

# Speeding While Black? Assessing the Generalizability of Lange et al.'s (2001, 2005) New Jersey Turnpike Speeding Survey Findings

*Richard J. Lundman and Brian R. Kowalski*

Across three months during 2001, Lange, Blackman, Johnson and Voas collected data from the New Jersey Turnpike to determine whether there were differences in speeding behavior grounded in race and ethnicity, while controlling for age and gender. They reported that Black drivers were more likely to speed at high rates (15 mph or more over the speed limit) in 65 mph speed zones, as were young drivers and male drivers. In the scholarly report of their research, Lange and colleagues concluded: "our research offer[s] a plausible explanation for the findings that Black drivers are represented among traffic stops at a higher rate than they are represented in the population." The present research assesses the generalizability of the findings reported by Lange and colleagues using data reported by Massachusetts State Police officers during April and May of 2001. We also find that Black drivers, young drivers, and male drivers are more likely to speed at high rates in 65 mph speed zones. We therefore remind scholars that Lange and colleagues' findings and our own are entirely consistent with theory and research on the correlates of law violative actions. Our fundamental conclusion, however, is that more research is needed to determine whether traffic stops for Driving While Black are in small part the result of Speeding While Black.

*Keywords* age; gender; race and ethnicity; high rate speed zones; high rate speeding

Richard J. Lundman is Professor of Sociology and a Faculty Affiliate of the Criminal Justice Research Center at The Ohio State University. His teaching and research interests include police and policing. Brian R. Kowalski is a Senior Researcher in the Bureau of Research at the Ohio Department of Rehabilitation and Correction. He is also a PhD candidate in the Department of Sociology at The Ohio State University. His research examines community context and recidivism, institutional misbehavior, and policing. Correspondence to: Richard Lundman, Department of Sociology, Ohio State University, 238 Townshend Hall, 1885 Neil Avenue Mall, Columbus, OH 43210, USA. E-mail: [lundman.1@sociology.osu.edu](mailto:lundman.1@sociology.osu.edu).

## Introduction

In March of 2002, David Samson, then Attorney General of the state of New Jersey, reluctantly released (Fears, 2002; Kocieniewski, 2002a, 2002b) a report entitled "Speed Violation Survey of the New Jersey Turnpike" (Lange, Blackman, & Johnson, 2001; also see Lange, Blackman, & Voas, 2005). The report followed a 1999 consent decree centered on racial profiling between the New Jersey State Police and the United States Department of Justice (Harris, 2002, pp. 156-157). The report was one of several efforts in the wake of the consent decree to provide benchmark race and ethnicity descriptions of drivers and traffic law violators on the New Jersey Turnpike to use in assessing compliance by the New Jersey State Police (Lange et al., 2001, p. 2). Because speeding is the single most frequent type of traffic law violation (Durose, Smith, & Langan, 2007) and the leading cause of traffic accidents and fatalities (Sepkowitz, 2008; U.S. Department of Transportation, 2007), Lange et al. (2001, 2005) devoted exclusive attention to speeding in the Turnpike's two speed zones, 55 and 65 miles per hour (mph). They defined speeding as 15 mph or more over the speed limit and that cut point was "based on discussion with representatives of the New Jersey State Police ... 15 mph above the limit reflected a speed at which most State Troopers would initiate a traffic stop" (Lange et al., 2005, p. 203). In the 55 mph zones, Lange et al. (2005, p. 13) reported that Hispanic and Other drivers as compared to White drivers and younger drivers as compared to older drivers sped significantly more often, but not male drivers as compared to female drivers and not Black drivers as compared to White drivers. In the 65 mph zones, Lange et al. (2005, p. 213) reported that younger drivers as compared to older drivers, male drivers as compared to female drivers, and Black and Other drivers as compared to White drivers sped significantly more often, but not Hispanic drivers as compared to White drivers.

Lange et al.'s (2001, 2005) findings are profoundly important. If Black drivers do speed at high rates in high rate speed zones more often than White drivers, then at least some of the disproportionate representation of Black drivers in traffic stops by police may in part be evidence of differences in "risky driving behavior" (Tomaskovic-Devey, Pfaff Wright, Czaja, & Miller, 2006, p. 291), not exclusively racial profiling by police (see Kowalski & Lundman, 2007). That is precisely what Lange et al. (2005, p. 219) conclude in the scholarly report of their findings: "our research offer[s] a plausible explanation for the findings that Black drivers are represented among traffic stops at a higher rate than they are represented in the population."

Equally important, if young, male, and Black drivers are more likely to speed at high rates in high rate speed zones, then Lange et al.'s findings (2001, 2005) underscore and extend the long known theoretical and empirical linkages between age, gender, race and ethnicity and criminal law violative actions (see Alper, 1939; Diggs, 1940; The Jack-Roller & Shaw, 1930) to traffic law violative actions as well.

Because the findings reported by Lange et al. (2001, 2005) are profoundly important, the present research assesses the generalizability of those findings.

## Background

### Lange et al.'s (2001, 2005) Research

Between March 31 and June 30, 2001, Lange et al. (2001, p. 4) placed a van containing a "TC-2000 camera system ... an AutoPatrol PR-100 radar system ... [and] ... two large strobe lights" at 14 randomly selected locations along the New Jersey Turnpike. The equipment was used to simultaneously take black and white photographs of drivers and record the speed of the randomly selected vehicles, with speeders oversampled. A total of 38,475 black and white photographs and speeds were recorded (Lange et al., 2005, p. 202).

Three specially-trained raters then examined the photographs with the speed data removed to determine the age, gender, race (Black, Other, White, indeterminate), and ethnicity (Hispanic, not Hispanic) of the drivers. If two of the three raters declared that a photograph was unusable because the image was not sufficiently clear or if an image was usable but two of the three raters failed to agree on driver demographics, then the case was eliminated. Of the 38,475 images collected, 12,411 (or 32.3%) were either unusable or unreliable, with 9,145 of those dropped because they were unreliable (see Lange et al., 2005, p. 223).

For the 26,064 usable and reliable cases, Lange et al. (2001, 2005) then coupled the raters' age, gender, and race and ethnicity perceptions with the previously recorded speed data, weighted those data to approximate population counts, and defined speeding as 15 mph over the speed limit in the Turnpike's two speed zones, 55 mph and 65 mph. In the 55 mph zones, logistic regression (15 or more mph over the speed limit = 1, less than or equal to 14 mph over the speed limit = 0) revealed significant age differences (drivers less than 45 years old were more likely to be speeders as compared to drivers 45 years and older) and significant ethnic differences (Hispanic and Other drivers were more likely to speed as compared to White drivers) in high rate speeding, but no significant gender differences and no significant race differences (Black drivers as compared to White drivers). In the 65 mph zones, however, logistic regression revealed significant age, gender, and race and ethnicity differences in high rate speeding, with the exception of the Hispanic-White comparison (Lange et al., 2001, p. 18).

### Limits of Lange et al.'s (2001, 2005) Research

Five limits surround Lange et al.'s (2001, 2005) research. The first is the loss of nearly one-third of the cases because of unusable or unreliable images.

Second, the age categories are imprecise. Raters were originally asked to report whether drivers were "younger than 25, 25-45 ... [and] older than 45" (Lange et al., 2005, p. 204). However, because there were "very few cases where raters agreed upon the younger age categories ... [the rating system] ...

was recategorized ... to be a two-level variable: 45 and younger and older than 45" (Lange et al., 2005, p. 207).

Third, gender identification by the raters is also open to question. Gender recognition and designation cues are multiple and include hair, height, weight, clothes, makeup, olfaction traceable to perfume and aftershave, voice, anatomy, and gait (Baudouin & Gallay, 2006; Pollick, Kay, Heim, & Stringer, 2005). Lange et al.'s (2001, 2005) raters, however, were limited to black and white photographs of drivers in vehicles behind windshields and steering wheels, while some of those drivers almost certainly had their heads at least partially turned because they were changing lanes, talking with passengers, or adjusting sound systems. Others were wearing hats.

Fourth, the raters' assessments of race and ethnicity are imprecise. African Americans differ in skin color (Lichter & Qian, 2004, p. 24; Qian, 2004; White, 1948), while Hispanics are both Black and White (Grieco & Cassidy, 2001; Qian & Cobas, 2004). Further, putting Asian, Native American, and Middle Eastern citizens into a single "other" category blurs fundamental differences between the groups (compare Clark, 1998 with Maki, 1999).

Fifth, Lange et al.'s (2001, 2005) data are confined to a single state (New Jersey), a single police force (New Jersey State Police), and a single roadway (New Jersey Turnpike).

### Narrow Reaction to Lange et al.'s (2001, 2005) Research

Despite the clear limits of Lange et al.'s (2001, 2005) research and despite the evidence that high rate speeding in high rate zones was also more common among younger drivers and male drivers, reaction to the original report (Lange et al., 2001) was narrowly focused on race. Kenneth J. McClelland, President of the New Jersey State Troopers Fraternal Association, for instance, ignored the age and gender findings and welcomed the race finding by asserting that the report "proves what we said, that the vast majority of troopers were stopping people because of the way they drove, not because of their race" (quoted in Kocieniewski, 2002b, p. 5). Reverend William H. Rutherford, President of the New Jersey Conference of the National Association for the Advancement of Colored People, also ignored the age and gender findings and rejected the race finding: "It just galls me to hear anyone make the statement that African-Americans are more likely to speed than Whites or others on the turnpike. Just drive on the turnpike. Everybody's speeding" (quoted in Hanley, 2002, p. 5). Attorney Lloyd Williams (2002, p. 11) also skipped over the age and gender findings to reject the race finding by asking an angry question and providing an angry answer: "Is speeding genetic? That's what the ever-profiling state police in New Jersey would have us believe .... The laughable claim is that the study 'proves that blacks, Latinos, and other minorities speed much more often than White drivers'. It would be comical, except that the troopers are now using the report to rationalize past racial profiling."

Narrow reaction is easy to understand. Lange and colleagues used age and gender as control variables (Lange et al., 2001, p. 18), failed to state the long known theoretical and empirical linkages between age, gender, race, and ethnicity and law violative actions (see Shaw, Zorbaugh, McKay, & Cottrell, 1929), and offered absolutely no explanation of their findings (Lange et al., 2001, 2005). Further, race has long been a lightning rod when it comes to public and scholarly understandings of law violative actions (Silberman, 1978, pp. 117-118). Last, if Lange et al.'s (2001, 2005) race finding is generalizable, then evidence of what appears to be traffic stops for Driving While Black may in small part be evidence of Speeding While Black.

### Problems with Narrow Reaction to Lange et al.'s (2001, 2005) Research

While narrow reaction is easy to understand, it also presents three problems. First, narrow reaction glosses long-standing and important theoretical explanations of law violative actions (see Alper, 1939; Diggs, 1940; The Jack-Roller & Shaw, 1930). Second, narrow reaction obscures equally long-standing research linkages between age, gender, race, and ethnicity and law violative actions (see Shaw et al., 1929). Third, reaction to the original report (Lange et al., 2001) was premature. While their findings confirm and extend long-standing theory and research, there is simply no way of knowing whether Lange et al.'s (2001, 2005) findings are generalizable without more research.

### The Present Research

The present research therefore assesses the generalizability of the findings reported by Lange et al. (2001, 2005). Because our findings confirm those of Lange and colleagues, we also remind scholars, police administrators and police officers (Reuss-Ianni, 1983), and members of the general public that these results are entirely consistent with theory and research on the correlates of law violative actions.

### Methods

#### Data and Cases

In 2000, Massachusetts state legislators passed a law intended to "identify and eliminate any instances of unlawful racial and gender profiling by police" (Massachusetts Executive Office of Public Safety, 2001). Toward those ends, the law required the Massachusetts Registry of Motor Vehicles to create a new Massachusetts Uniform Citation ("traffic ticket") and Massachusetts police officers to record race, ethnicity, and gender data on the traffic tickets they wrote

or the written warnings they issued (Schweitzer, 2001). Also recorded on the new citation was standard additional information including police agency, the legal reason for the stop, age, and the driver's address and zip code. If the stop was for speeding, then the speed limit where the stop took place was recorded as was the mph over the speed limit.

The law mandating the use of the new traffic ticket became effective April 1, 2001 and data collection by the Massachusetts Registry of Motor Vehicles was supposed to occur across a full year. However, "lack of funds" (Dedman & Latour, 2003, p. B3) from the Legislature limited the data to the 166,368 police-reported traffic stops occurring statewide during April and May of 2001.<sup>1</sup> *Boston Globe* journalists Bill Dedman and Francie Latour used the state's public records law to gain access to the publicly funded data from April and May of 2001 and then wrote a series of important stories grounded in the initial data (Dedman, 2003; Dedman & Latour, 2003; Latour & Dedman, 2003). They also posted the initial public data on the Internet for public use and analysis.<sup>2</sup> These are the data we examine.

Because Lange et al. (2001, 2005) examined traffic stops for speeding by New Jersey State Police in 55 mph and 65 mph zones, we examine traffic stops for speeding by Massachusetts State Police in 55 mph and 65 mph zones. Accordingly, of the 166,368 total traffic stops reported by police officers in Massachusetts in April and May of 2001, 42,986 (or 25.8%) were made by Massachusetts State Police. Of the 42,986 stops by Massachusetts State Police, 27,454 (or 63.9%) were for speeding. A total of 26,329 cases have complete information for both the speed measures (speed limit and mph over speed limit) and other explanatory measures (see below). The cases we examine are speed stops by Massachusetts State Police in 55 mph zones ( $N = 6,402$ ) and in 65 mph zones ( $N = 13,357$ ).

## Dependent Measures

We use the same two dependent measures examined by Lange et al. (2001, 2005). The first dependent measure is High Rate Speed Stop in a 55 mph zone and it is dichotomous (1 = 15 mph or more over the speed limit in a 55 mph zone, 0 = less than or equal to 14 mph over the speed limit in a 55 mph zone). The second dependent measure is High Rate Speed Stop in a 65 mph zone and it too is dichotomous (1 = 15 mph or more over the speed limit in a 65 mph zone, 0 = less than or equal to 14 mph over the speed limit in a 65 mph zone).

We recognize that our dependent measures, as well as the explanatory measures described below, are firmly grounded in police-reported data. While

1. A data set involving tickets, but not written warnings, across approximately three years was eventually assembled (see Farrell, McDevitt, Bailey, Andresen, & Pierce, 2004).

2. The data were found at [www.boston.com/globe/tickets/warnings.zip](http://www.boston.com/globe/tickets/warnings.zip) and the codebook was found at [www.boston.com/globe/tickets](http://www.boston.com/globe/tickets) (retrieved and downloaded March 6, 2004). The data and codebook are no longer retrievable. We would be pleased to provide copies of both.

problems surround all data (Webb, Campbell, Schwartz, & Sechrest, 1966) including those reported by police (Gove, Hughes, & Geerken, 1985), there also is agreement that police-reported data "can be used as a reasonable proxy" for actual behavior (Warner & Wilson Coomer, 2003, p. 135; also see Boggess & Bound, 1997; Hindelang, 1981; Levitt, 1998; O'Brien, 1996; Parker & Maggard, 2005). Accordingly, if Lange et al.'s (2001, 2005) findings are generalizable, then those findings should also be visible using the data reported by Massachusetts State Police.

### Night Stops

However, because we are using police-reported data, one rival explanation for our findings is that Massachusetts State Police target young people, men, and, especially, Black drivers for high rate speed stops in high rate zones (see Harris, 2002). We believe it is possible to largely eliminate this rival explanation by examining night stops.<sup>3</sup> Almost without exception, police officers cannot discern the age, gender, or race and ethnicity of drivers at night until after the stop has actually been made (Center for Biostatistics, 2003, p. 1; Durose et al., 2007; Durose, Schmitt, & Langan, 2005; Engel et al., 2005, p. xiv; The Alpert Group, 2004, p. 23; Thomas & Hansen, 2004, p. 16). Greenwald (2001, p. 39) explains: "officers ... find it difficult or impossible to identify the race of a driver in a nearby car in the early morning, late afternoon, and most definitely, during hours of darkness."

Three additional observations are important. First, most night speeding stops by police are typically the result of officers who want or need a speed stop (see Rubinstein, 1973, pp. 44-54), or are bored and lonely and want and need something to do and someone to talk to (see Wilkinson, 1982). These officers park and use radar or laser "speed guns" to "shoot" passing vehicles. The officers shooting vehicles look at the speed on the radar and then select vehicles to stop. The mechanics of night speed stops therefore largely blind officers to driver demographics.

Second, some scholars argue that part of the disproportionate representation of Black drivers in traffic stops by police is traceable to "race sensitive police deployment" (Warren, Tomaskovic-Devey, Smith, Zingraff, & Mason, 2006) and thus police targeting of enforcement locations with large numbers of Black

3. To isolate night stops, we began with the officers' reports of the hour of the stop and whether it was a.m. or p.m. Because officers did not report the minute in an hour when a stop started (e.g., a stop reported at 4:00 a.m. could have started at 4:01 a.m. or 4:59 a.m.), we assumed that all stops on the cusp of daylight were day stops. With that assumption in place, we next used civil twilight (the times immediately after sunset and immediately before sunrise when objects can be clearly distinguished) data for April and May of 2001 in Massachusetts to establish when it was dark statewide in Massachusetts using data retrieved from [www.sunrisesunset.com](http://www.sunrisesunset.com) on August 1, 2005. For instance, between April 5 and April 12, 2001, the night statewide start and end times were 8:00 p.m. and 4:00 a.m. Between May 14 and May 31, 2001, the night statewide start and end times were 9:00 p.m. and 3:00 a.m.

citizens (also see Kowalski & Lundman, 2007). There can be no doubt these arguments are accurate when it comes to the deployment of city police (Klinger, 1997; Rubinstein, 1973).

Massachusetts State Police, however, are not city police. They do not work primarily city places, and when they do, they generally work places on interstate and other divided highways. Indeed, as evidenced by the current data, almost 75% of the speed stops by Massachusetts State Police we examine occurred on divided highways such as the "MassPike" (Massachusetts Turnpike). While it certainly is the case that some stretches of divided highways have more Black drivers and other stretches fewer, race sensitive police deployment seems an unlikely explanation for high rate speed stops by Massachusetts State Police.

Third, police officers avow they cannot discern driver characteristics not just at night, but during the day as well (Institute on Race and Poverty, 2003, pp. 36-44; Thomas & Hansen, 2004, p. 16). Specially trained social science observers of police officers agree and report that driver identification prior to a traffic stop during daylight hours is very difficult (Greenwald, 2001, p. 39; The Alpert Group, 2004, pp. xi, 23). And, the research of Engel and colleagues supports police avowals and observer experiences: "allegations of racial profiling are based on the notion that officers make stopping decisions based solely or partially on drivers' race/ethnicity. If this notion is accurate, then one would expect *less, not more* racial disparities during non-daylight hours because officers would be less likely to see the race of the driver prior to the traffic stop .... This pattern ... is not detected in traffic stops made by PSP [Pennsylvania State Police] troopers" (Engel et al., 2005, p. 116, emphasis in original).

We nonetheless err on the side of caution by first assessing the generalizability of Lange et al.'s (2001, 2005) findings irrespective of the time of the stop. We next examine the effects of the explanatory measures on only day stops and then only night stops. Given police avowals, observer experiences, and limited previous research, we do not expect consistent differences in the effects of the explanatory measures by time of day.

## Explanatory Measures

We direct attention to the same explanatory measures examined by Lange et al. (2001, 2005). Here we describe those measures, starting with driver age, continuing with driver gender, and ending with the driver race and ethnicity measures.

### *Driver age*

Young drivers are more likely to engage in "risky driving behavior" (Tomaskovic-Devey et al., 2006, p. 291; also see Boyle, Dienstfrey, & Sothoron, 1998; U.S.



Department of Transportation, 2007). Lange et al. (2001, 2005) were clearly aware of these differences and initially asked their raters to indicate whether the drivers in the photographs were “younger than 25, 25-45, and older than 45 years” (Lange et al., 2005, p. 207). The raters, however, reported unreliable perceptions that were corrected by asking them to report whether they perceived a driver was “45 and younger and older than 45” (Lange et al., 2005, p. 207). Even with the imprecise age categories, Lange et al. (2001, 2005) reported that younger drivers sped more often than older drivers, irrespective of speed zone.

Because the police officers whose data we examine had access to drivers licenses, each driver’s age was recorded. We therefore use police-reported driver age in years to create a continuous age explanatory measure. Accordingly, our age measure is more precise than the age measure used and reported by Lange et al. (2001, 2005).

### *Driver gender*

As is true of young drivers, male drivers engage in “risky driving behavior” (Tomaskovic-Devey et al., 2006, p. 291; also see Boyle et al., 1998; U.S. Department of Transportation, 2007) more often than female drivers and this was also reported by Lange et al. (2001, 2005) in 65 mph speed zones. We therefore create a driver gender dummy variable, Male (yes = 1, female = 0). Because the Massachusetts State Police also had access to the information available on each driver’s license, as well as direct observation and conversation, it is likely that our gender measure is more precise than the gender measure used and reported by Lange et al. (2001, 2005).

### *Driver race and ethnicity*

When Massachusetts legislators mandated collection of race and ethnicity data (Massachusetts Executive Office of Public Safety, 2001), officers were required to check one of six boxes, “B [Black], H [Hispanic], A [Asian], I [Native American], M [Middle East], W [White],” on the new Uniform Citation.

We use the officer provided descriptions to create five dummy variables. They are (1) Black (yes = 1, else = 0); (2) Hispanic (yes = 1, else = 0); (3) Asian (yes = 1, else = 0); (4) Native American (yes = 1, else = 0); and (5) Middle Eastern (yes = 1, else = 0). Whites are the omitted reference category.

Here too we believe the race and ethnicity designations we examine are almost certainly more precise. Lange et al.’s (2001, 2005) raters had access to only black and white photographs. In contrast, the Massachusetts State Police saw each driver, heard each driver speak, and, based upon each driver’s license, knew each driver’s name and place of residence. They also saw a color photograph of each driver.

## Analytic Strategy

The High Rate Speed Stop in a 55 mph zone and the High Rate Speed Stop in a 65 mph zone dependent measures are both dichotomous. We therefore use logistic regression and provide coefficients (and standard errors) and odds ratios (Kaufman, 1996; Long, 1997).

We estimate three models for each of the dependent measures. Model 1 directs attention to all of the speed stops. Model 2 directs attention to the day speed stops. Model 3 directs attention to the night speed stops.

## Results

### High Rate Speed Stop in a 55 mph Zone

All three models in Table 1 show the older a driver, the significantly less likely they are to be stopped for 15 mph or more over the speed limit in a 55 mph zone. This conforms with the work of Lange et al. (2001, 2005). However, unlike Lange et al. (2001, 2005) who found no gender effect, men are significantly more likely to be stopped for high rate speeding in a 55 mph zone. Table 1 also indicates that high rate speeding in a 55 mph zone is generally not a function of race and ethnicity. The single exception is stops of Asian drivers irrespective of the time of the stop (for a similar finding, see Lovrich, Gaffney, Mosher, Pickerill, & Smith, 2003), whereas Lange et al. (2001, 2005) reported that both Hispanic and Other drivers sped more often than White drivers in 55 mph zones. The finding for Asian drivers, however, does not apply to the day stops and night stops models and hence is the only difference in Table 1.

### High Rate Speed Stop in a 65 mph Zone

Table 2 shows that with one exception, the patterns among the driver age, driver gender, and driver race and ethnicity measures echo (Lange et al. 2001, 2005). Specifically, young drivers are significantly more likely to be stopped for high rate speeding in a 65 mph zone, as are male drivers as compared to female drivers. So too with all Drivers of Color, with the exception of Native American drivers, as compared to White drivers. These findings apply irrespective of the time of the stop.

The odds ratios in Tables 1 and 2 also signal the importance of age, gender, and race and ethnicity. Consider the night stops in Model 3 of Table 2 by way of illustration. For each year increase in age, the odds of being stopped for high rate speeding decreases by 1.8%. The odds of being stopped for high rate speeding in a 65 mph zone are 32.3% higher for men than for women. Further, the odds of being a high rate speeder are 38.2% higher for Black drivers as compared to White drivers. Age, gender, and race are therefore not just statistically significant, they are substantively important as well.

**Table 1** Logistic regression models of high rate speed stop in a 55 mph Zone ( $N = 6,402$ ), high rate speed stop in a 55 mph zone by day ( $N = 4,789$ ), and high rate speed stop in a 55 mph zone at night ( $N = 1,613$ ) on explanatory measures

Explanatory measures	High rate speed stop		High rate speed stop by day		High rate speed stop at night	
	Model 1		Model 2		Model 3	
	<i>b</i> (SE)	Odds ratio	<i>b</i> (SE)	Odds ratio	<i>b</i> (SE)	Odds ratio
<i>Driver age</i>						
Age	-.007* (.002)	.993	-.006* (.002)	.994	-.012* (.004)	.988
<i>Driver gender</i>						
Male	.117* (.056)	1.124	.084 (.064)	1.088	.274* (.119)	1.315
<i>Driver race/ethnicity</i>						
Black	.070 (.124)	1.073	-.004 (.148)	.996	.255 (.229)	1.290
Hispanic	.039 (.140)	1.040	.017 (.165)	1.017	.093 (.261)	1.097
Asian	.307* (.168)	1.359	.314 (.212)	1.369	.307 (.277)	1.359
Native American <sup>1</sup>	-.360 (.587)	.698	-.717 (.634)	.488		
Middle Eastern	.275 (.297)	1.317	.477 (.348)	1.611	-.486 (.610)	.615
Constant	.818 (.085)		.847 (.098)		.757 (.169)	
Model Chi-square	21.658*		14.610*		15.782*	
Nagelkerke <i>R</i> -square	.005		.004		.013	

<sup>1</sup>Native American drivers excluded from Model 3 because  $n = 2$ . Accordingly, Model 3:  $N = 1,611$ .

\* $p < .05$  (one-tailed).

**Table 2** Logistic regression models of high rate speed stop in a 65 mph zone ( $N = 13,357$ ), high rate speed stop in a 65 mph zone by day ( $N = 10,592$ ), and high rate speed stop in a 65 mph zone at night ( $N = 2,765$ ) on explanatory measures

Explanatory measures	High rate speed stop		High rate speed stop by day		High rate speed stop at night	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	<i>b</i> (SE)	Odds ratio	<i>b</i> (SE)	Odds ratio	<i>b</i> (SE)	Odds ratio
<i>Driver age</i>						
Age	-.013* (.001)	.987	-.013* (.002)	.987	-.018* (.003)	.982
<i>Driver gender</i>						
Male	.155* (.038)	1.167	.143* (.042)	1.154	.280* (.088)	1.323
<i>Driver race/ethnicity</i>						
Black	.178* (.073)	1.194	.148* (.087)	1.160	.324* (.135)	1.382
Hispanic	.328* (.097)	1.389	.324* (.119)	1.382	.427* (.172)	1.532
Asian	.445* (.112)	1.560	.429* (.131)	1.536	.540* (.217)	1.717
Native American <sup>1</sup>	.186 (.451)	1.205	.358 (.502)	1.430	.635* (.336)	1.887
Middle Eastern	.448* (.170)	1.566	.401* (.197)	1.494	.504 (.126)	
Constant	.651 (.055)		.709 (.062)		59.661*	
Model Chi-square	144.794*		107.158*		.029	
Nagelkerke <i>R</i> -square	.015		.014			

<sup>1</sup>Native American drivers excluded from Model 3 because  $n = 3$ . Accordingly, Model 3:  $N = 2,762$ .

\*  $p < .05$  (one-tailed).

## Additional Analyses (Not Shown)

We conducted additional analyses (not shown) to assess the sensitivity of our results to a proxy measure of social class, probe whether commuting patterns or rounding down are rival explanations for our results, assess an alternative dependent measure, examine race and traffic ticket decisions by Massachusetts State Police, and determine the effects of using multiple imputation to account for missing values. Here we briefly report the results of those additional analyses, none of which altered the results.

### *Proxy measure of social class*

Lange et al. (2001, 2005) did not control for social class and this is understandable given how their data were collected. Our data, however, do provide the zip code on each driver's license. Land, McCall, and Cohen (1990) have persuaded scholars that assessing the sensitivity of results to the presence of a proxy control for social class is important (also see Campbell & Ross, 1968; Chambliss & Liell, 1966; Kinkade & Leone, 1992; Mastrofski & Ritti, 1992). We therefore merged the traffic ticket data with census data with a focus on the percent living below the federal poverty level within the zip code listed on each driver's license. Percent Zip Code Poverty is our proxy measure for social class.<sup>4</sup>

Percent Zip Code Poverty was never significant in the 55 mph zone models and the results in Table 1 remained the same. In the 65 mph zones, Percent Zip Code Poverty was negative and significant in only the day stops model and all of the other results shown in Table 2 remained the same. Accordingly, our findings are not sensitive to a proxy measure of social class.

### *Commuting patterns*

Because jobs have left inner city places (Bourgois, 2003; Wilson, 1997) and because race-based residential segregation (Massey & Denton, 1993) keeps many Black citizens in inner city places (Patillo-McCoy, 1999), there is a spatial mismatch (Kain, 1968; Mouw, 2000, p. 737) between the places Black citizens reside and the places Black citizens work. This mismatch raises the possibility that high rate speeding by Black drivers in 65 mph zones is a simple reflection of commuting patterns.

Lange et al. agree (2001, 2005). They speculated that their Black driver in 65 mph zones finding was traceable to Black drivers commuting longer distances

4. This means that the individual or level-one cases are nested in specific level-two zip codes, making the errors correlated and the standard errors biased downward (Guo & Zhao, 2000, p. 444). We therefore corrected for nesting using the cluster command in STATA (Stata Press, 1997, pp. 349-350); also see Messner, Baller, & Zevenbergen, 2005, p. 643).

and therefore at higher rates of speed. Lange et al. (2005, p. 216), however, reported that they “had no data to test this hypothesis ....”

We do. The Massachusetts data indicate where the speed stop took place and where the driver resides. We used those data to create two proxy commuting patterns measures. They are (1) driver is from out of state (Out State = 1, else = 0); and (2) driver is from in state, but does not live in the place where the stop occurred (In State, Out of Place = 1, else = 0). In Place (yes = 1, else = 0) is therefore the omitted reference category.

We then reran Model 1 in Table 2 with our proxy measures for commuting patterns. Out State and In State, Out of Place were both positive and significant, as compared to In Place, while the results for age, gender, and race and ethnicity remained the same. As we were able to measure it, commuting patterns do not explain our Black driver result.

### *Rounding down*

Some might argue that what our findings really show is that Massachusetts State Police round down the mph over the speed limit for White drivers in 65 mph zones, a lagniappe they do not give Black drivers.<sup>5</sup> We explored this rival explanation, starting with whether Massachusetts State Police round down.

They do. For instance, 60.5% of the night speed stops in 65 mph zones (see Model 3 in Table 2) were reported in rounded mph over speed limit figures (5 mph over, 10 mph over, 15 mph over, etc.). We then modeled this rival explanation using rounded mph over the speed limit as the dependent measure. Race and ethnicity were never predictors of rounding down.

However, we are not able to examine other explanations of rounding down and hence other explanations that might involve race. Police officers round down for a variety of reasons (see especially Schafer & Mastrofski, 2005) and it is possible that some of those reasons interact with race and ethnicity. All we can say is that race and ethnicity do not explain rounding down and, more importantly, rounding down does not explain our results.

### *Alternative dependent measure*

The Massachusetts data also support a continuous mph over the speed limit dependent measure. We used OLS regression to examine this alternative dependent measure. The results using this continuous dependent measure were also the same.

5. Police officers cannot round up because it is illegal. They also do not need to because there are more than enough high rate speeders to go around (Durose et al., 2007).

### *Traffic ticket decisions by Massachusetts State Police*

The Massachusetts data from April and May of 2001 include only stops ending either in a traffic ticket or a written warning. One possible argument is that Massachusetts State Police ticket or formally warn Black speeders and verbally warn White speeders.

We have no direct method of probing this argument. We reasoned, however, that if Massachusetts State Police used race as one foundation for their reporting decisions, then it is likely that Massachusetts State Police would also use race as one foundation for their ticketing decisions.

They never did. We ran four additional logistic regression models comparing a traffic ticket with a written warning (ticket = 1, written warning = 0). We used continuous mph over the speed limit as an explanatory measure in two of the models (55 mph zone and 65 mph zone) and high rate speeder in the other two models (55 mph zone and 65 mph zone). Offense seriousness (mph over speed limit and high rate speeder) was always positive and significant, while race and ethnicity never affected traffic ticket decisions in ways that signaled "white privilege" (Renzetti, 2007).

### *Multiple imputation of missing values*

We worried that dropping cases with missing values had biased our results. We therefore accounted for missing values using multiple imputation (Schafer, 1997). The results were unchanged.

## Summary, Limits of the Present Research, and Implications

### Summary

The present research assessed the generalizability of the findings reported by Lange et al. (2001, 2005). We examined Massachusetts State Police reported stops for high rate speeding in 55 mph speed zones and 65 mph speed zones. As part of our analyses, we examined all stops, day stops, and night stops and ran multiple additional analyses.

Our results indicate that Lange et al.'s (2001, 2005) findings are generalizable, although there is modest variation by speed zone. As did Lange et al. (2001, 2005), we also found that high rate speeding in 55 mph speed zones is significantly more likely to be the work of the young and that there is no difference between Black and White drivers. Unlike Lange et al. (2001, 2005), we found that men are significantly more likely to be the speeders in 55 mph speed zones than women.

In the 65 mph zones, our findings are nearly identical to those of Lange et al. (2001, 2005). Specifically, high rate speeding in 65 mph zones is not just

significantly more likely to be the work of the young and of men, but also Blacks as compared to Whites. Those results remain the same irrespective of the time of the stop.

### Limits of the Present Research

There are four limits to the present research and all are firmly grounded in the police-reported data we examined. First, Massachusetts State Police and police elsewhere (see Center for Biostatistics, 2003) knew race and ethnicity information were being collected. They also knew why (Lundman & Kaufman, 2003). Accordingly, Massachusetts State Police and other police officers have a strong incentive to provide incomplete or false race and ethnicity data and some police officers have been detected doing precisely that, either by forgetting to provide race and ethnicity information or by turning some Black drivers into White drivers (Cordner, Williams, & Velasco, 2002, p. 23; Donohue, 2000; Meeks, 2000, pp. 6-7; Verniero & Zoubeck, 1999, pp. 31-32). Note, though, that we probed the problem of forgetting using multiple imputation and even with the possibility of falsification by Massachusetts State Police, the likely consequence is to underestimate the ways race and ethnicity are linked with speeding (also see Tomaskovic-Devey et al., 2006).

Second, the data are limited to traffic stops that ended in either a ticket or an inconsequential written warning. Traffic stops that ended in a verbal warning by an officer and hence no written record of the stop are excluded. While it would be interesting and important to analyze multinomial outcomes (i.e., ticket or written warning as compared to verbal warning), the data do not support this possibility. Moreover, the traffic ticket versus written warning decision embraces the majority of the traffic stop decisions police officers make (Cordner et al., 2002; Eck, Liu, & Growette Bostaph, 2003; Farrell & McDevitt, 2006; Institute on Race and Poverty, 2003; Texas Department of Public Safety, 2004; The Alpert Group, 2004). In addition, it is unlikely that Massachusetts State Police routinely gave verbal warnings to high rate speeders in 65 mph speed zones. Finally, we could find no evidence of race and ethnicity effects in our additional analysis of traffic ticket decisions by Massachusetts State Police.

Third, our age, gender, and race and ethnicity measures were based on officers' perceptions, just as Lange et al.'s (2001, 2005) age, gender, and race and ethnicity measures were based on raters' perceptions. Lange et al.'s (2001, 2005) raters, however, were limited to black and white photographs of drivers behind windshields and steering wheels. In important contrast, Massachusetts State Police officers had direct visual and other observation of drivers, listened to them, and had access to driver's license information including name, place of residence, and a color photograph.

Fourth, because our data are police-reported, some might argue that what we have actually provided is evidence of age, gender, and race and ethnicity



profiling by police (Harris, 2002) and not evidence of which drivers speed at high rates in high rate speed zones (also see Engel et al., 2005, p. 121).

We disagree because we also examined night speeding stops. While there certainly is room for additional research on whether night stops truly blind police officers to driver demographics, police avowals (Institute on Race and Poverty, 2003, pp. 36-44; Thomas & Hansen, 2004, p. 16), observer experiences (Greenwald, 2001, p. 39; The Alpert Group, 2004, p. xi and p. 23), and limited previous research (Engel et al., 2005, p. 116) indicate that is indeed the case. We therefore believe that our police-reported data accurately capture the age, gender, and race and ethnicity characteristics of drivers who sped at high rates in high rate speed zones in Massachusetts during April and May of 2001 (also see Boggess & Bound, 1997; Gove et al., 1985; Hindelang, 1981; Levitt, 1998; O'Brien, 1996; Parker & Maggard, 2005; Warner & Wilson Coomer, 2003).

## Implications

Three implications follow from our analyses. Here we discuss these implications, starting with the need for additional assessments of the generalizability of Lange et al.'s (2001, 2005) findings. We continue by reminding scholars, police administrators, police officers, and members of the general public of the clear linkages between Lange et al.'s (2001, 2005) findings and our own with extant theory and previous research. We conclude with discussion of Speeding While Black.

### *The need for additional assessments of generalizability*

The present research traced a traditional path for assessing the generalizability of previous research (O'Brien & Stockard, 2003; Rosay, Gottfredson, Armstrong, & Harmon, 2000; Weisburd & Taxman, 2000). We asked the same question posed by Lange et al. (2001, 2005) and answered that question using data with different limits. Our results indicate that the findings reported by Lange et al. (2001, 2005) are generalizable.

However, while a single assessment of generalizability is instructive, it is not by itself important. What is important are additional assessments of generalizability directed at determining whether there are age, gender, and race and ethnic differences in the frequency with which drivers speed, with a sustained focus on high rate speeding in high rate speed zones.

As scholars move forward with their own research, they need to examine multiple dependent measures. Both Lange et al.'s (2001, 2005) research and the present research demonstrate that race and ethnicity findings vary according to whether the dependent measure is high rate speeding in a 55 mph zone or high rate speeding in a 65 mph zone.

What is not clear is why findings vary by speed zone. One possible explanation is that 55 mph speed zones are more congested thereby making high rate

speeding more difficult. Yet, young drivers manage to find ways to speed at high rates in 55 mph zones according to both Lange et al. (2001, 2005) and the present research, as do men in the present research. A second possible explanation is that there are more drivers commuting longer distances in 65 mph zones and therefore more high rate speeding. We partially assessed the commuting patterns argument, however, and while a proxy for commuting patterns did indeed explain high rate speeding in high rate speed zones, our age, gender, and race and ethnicity results remained the same. Additional research therefore is clearly needed.

Scholars also need to direct attention to night stops. The most pressing question is whether night stops really do blind police to driver demographics (see Greenwald, 2001). We think they do, but it is possible that police officers know and use ways of determining driver demographics at night that researchers simply are not aware of.

### *Extant theory and previous research*

When Lange et al.'s original report was released (2001) and when the scholarly report of their findings was published (2005), age and gender were used as control measures. Lange et al. (2001, 2005) therefore quickly passed over the age and gender findings, underscored their race finding and made no effort at providing theoretical explanation or reviewing previous research.

We believe that quickly passing over the age and gender findings and underscoring the race finding when coupled with the lack of both theoretical explanation and review of previous research virtually guaranteed narrow reaction centered exclusively on race (see Silberman, 1978, pp. 117-118). And, narrow reaction centered exclusively on race is exactly what happened. As noted, a representative of the New Jersey State Trooper's union welcomed the report, ignored the age and gender findings, and claimed that the race finding vindicated the Troopers (see Kocieniewski, 2002b). Others rejected the report, ignored the age and gender findings, and claimed that the race finding was an inexcusably racist effort to justify racial profiling by New Jersey State Troopers (see Hanley, 2002; Williams, 2002).

Because incomplete statement of findings and the absence of theoretical explanation and review of previous research invite claims of vindication and claims of racism, we believe it is very important to do otherwise, and so we do.

Lange et al.'s (2001, 2005) findings and our own clearly link with extant theory. Scholars have long theorized that age differences in law violative actions reflect society's weaker grip and lesser control on the young as they make the difficult and time consuming transition from childhood to adulthood (The Jack-Roller & Shaw, 1930; also see Phillips, 2006). Scholars have also long theorized that the strong relationship between gender and law violative actions is traceable to gender-role socialization that bonds men less strongly to

conventional society and its laws than women (Alper, 1939; also see Blackwell & Piquero, 2005; Giordano, Kerbel, & Dudley, 1981; Hagan, Simpson, & Gillis, 1987; Laub & Sampson, 2003, pp. 45-46; Tittle, 1995). And for just as long, scholars have theorized that disproportionate Black involvement in law violation is a direct reflection of pervasive discrimination that blocks access to legitimate means of reaching important goals (Merton, 1938; Shaw et al., 1929; also see Anderson, 1999; Bourgois, 2003; Cobb, 1992; Du Bois, 1940; Entman & Rojecki, 2000; Feagin, 1991; Patillo-McCoy, 1999). Indeed, writing almost 70 years ago, Diggs (1940, pp. 312, 318) put the relationship between race and crime this way: "The number of Negro children who are brought before the courts ... has now for some time been greater in proportion than their total number in the population .... The problems of Negro youth may be stated briefly as ... general social and economic disadvantage attendant upon ... minority status."

Linkage with previous research is just as clear and involves three clear statements. They are (1) law violative actions are disproportionately the work of the young (Engel et al., 2005; Phillips, 2006); (2) law violative actions are disproportionately the work of men (Blackwell & Piquero, 2005; Eck et al., 2003); and (3) law violative actions are disproportionately the work of Blacks (FBI, 2008; Lovrich et al., 2003).

### *Speeding while Black?*

There can be no doubt that Lange et al.'s (2001, 2005) findings and our own suggest that differences in "risky driving behavior" (Tomaskovic-Devey et al., 2006, p. 291) may account for at least some of the disproportionate representation of young drivers, male drivers, and Black drivers in traffic stops by police (also see Lovrich et al., 2003). There also can be no doubt that despite the importance of the age and gender findings, it is the race finding that attracts attention (Hanley, 2002; Moskos, 2006; Silberman, 1978, pp. 117-118; Williams, 2002).

What is in doubt is whether the apparent differences in high rate speeding in high rate zones are generalizable beyond Lange et al.'s (2001, 2005) research and our own. It is clear that the analysis of high rate speeding is still in its infancy and, as such, far from complete, and less than fully understood. To our knowledge, Lange et al. (2001, 2005) and the present research are the only two studies to systematically direct multivariate attention to high rate speeding in high rate zones.

Moreover, high rate speeding in 65 mph speed zones by Black drivers accounts for only a small proportion of all traffic law violators. For instance, only 2.4% of traffic stops by Massachusetts State Police (with complete information on all of the explanatory measures) in 65 mph zones involved Black drivers stopped for speeding at 15 mph or more over the speed limit (also see Lange, Blackman, & Voas, 2005, p. 212).

The next scholarly tasks are therefore transparent. Other researchers need to isolate data that permit examination of differences in driving behavior generally (see Lovrich et al., 2003) and high rate speeding in high rate zones in particular. Those data will doubtless have their own limits, just as our data and those of Lange et al. (2001, 2005) have limits. However, each study with its distinctive data limits is by itself unimportant (Webb et al., 1966). What is important is assembling a body of research to determine whether traffic stops for Driving While Black are in small part the result of Speeding While Black.

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