Whites and African American Drivers in terms of citations for Equipment and L/R stops

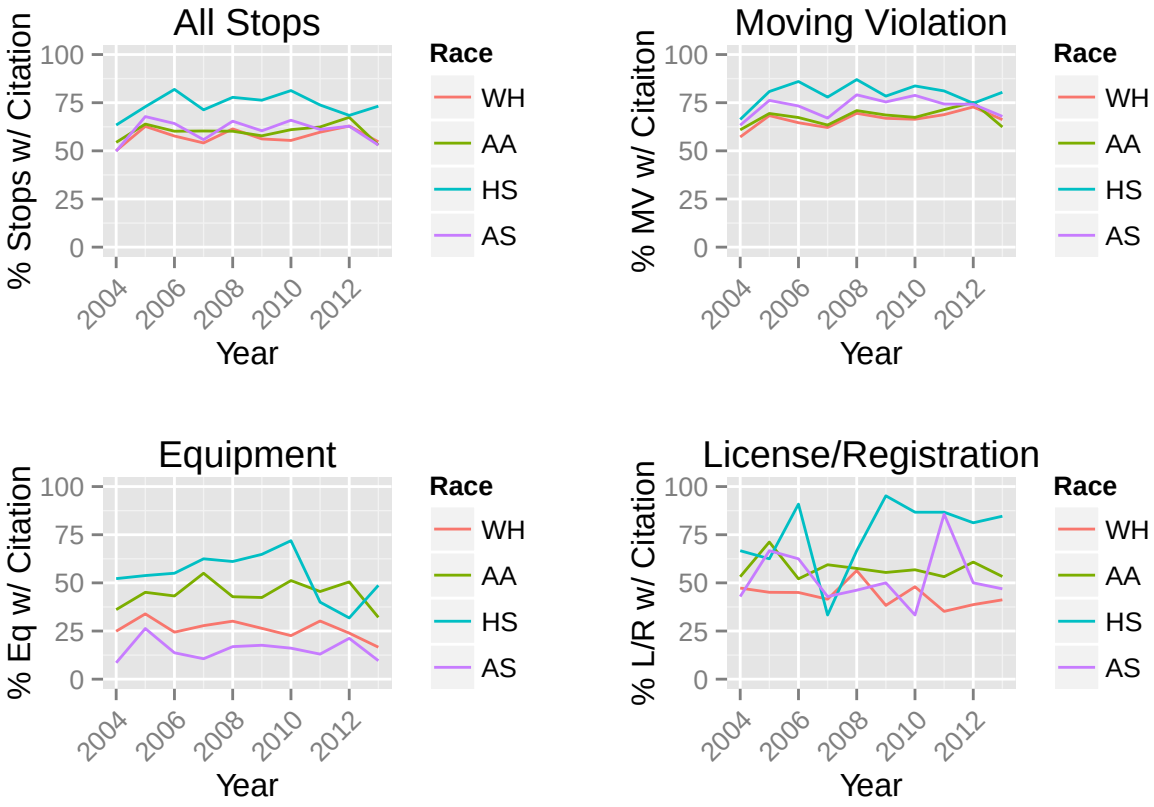


Figure 27: Rates of Citations by Year, Race, and Type of Stop

The figure shows the rates of stops which result in citations for each racial group.

Comments

- Hispanics are far more likely to get a citation, particularly for L/R stops.

Table 24: Citations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	1948	975	**52.9**	667	**36.2**	71	**3.9**	130	**7.1**
2005	1707	1070	**55**	642	**33**	78	**4**	156	**8**
2006	2131	1229	**51.1**	843	**35**	113	**4.7**	221	**9.2**
2007	1854	1003	**52.1**	700	**36.4**	82	**4.3**	140	**7.3**
2008	2194	1348	**54**	802	**32.1**	133	**5.3**	214	**8.6**
2009	2240	1260	**50.8**	843	**34**	142	**5.7**	236	**9.5**
2010	1476	818	**44.5**	713	**38.8**	113	**6.2**	193	**10.5**
2011	1463	874	**50.3**	619	**35.6**	96	**5.5**	149	**8.6**
2012	2169	1365	**56.5**	752	**31.2**	91	**3.8**	206	**8.5**
2013	2365	1293	**55.2**	675	**28.8**	115	**4.9**	261	**11.1**

Table 25: Moving Violation Citations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	1487	809	**54.4**	504	**33.9**	55	**3.7**	119	**8**
2005	1653	960	**58.1**	490	**29.6**	59	**3.6**	144	**8.7**
2006	2042	1100	**53.9**	641	**31.4**	92	**4.5**	209	**10.2**
2007	1483	853	**57.5**	438	**29.5**	60	**4**	132	**8.9**
2008	1996	1159	**58.1**	546	**27.4**	94	**4.7**	197	**9.9**
2009	1895	1071	**56.5**	529	**27.9**	87	**4.6**	208	**11**
2010	1387	687	**49.5**	441	**31.8**	77	**5.6**	182	**13.1**
2011	1403	759	**54.1**	435	**31**	73	**5.2**	136	**9.7**
2012	2028	1234	**60.8**	536	**26.4**	71	**3.5**	187	**9.2**
2013	1914	1135	**59.3**	470	**24.6**	74	**3.9**	235	**12.3**

Table 26: Lic/Reg Citations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	139	70	**50.4**	59	**42.4**	4	**2.9**	6	**4.3**
2005	86	32	**37.2**	47	**54.7**	5	**5.8**	2	**2.3**
2006	118	54	**45.8**	49	**41.5**	10	**8.5**	5	**4.2**
2007	111	49	**44.1**	57	**51.4**	2	**1.8**	3	**2.7**
2008	139	66	**47.5**	61	**43.9**	6	**4.3**	6	**4.3**
2009	194	64	**33**	98	**50.5**	20	**10.3**	12	**6.2**
2010	157	59	**37.6**	83	**52.9**	13	**8.3**	2	**1.3**
2011	130	44	**33.8**	67	**51.5**	13	**10**	6	**4.6**
2012	137	46	**33.6**	73	**53.3**	13	**9.5**	5	**3.6**
2013	217	84	**38.7**	96	**44.2**	22	**10.1**	15	**6.9**

Table 27: Equipment Citations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	217	96	**44.2**	104	**47.9**	12	**5.5**	5	**2.3**
2005	207	78	**37.7**	105	**50.7**	14	**6.8**	10	**4.8**
2006	246	75	**30.5**	153	**62.2**	11	**4.5**	7	**2.8**
2007	331	101	**30.5**	205	**61.9**	20	**6**	5	**1.5**
2008	362	123	**34**	195	**53.9**	33	**9.1**	11	**3**
2009	392	125	**31.9**	216	**55.1**	35	**8.9**	16	**4.1**
2010	293	72	**24.6**	189	**64.5**	23	**7.8**	9	**3.1**
2011	205	71	**34.6**	117	**57.1**	10	**4.9**	7	**3.4**
2012	249	85	**34.1**	143	**57.4**	7	**2.8**	14	**5.6**
2013	213	74	**34.7**	109	**51.2**	19	**8.9**	11	**5.2**

Table 28: Percent of Stops with Citations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	1948	975	**50.1**	1227	667	**54.4**	112	71	**63.4**	261	130	**49.8**
2005	1707	1070	**62.7**	1005	642	**63.9**	107	78	**72.9**	230	156	**67.8**
2006	2131	1229	**57.7**	1401	843	**60.2**	138	113	**81.9**	344	221	**64.2**
2007	1854	1003	**54.1**	1160	700	**60.3**	115	82	**71.3**	251	140	**55.8**
2008	2194	1348	**61.4**	1332	802	**60.2**	171	133	**77.8**	327	214	**65.4**
2009	2240	1260	**56.2**	1458	843	**57.8**	186	142	**76.3**	391	236	**60.4**
2010	1476	818	**55.4**	1169	713	**61**	139	113	**81.3**	293	193	**65.9**
2011	1463	874	**59.7**	992	619	**62.4**	130	96	**73.8**	244	149	**61.1**
2012	2169	1365	**62.9**	1116	752	**67.4**	133	91	**68.4**	328	206	**62.8**
2013	2365	1293	**54.7**	1273	675	**53**	157	115	**73.2**	492	261	**53**

Table 29: Percent of Stops with Citations for Moving Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	1415	809	**57.2**	828	504	**60.9**	83	55	**66.3**	188	119	**63.3**
2005	1406	960	**68.3**	706	490	**69.4**	73	59	**80.8**	189	144	**76.2**
2006	1704	1100	**64.6**	953	641	**67.3**	107	92	**86**	285	209	**73.3**
2007	1373	853	**62.1**	691	438	**63.4**	77	60	**77.9**	197	132	**67**
2008	1668	1159	**69.5**	770	546	**70.9**	108	94	**87**	249	197	**79.1**
2009	1600	1071	**66.9**	771	529	**68.6**	111	87	**78.4**	276	208	**75.4**
2010	1035	687	**66.4**	654	441	**67.4**	92	77	**83.7**	231	182	**78.8**
2011	1103	759	**68.8**	609	435	**71.4**	90	73	**81.1**	183	136	**74.3**
2012	1694	1234	**72.8**	713	536	**75.2**	95	71	**74.7**	252	187	**74.2**
2013	1715	1135	**66.2**	753	470	**62.4**	92	74	**80.4**	346	235	**67.9**

Table 30: Percent of Stops with Citations for Lic/Reg Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	148	70	**47.3**	111	59	**53.2**	6	4	**66.7**	14	6	**42.9**
2005	71	32	**45.1**	66	47	**71.2**	8	5	**62.5**	3	2	**66.7**
2006	120	54	**45**	94	49	**52.1**	11	10	**90.9**	8	5	**62.5**
2007	118	49	**41.5**	96	57	**59.4**	6	2	**33.3**	7	3	**42.9**
2008	117	66	**56.4**	106	61	**57.5**	9	6	**66.7**	13	6	**46.2**
2009	167	64	**38.3**	177	98	**55.4**	21	20	**95.2**	24	12	**50**
2010	123	59	**48**	146	83	**56.8**	15	13	**86.7**	6	2	**33.3**
2011	125	44	**35.2**	126	67	**53.2**	15	13	**86.7**	7	6	**85.7**
2012	119	46	**38.7**	120	73	**60.8**	16	13	**81.2**	10	5	**50**
2013	204	84	**41.2**	180	96	**53.3**	26	22	**84.6**	32	15	**46.9**

Table 31: Percent of Stops with Citations for Equipment Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	385	96	**24.9**	288	104	**36.1**	23	12	**52.2**	59	5	**8.5**
2005	230	78	**33.9**	233	105	**45.1**	26	14	**53.8**	38	10	**26.3**
2006	307	75	**24.4**	354	153	**43.2**	20	11	**55**	51	7	**13.7**
2007	363	101	**27.8**	373	205	**55**	32	20	**62.5**	47	5	**10.6**
2008	409	123	**30.1**	456	195	**42.8**	54	33	**61.1**	65	11	**16.9**
2009	473	125	**26.4**	510	216	**42.4**	54	35	**64.8**	91	16	**17.6**
2010	318	72	**22.6**	369	189	**51.2**	32	23	**71.9**	56	9	**16.1**
2011	235	71	**30.2**	257	117	**45.5**	25	10	**40**	54	7	**13**
2012	356	85	**23.9**	283	143	**50.5**	22	7	**31.8**	66	14	**21.2**
2013	446	74	**16.6**	340	109	**32.1**	39	19	**48.7**	114	11	**9.6**

Searches

Total Number of Searches

Figure 28: Total Number of Searches by Year, Race, and Type of Stop

The figure shows the overall number of stops in year by racial group.

Comments

- Overall, it seems the number of searches has been declining.
- The format for reporting searches are reported in the data frequently changed over 2004-2012.

Propotion of Total Searches

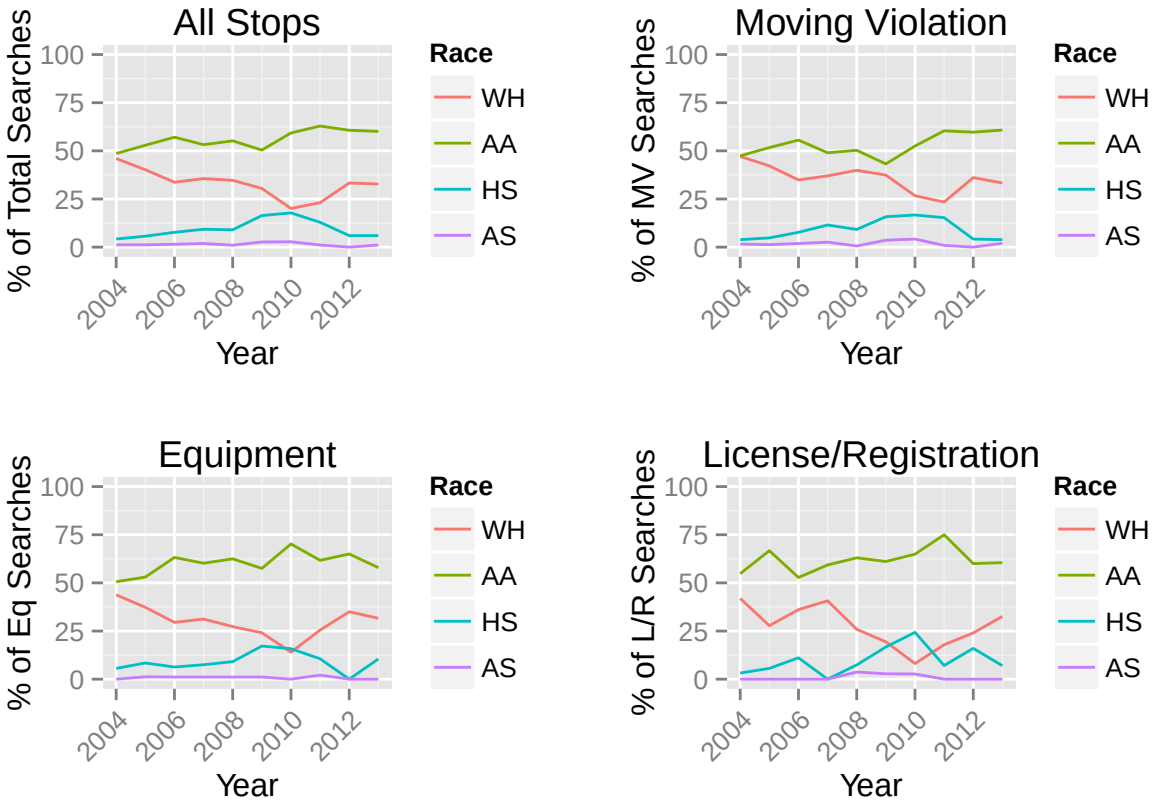


Figure 29: Proportion of Total Searches by Year, Race, and Type of Stop

The figure shows for each year what proportion of the years searches were conducted on drivers from each racial group

Comments

- African Americans consistently make up the majority of drivers searched.

Figure 30: Rates of Searches by Year, Race, and Type of Stop

The figure shows a given racial group, what proportion of their stops result in a search

Comments

- Hispanic and African American drivers are consistently more likely to be searched during a stop

Table 32: Total Searches by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	426	196	**46**	207	**48.6**	18	**4.2**	5	**1.2**
2005	331	133	**40.2**	175	**52.9**	19	**5.7**	4	**1.2**
2006	392	132	**33.7**	224	**57.1**	30	**7.7**	6	**1.5**
2007	312	111	**35.6**	166	**53.2**	29	**9.3**	6	**1.9**
2008	288	100	**34.7**	159	**55.2**	26	**9**	3	**1**
2009	262	80	**30.5**	132	**50.4**	43	**16.4**	7	**2.7**
2010	214	43	**20.1**	127	**59.3**	38	**17.8**	6	**2.8**
2011	186	43	**23.1**	117	**62.9**	24	**12.9**	2	**1.1**
2012	117	39	**33.3**	71	**60.7**	7	**6**	0	**0**
2013	183	60	**32.8**	110	**60.1**	11	**6**	2	**1.1**

Table 33: Searches for Moving Violations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	306	144	**47.1**	145	**47.4**	12	**3.9**	5	**1.6**
2005	230	97	**42.2**	119	**51.7**	11	**4.8**	3	**1.3**
2006	261	91	**34.9**	145	**55.6**	20	**7.7**	5	**1.9**
2007	192	71	**37**	94	**49**	22	**11.5**	5	**2.6**
2008	173	69	**39.9**	87	**50.3**	16	**9.2**	1	**0.6**
2009	139	52	**37.4**	60	**43.2**	22	**15.8**	5	**3.6**
2010	120	32	**26.7**	63	**52.5**	20	**16.7**	5	**4.2**
2011	111	26	**23.4**	67	**60.4**	17	**15.3**	1	**0.9**
2012	72	26	**36.1**	43	**59.7**	3	**4.2**	0	**0**
2013	102	34	**33.3**	62	**60.8**	4	**3.9**	2	**2**

Table 34: Searches for Lic/Reg by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	31	13	**41.9**	17	**54.8**	1	**3.2**	0	**0**
2005	18	5	**27.8**	12	**66.7**	1	**5.6**	0	**0**
2006	36	13	**36.1**	19	**52.8**	4	**11.1**	0	**0**
2007	27	11	**40.7**	16	**59.3**	0	**0**	0	**0**
2008	27	7	**25.9**	17	**63**	2	**7.4**	1	**3.7**
2009	36	7	**19.4**	22	**61.1**	6	**16.7**	1	**2.8**
2010	37	3	**8.1**	24	**64.9**	9	**24.3**	1	**2.7**
2011	28	5	**17.9**	21	**75**	2	**7.1**	0	**0**
2012	25	6	**24**	15	**60**	4	**16**	0	**0**
2013	43	14	**32.6**	26	**60.5**	3	**7**	0	**0**

Table 35: Searches for Equipment Violations by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004	89	39	**43.8**	45	**50.6**	5	**5.6**	0	**0**
2005	83	31	**37.3**	44	**53**	7	**8.4**	1	**1.2**
2006	95	28	**29.5**	60	**63.2**	6	**6.3**	1	**1.1**
2007	93	29	**31.2**	56	**60.2**	7	**7.5**	1	**1.1**
2008	88	24	**27.3**	55	**62.5**	8	**9.1**	1	**1.1**
2009	87	21	**24.1**	50	**57.5**	15	**17.2**	1	**1.1**
2010	57	8	**14**	40	**70.2**	9	**15.8**	0	**0**
2011	47	12	**25.5**	29	**61.7**	5	**10.6**	1	**2.1**
2012	20	7	**35**	13	**65**	0	**0**	0	**0**
2013	38	12	**31.6**	22	**57.9**	4	**10.5**	0	**0**

Table 36: Percent of Stops with Searches by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	1948	196	**10.1**	1227	207	**16.9**	112	18	**16.1**	261	5	**1.9**
2005	1707	133	**7.8**	1005	175	**17.4**	107	19	**17.8**	230	4	**1.7**
2006	2131	132	**6.2**	1401	224	**16**	138	30	**21.7**	344	6	**1.7**
2007	1854	111	**6**	1160	166	**14.3**	115	29	**25.2**	251	6	**2.4**
2008	2194	100	**4.6**	1332	159	**11.9**	171	26	**15.2**	327	3	**0.9**
2009	2240	80	**3.6**	1458	132	**9.1**	186	43	**23.1**	391	7	**1.8**
2010	1476	43	**2.9**	1169	127	**10.9**	139	38	**27.3**	293	6	**2**
2011	1463	43	**2.9**	992	117	**11.8**	130	24	**18.5**	244	2	**0.8**
2012	2169	39	**1.8**	1116	71	**6.4**	133	7	**5.3**	328	0	**0**
2013	2365	60	**2.5**	1273	110	**8.6**	157	11	**7**	492	2	**0.4**

Table 37: Percent of Stops with Searches for Moving Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	1415	144	**10.2**	828	145	**17.5**	83	12	**14.5**	188	5	**2.7**
2005	1406	97	**6.9**	706	119	**16.9**	73	11	**15.1**	189	3	**1.6**
2006	1704	91	**5.3**	953	145	**15.2**	107	20	**18.7**	285	5	**1.8**
2007	1373	71	**5.2**	691	94	**13.6**	77	22	**28.6**	197	5	**2.5**
2008	1668	69	**4.1**	770	87	**11.3**	108	16	**14.8**	249	1	**0.4**
2009	1600	52	**3.2**	771	60	**7.8**	111	22	**19.8**	276	5	**1.8**
2010	1035	32	**3.1**	654	63	**9.6**	92	20	**21.7**	231	5	**2.2**
2011	1103	26	**2.4**	609	67	**11**	90	17	**18.9**	183	1	**0.5**
2012	1694	26	**1.5**	713	43	**6**	95	3	**3.2**	252	0	**0**
2013	1715	34	**2**	753	62	**8.2**	92	4	**4.3**	346	2	**0.6**

Table 38: Percent of Stops with Searches for Lic/Reg Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	148	13	**8.8**	111	17	**15.3**	6	1	**16.7**	14	0	**0**
2005	71	5	**7**	66	12	**18.2**	8	1	**12.5**	3	0	**0**
2006	120	13	**10.8**	94	19	**20.2**	11	4	**36.4**	8	0	**0**
2007	118	11	**9.3**	96	16	**16.7**	6	0	**0**	7	0	**0**
2008	117	7	**6**	106	17	**16**	9	2	**22.2**	13	1	**7.7**
2009	167	7	**4.2**	177	22	**12.4**	21	6	**28.6**	24	1	**4.2**
2010	123	3	**2.4**	146	24	**16.4**	15	9	**60**	6	1	**16.7**
2011	125	5	**4**	126	21	**16.7**	15	2	**13.3**	7	0	**0**
2012	119	6	**5**	120	15	**12.5**	16	4	**25**	10	0	**0**
2013	204	14	**6.9**	180	26	**14.4**	26	3	**11.5**	32	0	**0**

Table 39: Percent of Stops with Searches for Equipment Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004	385	39	**10.1**	288	45	**15.6**	23	5	**21.7**	59	0	**0**
2005	230	31	**13.5**	233	44	**18.9**	26	7	**26.9**	38	1	**2.6**
2006	307	28	**9.1**	354	60	**16.9**	20	6	**30**	51	1	**2**
2007	363	29	**8**	373	56	**15**	32	7	**21.9**	47	1	**2.1**
2008	409	24	**5.9**	456	55	**12.1**	54	8	**14.8**	65	1	**1.5**
2009	473	21	**4.4**	510	50	**9.8**	54	15	**27.8**	91	1	**1.1**
2010	318	8	**2.5**	369	40	**10.8**	32	9	**28.1**	56	0	**0**
2011	235	12	**5.1**	257	29	**11.3**	25	5	**20**	54	1	**1.9**
2012	356	7	**2**	283	13	**4.6**	22	0	**0**	66	0	**0**
2013	446	12	**2.7**	340	22	**6.5**	39	4	**10.3**	114	0	**0**

Contraband

Number of Stops with Contraband Found

Figure 31: Amount of Contraband by Year, Race, and Type of Stop

The figure shows the total number of stops that resulted in contraband (drugs, paraphernalia,alcohol,weapons) being found.

** Comments**

- The data start in 2006.
- Finding contraband is a relatively rare experience
- Decline mirrors decline in total number of searches
- A back of the envelop calculation suggests a third of searches produce contraband (will follow up,more formally)

Percent of Total Contraband Found

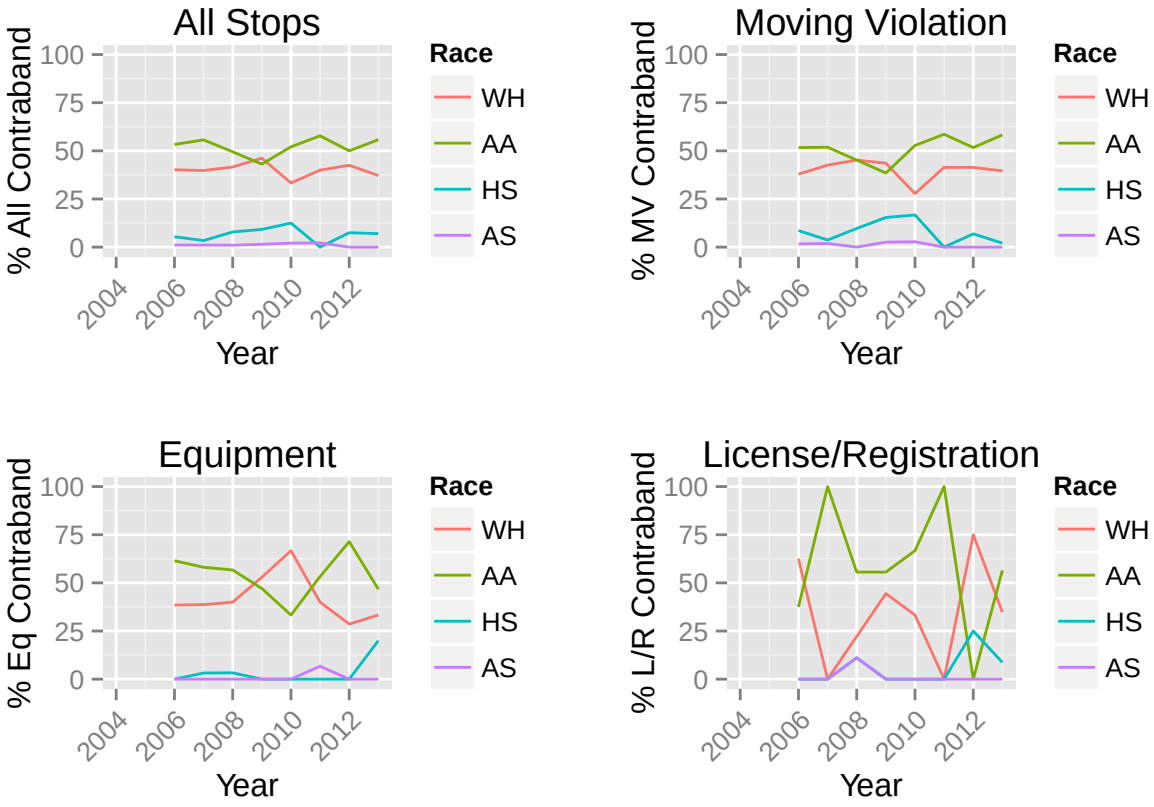


Figure 32: Porportion of Contraband by Year, Race, and Type of Stop

The figure shows the porportion of contraband found by driver's race.

** Comments**

- Majority of contraband found from stops involving African Americans and Whites

Percent of Stops with Contraband Found

Figure 33: Porportion of Stops with Contraband by Year, Race, and Type of Stop

The figure shows the proportion of the stops which result in contraband being found for each racial group.

Comments

- A relatively small proportion of stops result in contraband being found.

Table 40: Total Contraband Found by Race

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004									
2005									
2006	92	37	**40.2**	49	**53.3**	5	**5.4**	1	**1.1**
2007	88	35	**39.8**	49	**55.7**	3	**3.4**	1	**1.1**
2008	101	42	**41.6**	50	**49.5**	8	**7.9**	1	**1**
2009	65	30	**46.2**	28	**43.1**	6	**9.2**	1	**1.5**
2010	48	16	**33.3**	25	**52.1**	6	**12.5**	1	**2.1**
2011	45	18	**40**	26	**57.8**	0	**0**	1	**2.2**
2012	40	17	**42.5**	20	**50**	3	**7.5**	0	**0**
2013	86	32	**37.2**	48	**55.8**	6	**7**	0	**0**

Table 41: Contraband Found During Moving Violations

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004									
2005									
2006	58	22	**37.9**	30	**51.7**	5	**8.6**	1	**1.7**
2007	54	23	**42.6**	28	**51.9**	2	**3.7**	1	**1.9**
2008	62	28	**45.2**	28	**45.2**	6	**9.7**	0	**0**
2009	39	17	**43.6**	15	**38.5**	6	**15.4**	1	**2.6**
2010	36	10	**27.8**	19	**52.8**	6	**16.7**	1	**2.8**
2011	29	12	**41.4**	17	**58.6**	0	**0**	0	**0**
2012	29	12	**41.4**	15	**51.7**	2	**6.9**	0	**0**
2013	48	19	**39.6**	28	**58.3**	1	**2.1**	0	**0**

Table 42: Contraband Found During Lic/Reg Violations

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004									
2005									
2006	8	5	**62.5**	3	**37.5**	0	**0**	0	**0**
2007	3	0	**0**	3	**100**	0	**0**	0	**0**
2008	9	2	**22.2**	5	**55.6**	1	**11.1**	1	**11.1**
2009	9	4	**44.4**	5	**55.6**	0	**0**	0	**0**
2010	6	2	**33.3**	4	**66.7**	0	**0**	0	**0**
2011	1	0	**0**	1	**100**	0	**0**	0	**0**
2012	4	3	**75**	0	**0**	1	**25**	0	**0**
2013	23	8	**34.8**	13	**56.5**	2	**8.7**	0	**0**

Table 43: Summary of Contraband Found During Equipment Violations

		WH		AA		HS		AS	
	Total	#	%	#	%	#	%	#	%
2004									
2005									
2006	26	10	**38.5**	16	**61.5**	0	**0**	0	**0**
2007	31	12	**38.7**	18	**58.1**	1	**3.2**	0	**0**
2008	30	12	**40**	17	**56.7**	1	**3.3**	0	**0**
2009	17	9	**52.9**	8	**47.1**	0	**0**	0	**0**
2010	6	4	**66.7**	2	**33.3**	0	**0**	0	**0**
2011	15	6	**40**	8	**53.3**	0	**0**	1	**6.7**
2012	7	2	**28.6**	5	**71.4**	0	**0**	0	**0**
2013	15	5	**33.3**	7	**46.7**	3	**20**	0	**0**

Table 44: Percent of Stops with Contraband Found by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004												
2005												
2006	2131	37	**1.7**	1401	49	**3.5**	138	5	**3.6**	344	1	**0.3**
2007	1854	35	**1.9**	1160	49	**4.2**	115	3	**2.6**	251	1	**0.4**
2008	2194	42	**1.9**	1332	50	**3.8**	171	8	**4.7**	327	1	**0.3**
2009	2240	30	**1.3**	1458	28	**1.9**	186	6	**3.2**	391	1	**0.3**
2010	1476	16	**1.1**	1169	25	**2.1**	139	6	**4.3**	293	1	**0.3**
2011	1463	18	**1.2**	992	26	**2.6**	130	0	**0**	244	1	**0.4**
2012	2169	17	**0.8**	1116	20	**1.8**	133	3	**2.3**	328	0	**0**
2013	2365	32	**1.4**	1273	48	**3.8**	157	6	**3.8**	492	0	**0**

Table 45: Percent of Stops with Contraband Found During Moving Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004												
2005												
2006	1704	22	**1.3**	953	30	**3.1**	107	5	**4.7**	285	1	**0.4**
2007	1373	23	**1.7**	691	28	**4.1**	77	2	**2.6**	197	1	**0.5**
2008	1668	28	**1.7**	770	28	**3.6**	108	6	**5.6**	249	0	**0**
2009	1600	17	**1.1**	771	15	**1.9**	111	6	**5.4**	276	1	**0.4**
2010	1035	10	**1**	654	19	**2.9**	92	6	**6.5**	231	1	**0.4**
2011	1103	12	**1.1**	609	17	**2.8**	90	0	**0**	183	0	**0**
2012	1694	12	**0.7**	713	15	**2.1**	95	2	**2.1**	252	0	**0**
2013	1715	19	**1.1**	753	28	**3.7**	92	1	**1.1**	346	0	**0**

Table 46: Percent of Stops with Rates of Contraband Found During Lic/Reg Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004												
2005												
2006	120	5	**4.2**	94	3	**3.2**	11	0	**0**	8	0	**0**
2007	118	0	**0**	96	3	**3.1**	6	0	**0**	7	0	**0**
2008	117	2	**1.7**	106	5	**4.7**	9	1	**11.1**	13	1	**7.7**
2009	167	4	**2.4**	177	5	**2.8**	21	0	**0**	24	0	**0**
2010	123	2	**1.6**	146	4	**2.7**	15	0	**0**	6	0	**0**
2011	125	0	**0**	126	1	**0.8**	15	0	**0**	7	0	**0**
2012	119	3	**2.5**	120	0	**0**	16	1	**6.2**	10	0	**0**
2013	204	8	**3.9**	180	13	**7.2**	26	2	**7.7**	32	0	**0**

Table 47: Percent of Stops with Contraband Found During Equipment Violations by Race

	WH			AA			HS			AS		
	Stops	#	%	Stops	#	%	Stops	#	%	Stops	#	%
2004												
2005												
2006	307	10	**3.3**	354	16	**4.5**	20	0	**0**	51	0	**0**
2007	363	12	**3.3**	373	18	**4.8**	32	1	**3.1**	47	0	**0**
2008	409	12	**2.9**	456	17	**3.7**	54	1	**1.9**	65	0	**0**
2009	473	9	**1.9**	510	8	**1.6**	54	0	**0**	91	0	**0**
2010	318	4	**1.3**	369	2	**0.5**	32	0	**0**	56	0	**0**
2011	235	6	**2.6**	257	8	**3.1**	25	0	**0**	54	1	**1.9**
2012	356	2	**0.6**	283	5	**1.8**	22	0	**0**	66	0	**0**
2013	446	5	**1.1**	340	7	**2.1**	39	3	**7.7**	114	0	**0**

Duration of Stops

The figures below show the average duration of stops and different quantiles (e.g. at the 50th percentile, 50 percent of the drivers have a duration time lower and 50 percent have duration time higher than this value) stop duration for each racial group. The duration of stops tends to be signficantly higher for African Americans and Hispanics.

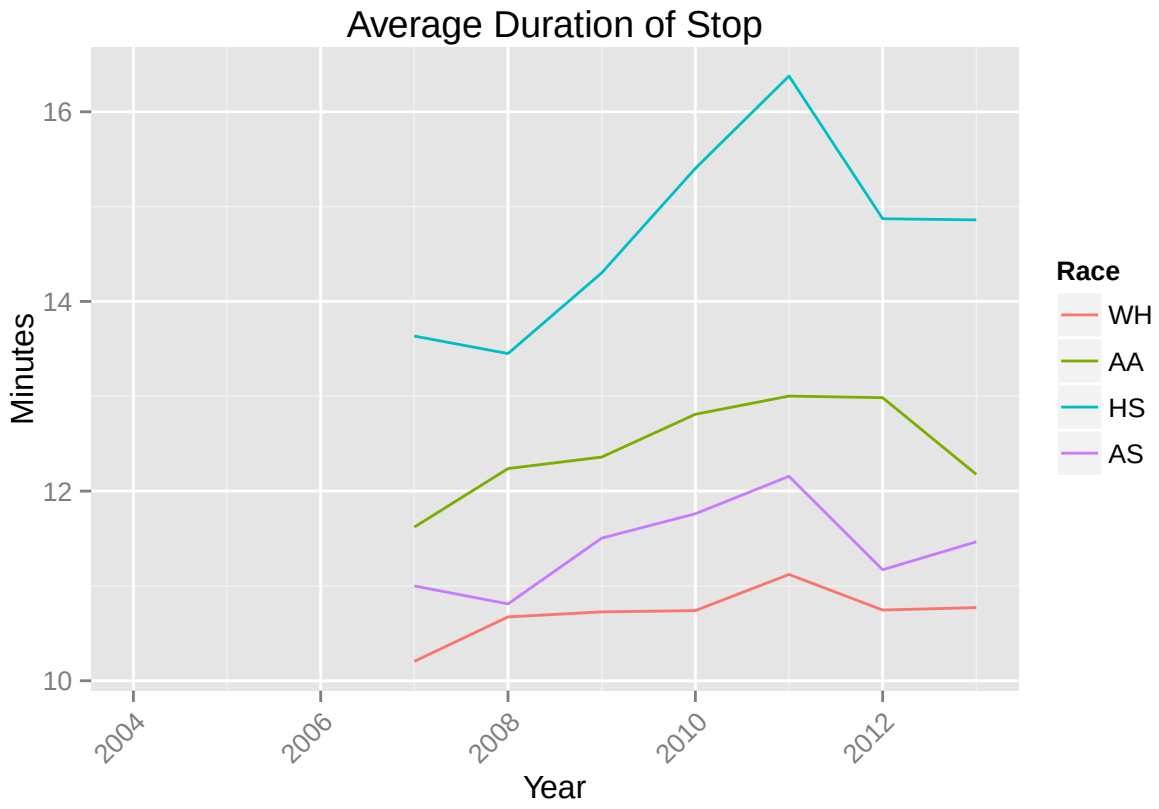


Figure 34: Average Duration of Stops

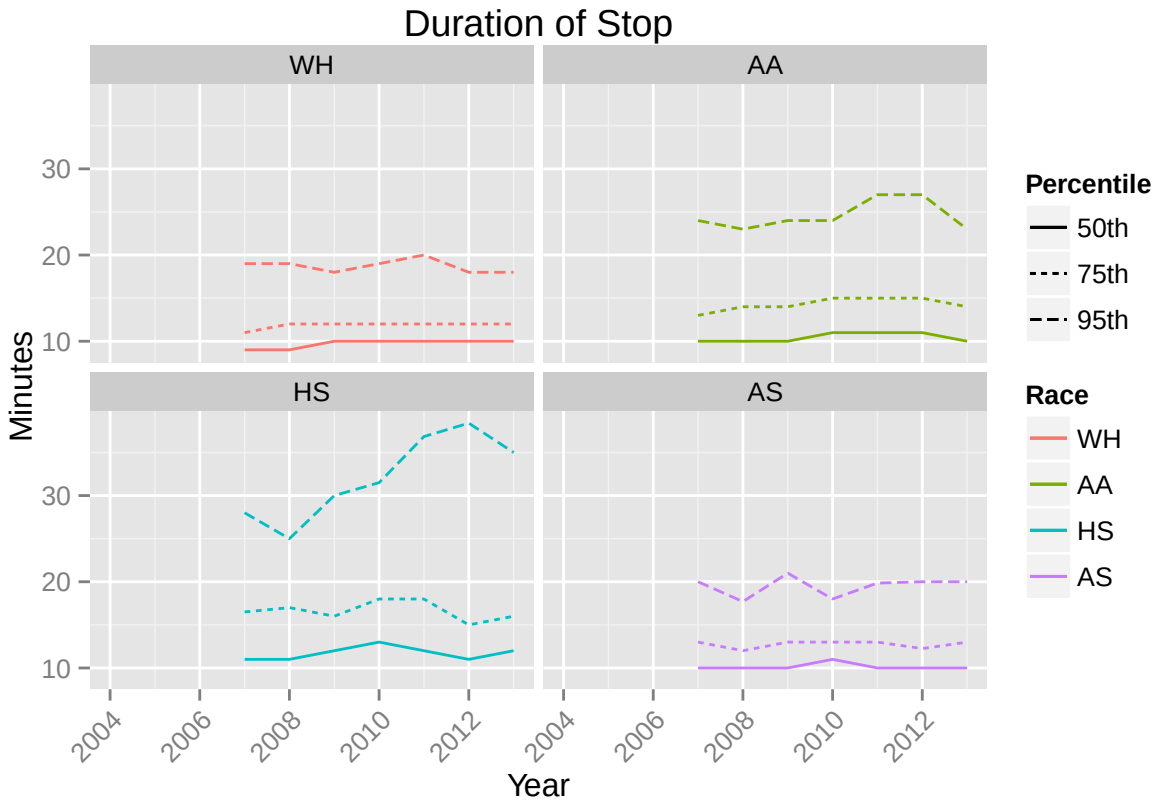


Figure 35: Percentiles of Duration of Stops