CURRENT RESEARCH IN SOCIAL PSYCHOLOGY
http://www.uiowa.edu/~grpproc/crisp/crisp.html

Submitted: January 3, 2014
Revision: January 22, 2014
Accepted: August 30, 2014

NEIGHBORHOOD DETERIORATION AND PERCEPTIONS OF RACE

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ABSTRACT

This paper investigates whether the characteristics of a neighborhood affect perceptions of the race of an ambiguous target. The principal claim is that that African-American identity and neighborhood deterioration are cognitively linked through induced stereotypical perceptions of dangerousness. Consequently, in an ambiguous context people are more likely to perceive the race of an indistinct target as an African-American as the visible deterioration of the neighborhood increases. We used information from the US Census Bureau, a roadside traffic survey and traffic stop data from the Davenport, Iowa Police Department to test these claims. Results from analyses support the hypotheses.

INTRODUCTION

Racially biased policing, which is sometimes called racial profiling, is a topic that draws significant attention from researchers, politicians and the media. Racially biased policing occurs when officers use race as a proxy for suspiciousness in identifying a target. Biased policing can generate enduring negative outcomes for citizens including cynicism, suspiciousness and distrust (Batton & Kadleck, 2004; Harris, 1999). A necessary element for the occurrence of biased policing is the officer's perception of race. It is this aspect of profiling that we explore here. Specifically, the goal of this paper is to investigate whether the characteristics of the neighborhood surrounding a traffic stop affect perceptions of race. This is an important undertaking because understanding the sources of bias have important implications for the applied aspects of policing.

It is already well known that that neighborhood characteristics can affect police behavior. For instance, research shows that officers issue more citations for stops made in disadvantaged neighborhoods than other areas (Ingram, 2007) and racial disproportionality in stops increases as neighborhood deterioration and minority composition increases (Meehan and Ponder, 2002). Likewise, in comparison to others, "out of place" drivers have a greater probability of being stopped in all types of neighborhoods (Withrow 2006; Novak and Chamlin, 2012). Research

also shows that police discretion is affected by features of the neighborhood (Parker et al., 2004). Communities characterized by deterioration and high crime rates tend to have more contact with the police than do other areas and so are also more likely to be subject to traffic stops and searches (Petrocelli, Piquero & Smith, 2003).

In what follows we present an initial test of the relationship between neighborhood deterioration and perceptions of race. Our theoretical argument is founded on the claim that African-American identity and neighborhood deterioration are cognitively linked through induced stereotypical perceptions of dangerousness. Consequently, in an ambiguous context people are more likely to perceive the race of an indistinct target as an African-American as the level of neighborhood deterioration increases.

LITERATURE REVIEW

Racially Biased Policing

Racially biased policing occurs when officers use race as a proxy for suspiciousness in deciding whether to stop a person or vehicle (Barnum & Perfetti, 2012; Ramirez, McDevitt, & Farrell 2000). Racially biased policing in various forms has existed for generations in the United States. The practice became increasingly controversial in the 1980s when some of the first government sponsored drug interdiction programs came into existence. Programs like these generated considerable animosity among minority members and this ultimately led to litigation that motivated many law enforcement agencies across America to begin collecting data on police-citizen contacts. Analyses of these data suggest that minority members are overrepresented in police traffic stops, searches and arrests (for reviews see Batton & Kadleck, 2004; Withrow, 2006).

Several researchers argue that at least one of four processes is likely to be present in any context where unjustified racial disparity is occurring (Batton & Kadleck, 2004; Novak, 2004; Smith, Markarios & Alpert, 2006). *Discrimination* is negative behavior directed towards others based on their membership in groups, it often stems from prejudice. *Unconscious cognitive bias* is implicit and automatic. It requires no purposeful or intentional executive decision making and can appear subtly and outside a person's general awareness. *Racial profiling* refers to the explicit use of race as one in a set of identifiers employed by a law enforcement official in determining the suspiciousness of a target. In a traffic stop context a profile is a list of characteristics that the officer uses strategically to identify suspicious vehicles. *Directed patrol* is a police deployment strategy that increases the odds that the police will come into contact with minority citizens. It is a patrol allocation scheme that leads to a disproportional number of officers policing in minority areas of a community.

Environmental Cues and Bias

Officers frequently use visual environmental cues to discern the suspiciousness of a target (Ilkner, Ahmad, & Carmen, 2005). For example, the characteristics of a vehicle including its make, model and year can affect an officer's perception of the race of its driver (Luken, Dobbs & Carmen, 2006). Likewise, the location of a traffic stop can shape the outcome of a stop. Traffic stops made in deteriorated areas predict citations and arrests (Ingram, 2007). Moreover, several researchers have found that drivers who look "out of place" in a given context are more likely to

draw the attention of the police than are other drivers (Ingram, 2007; Withrow, 2006; Novak and Chamlin, 2012). These findings suggest that factors such as neighborhood distress, racial composition and crime rates can influence a person's understanding of who "belongs" in a particular geographical area. Finally, it's known that neighborhood context affects the use of force by police officers. More force is used in high crime, disadvantaged neighborhoods than other areas, especially against young, male, minority members (Terrill and Reisig, 2003).

Psychological Processes and Bias

Smith and Alpert (2007) posit that police bias is guided by implicit cognitive activity that is couched in stereotype formation. The essence of their argument is that repeated exposure to criminality involving minority groups results in implicit bias. In a similar vein research in psychology demonstrates that a distressed neighborhood can generate implicit stereotypes of dangerousness. This work is rooted in a mock shoot/don't shoot paradigm (Correll, Park, Judd & Wittenbrink, 2002; Correll et al., 2010). Here researches use a video game to show armed and unarmed targets in either "safe" or "dangerous" backgrounds. The dangerous environments consisted of dilapidated buildings, dumpsters, and subway terminals with graffiti. Results show that neighborhood deterioration induces stereotypes of danger irrespective of the race of the shooter (Correll et al., 2007).

THEORETICAL MODEL

The core idea of our argument is that African-American identity and neighborhood deterioration are cognitively linked through induced stereotypical perceptions of dangerousness. Consequently, in an ambiguous context people are more likely to perceive the race of an indistinct target as an African-American as the visible deterioration of the neighborhood increases. Support for this claim comes from three bodies of research. These show that neighborhood decline generates perceptions of fear and danger (Correll, et al. 2010); the public is more fearful of African-Americans than others (Correll et al., 2002; Duncan, 1976; St. John & Heald-Moore ,1995, 1996); and blacks disproportionately reside in declining neighborhoods (Wilson, 1991; US Census Bureau, 2011). Given that disorganized neighborhoods signal danger, and danger is associated with being black, then in contexts where it is difficult to determine race, people are more likely to misinterpret a target's race as black as disorganization increases. Given this, we test the following specific hypotheses in the section that follows.

H1: Observers will make less accurate judgments of the race of a target in low conditions than in other conditions, and;
H2: In low light conditions, observers will be more likely to interpret the race of a target as an African-American as neighborhood deterioration increases.

METHODS

In this section we describe the methods used to assess the hypotheses above.

Data Sources

The data for the investigation originate from three sources: *(i)* an observational study conducted in Davenport, Iowa that was initiated to explore whether race was a factor in Davenport police

officers' decision to stop vehicles. In this study, fifty trained observers watched traffic along twenty-four locations of city roadway. The observers recorded the race and gender of drivers on city streets at various times between 8:00am and 2:00am. Observations were made seven days a week. The observers surveyed more than 16,500 vehicles in several waves of observations that occurred between the fall of 2010 and late spring of 2011. An equal number of observations were made in each zone. *(ii)* Davenport Police traffic stop data. These data include information about the stop including the time, location and reason for the stop, as well as data about the outcome of the stop, and demographic information regarding the race, gender and age of the driver. Our sample includes 15,043 traffics stops initiated by the DPD in 2011. *(iii)* US Census data including information from a block-by-block analysis of the racial demographics and the level of social disorganization in areas of Davenport that were included in the study. Social disorganization is operationalized as the number of vacant and abandoned buildings in a block. In the analyses that follow we test hypotheses using analyses of variance and OLS regression.

Results

Table one gives the descriptive statistics for census, observer and police traffic stop data. The columns in the table show the observation zone, the percentage of African-American residents living in each observation zone; the proportion of African-American drivers that were seen by observers during the day and night; and the percentage of black drivers who were stopped by the police during the day and night.

Table 1 US Census information regarding the percentage of African-Americans living in each observation zone, as well as information from roadside observations. Panel 2 shows information for the number and percentage of African-Americans stopped by the Davenport Police in each location

Panel 1					**Panel 2**			
Traffic Survey Data (Percent African-American)					Police Data (Percent African-American)			
Census Information		Observer Information			Time of Stop			
Area	---	Day	Night	Difference	Day	Night	Difference	Total Stops
1	25%	26%	47%	11%	37%	43%	5%	724
2	27%	21%	49%	18%	37%	39%	2%	499
3	13%	20%	26%	6%	15%	27%	12%	64
4	5%	9%	18%	9%	12%	10%	1%	45
5	1%	7%	28%	21%	10%	8%	-2%	22
6	4%	9%	15%	6%	18%	25%	7%	76
7	6%	10%	11%	0%	27%	33%	6%	66
8	4%	7%	14%	7%	27%	28%	1%	311
9	4%	6%	18%	12%	26%	26%	0%	135
10	12%	6%	28%	22%	14%	17%	3%	7
11	9%	28%	34%	6%	22%	25%	3%	55
12	8%	13%	17%	4%	35%	32%	-3%	182
13	24%	33%	40%	6%	36%	40%	4%	425
14	27%	33%	44%	11%	43%	48%	5%	254
15	12%	13%	11%	23%	36%	36%	1%	457

16	8%	12%	20%	18%	14%	24%	10%	62
17	24%	15%	18%	3%	36%	37%	1%	270
18	34%	35%	25%	-10%	36%	29%	-7%	86
19	8%	7%	12%	5%	17%	22%	5%	98
20	7%	7%	12%	6%	5%	18%	13%	21
21	4%	5%	15%	10%	11%	33%	22%	23
22	10%	6%	19%	13%	24%	27%	3%	170
23	9%	9%	19%	10%	17%	19%	2%	45
24	9%	11%	18%	7%	18%	17%	-1%	70

The analysis begins with a comparison of information from the census block-by-bock analysis and the traffic survey for each observation zone. The comparison produces two important generalizations. First, *during daytime hours* there is a close correspondence between the census data and the observers' traffic survey results. As noted the census data depicts the percentage of African-American residents living in each observation zone while the survey reports the proportion of black drivers recorded by observers in each zone. Second, the correspondence between these two modalities decreases for observations made in *low light* conditions including observations made during evening and nighttime hours (evening observations were made between 4:00 pm and 8:00 pm). At night observers generally saw a higher proportion of African-Americans drivers on the roads than during daytime hours. Results from ANOVA show significant differences between observations and census modalities (F=7.73, $p < .01$; $df = 71$). Scheffe` multiple contrasts show significant differences between day-night comparisons ($p < .05$) and census-night comparisons ($p < .01$) but no significant differences between census and daytime comparisons (p=.727).

Two rationales seem likely for these findings. First, it may simply be that the observations made at night were correct and valid. Meaning there were more African-American drivers on the roads during nighttime hours than during the day and the observers' results simply reflected this. Or second, it's possible that observations made during the nighttime were erroneous. Meaning, that in at least some instances at night, the observers merely thought they saw an African-American driver when in fact they actually did not. Such an outcome seems more likely to occur in conditions where it is difficult to clearly discern the race of the driver—such as in low light conditions at night. It's important to note, that for this study the observers relied solely on ambient light in making observations. They did not use artificial light sources to improve vision. So, many of their observations were made in situations where it was quite dark and very difficult to clearly see the driver. In these contexts, the poor lighting conditions may have rendered the race of the driver ambiguous forcing the observers to guess.

Consequently, the patterns shown in panel 1 of the table may be due to actual racial differences in nighttime driving patterns (more African-American drivers at night than the day) or a result of mistakes made by the observers. To adjudicate between these competing explanations we turn to the police traffic stop data shown in panel 2 of the table. The information in panel 2 depicts the percentage of African-American drivers stopped by the Davenport police during daytime and nighttime hours for each observation zone. An examination of these values suggests two noteworthy outcomes. First, the data show substantial racial disproportionality in stops made by

the DPD *both* during the day and at night. In simple terms, irrespective of the time of day, the Davenport Police tended to stop a higher percentage of African-American drivers than would be expected from baseline values. Second, disproportionality did not vary by time of day. That is, the Davenport Police were no more likely to stop African-Americans at night than during the day ($t = 1.23$, $p = .22$, $df=46$).

A summary of the information so far suggests the following. First, analyses show that the *daytime* observations of the proportion of African-Americans seen on the roads of Davenport were not significantly different from census data reporting the percentage of African-Americans living in each observation zone. This is evidence that the daytime observations were valid. Second, observers reported seeing significantly higher proportions of African-American drivers at night than during the day. However, many nighttime observations were made in poorly lighted areas, where observers may have had difficulty clearly discerning the drivers. Third, information from the Davenport Police traffic stop data shows that officers were not significantly more likely to stop a higher percentage of African-American drivers at night than during the day. In fact, the proportion of African-American drivers stopped were consistent during both time periods. This evidence supports our first hypothesis and suggests that the proportions of African-American drivers reported by nighttime observers were too high. After all, if the differences between day and nighttime observations were valid and a higher percentage of African-Americans were on the roads at night, we would expect the proportion of African-American drivers stopped by officers at night to also be significantly higher than daytime percentages.

Interestingly though, a closer look at the observers' data shows that the variation in daytime and nighttime observations fluctuated by observation zone. In some zones the observers reported much greater variance between day and nighttime scores than in other zones. We use OLS to examine whether neighborhood context affects perceptions of race. We test our second hypothesis that in low light conditions, people are more likely to misinterpret a driver's race as black as the extent of deterioration in the neighborhood increases using the number of vacant and abandoned houses on a block as an indicator of neighborhood decline. Table-two summarizes the findings.

Table 2 OLS regression for the percentage of vacant and abandoned homes and percentage of African-American residents on observation change in a zone

Model	*B*	*t*
Constant	.041	1.856
% Black Residents	-.305	-1.870
# Vacant Homes	.696	2.494*

* $p < .05$ (two tailed test), Model, R Squared = .164, D.F. = 24

Table 2 indicates that the percentage of vacant houses in an observation zone is significantly related to observer estimates. Given that vacant homes signify community disorder, in low light conditions, observers tended to perceive more African-American drivers on the road in socially

disorganized areas than in less disorganized areas. Importantly, this effect occurred net of the percentage of black residents who live in the area. This result supports our second hypotheses.

CONCLUSION

The goal of this paper was to investigate whether the characteristics of a neighborhood affect the perceptions of race of a target. Our hypotheses were predicated on the assumption that African-American identity and neighborhood deterioration are cognitively linked through induced stereotypical perceptions of dangerousness. Consequently, in an ambiguous context people are more likely to perceive the race of an indistinct target as an African-American as the visible deterioration of the neighborhood increases. We used information from the US Census Bureau, a roadside traffic survey and traffic stop data from the Davenport, Iowa Police Department to test our hypotheses. Results support our claims. Analyses suggest that daytime roadside observations were more accurate than nighttime observations, and that roadside observers tended to overestimate the percentage of African-Americans driving on the roads at night, especially in deteriorated neighborhoods. This occurred irrespective of the actual racial composition of the neighborhood.

Further work yet to be done includes more closely examining levels of disproportionality in observation zones in which relatively few stops occurred. For example, in observation zones 21 and 18 there were comparatively very few stops made by the Davenport Police. However, interestingly, in these zones the correspondence between observers' data and police traffic stop information departed somewhat from the patterns seen in zones where more stops were made. In future studies we plan on examining whether these anomalies remain as the number of stops in the zones increase. Specifically, future work will investigate whether predictions from social disorganization theory more accurately map onto the zones as the number of stops increase.

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APPENDIX

Table 3 Correlations for ANOVA variables

Correlations					
	Census	Day Obs	Night Obs	Day Stops	Night Stops
Census	1.0	.823	.666	.729	.655
Day Obs	.832	1.0	.720	.653	.594
Night Obs	.666	.720	1.0	.465	.458
Day Stops	.729	.653	.465	1.0	.835
Night Stops	.655	.594	.458	.835	1.0

Table 4 Correlations for regression variables

Correlations			
	Change	Vacant Homes	Percent Black
Change	1.0	.319	-.077
Vacant Homes	.319	1.0	.620
Percent Black	-.077	.620	1.0

AUTHOR INFORMATION

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