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Differential Suspicion: Theory Specification and Gender Effects in the Traffic Stop Context

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Drawing on script theory and related research from cognitive social psychology, this paper suggests that police may develop unconscious, cognitive schemas that make them more likely to be suspicious of population subgroups that they repeatedly encounter in street-level situations involving crime and violence. Drawing on more than 66,000 traffic stop records from the Miami-Dade County Police Department, this article presents an initial test of this theory using gender as the principal variable of interest. Police were found to be significantly more suspicious of men than of women in traffic-stop encounters, and suspicion was strongly associated with the decision to arrest. Consistent with the specified theory, suspicion had a modest, attenuating affect on the relationship between gender and arrest. However, gender remained a statistically significant predictor of arrest even after controlling for suspicion, suggesting that other factors associated with gender continue to operate and drive police decision-making.

Keywords differential suspicion; theory specification; gender effects; traffic stop

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Introduction

As a topic of empirical inquiry, the study of police discretion is among the oldest and most well-developed areas of criminal justice research. Yet, despite the more than 40 years of attention that it has received from researchers, little effort has been made to develop a theory of police decision-making or to explain why police behave in certain ways or in response to differing conditions. Police research tends toward the pragmatic and the informational. As a result, much is known about the who, what, when, and where of police discretion, but comparatively little attention has been given to the "why" of police decision-making.

As an example of this phenomenon, Engel, Calnon and Bernard (2002) recently decried the lack of theoretical focus in racial profiling research. They correctly point out the absence of consistent linkages between police officer attitudes and decision-making, and as a potential remedy, they call for the incorporation of attitudinal data into studies of police discretionary behavior. Previously, Worden (1995) also noted the lack of coherence in research on police attitudes and suggested that researchers treat officer outlooks as variables to gauge what influences the development of attitudes and beliefs, or in the alternative, how attitudes and beliefs shape behavior (Alpert & Dunham, 2004).

In this article, we attempt both to set forth a theoretical perspective on police behavior and to conduct an initial assessment of this approach. In so doing, we investigate the role that suspect gender plays in the development of police suspicion and, in turn, whether suspicion operates differently for men and women. We choose gender as the primary variable of interest because of the clear demarcation in criminal offending rates between males and females (Bureau of Justice Statistics, 2002a; Federal Bureau of Investigation, 2002). As a suspect-related, individual-level variable, it provides the sharpest juxtaposition for our primary theoretical constructs—that police are more suspicious of those who are disproportionately involved in street crime and that police arrest behavior is driven by those beliefs.

We begin this article with a review of the literature relevant to the development of our theoretical perspective on police discretion. Thus, we review the research on suspicion as a component of police culture, and drawing upon strands of literature from cognitive social psychology, we argue that differential exposure to certain types of offenders can lead to the development of cognitive scripts that operate as stereotypes. In addition, we review what previous researchers have found on the actual influence of suspicion on police behavior and particularly on the police response to suspect gender. Following the literature review, we specify our theory, present the particular research questions that we intend to examine, and discuss our data and methods. Next, we present the findings from an analysis of more than 66,000 traffic stops conducted by officers from the Miami-Dade County Police Department. Finally, we discuss the implications of the findings for our theory of police behavior and suggest avenues for future research.

Toward the Development of a Theory of Police Decision-making

In this section, we review three strands of literature that inform our theoretical perspective on suspicion and police decision-making. The first strand of literature notes the relevance of suspicion within the police subculture. The second strand of literature, which discusses script theory, addresses how people process and store information in memory and how those cognitive scripts inform the sense-making process when people encounter novel situations. The final strand of literature reviews what previous researchers have learned about the empirical influences of suspicion and gender on police behavior.

Suspicion and Police Culture

Without question, suspicion is a hallmark of police culture. As such, it helps provide definition to a police officer's working personality (Brown, 1981; Skolnick, 1993). Put simply, it is the job of the police to be suspicious. Through training and experience, they bring all senses to bear in distinguishing the normal and mundane from the unusual or the suspicious. In his classic study of police in Philadelphia, Rubinstein (1984) described how new recruits marveled at the ability of seasoned veterans to see things that "normal" people did not and to identify people and situations that aroused suspicion and therefore the need for further inquiry. Indeed, suspicion represents the very craft of policing (Crank, 2004). Properly applied, it leads to the discovery of wrongdoing and thus to organizational rewards, recognition, or promotion.

Suspicion has even become ingrained in the law of criminal procedure. In *Terry v. Ohio* (1968), the Supreme Court placed its imprimatur on stops by police under a standard that became known as "reasonable suspicion." Giving great deference to Detective McFadden's 39 years of experience, the Court upheld the stop of three men without probable cause but based on a reasonable belief that "criminal activity may be afoot" (p. 30). Recently, the Court reaffirmed the reasonable suspicion standard when it upheld the stop of a suspected drug courier by an experienced Border Patrol agent who observed a number of suspicious behaviors that, when added together, suggested to him that a van was being used to transport drugs through the Arizona desert (*United States v. Arvizu*, 2002). Among the factors that the agent found suspicious were behaviors that may have gone unrecognized by a civilian observer, including the failure of the driver to look at or acknowledge the agent as he passed by, mechanical-looking waving to the agent by children in the rear of the van (suggesting they had been coached), and the observation that the children's legs were raised, as if they were resting on some object on the floorboard.

Police are trained and socialized to be suspicious. In fact, suspicion is highly valued in the police culture (Dixon, Bottomley, Coleman, Gill, & Wall, 1989). Police officers study incongruities in time, place, appearance, and behavior to ascertain who among the multitudes of people they encounter requires

additional inquiry or investigation (Quinton, Bland, & Miller, 2000). Although suspicion in most contexts is an undesirable social trait, it is part and parcel of a police officer's world view. It has particular salience in police work because it is driven largely by a desire to avoid physical assault and to identify potential assailants. With such powerful forces shaping its development and application, suspicion can easily be used to create guilt, as well as to reveal its presence (Crank, 2004).

Script Theory and the Development of Cognitive Schema

The salience of suspicion in the working lives of police is magnified by the psychological processes by which they store, retrieve, and process information about their worlds. Script theory was developed by cognitive psychologists for the purpose of explaining how people interpret and respond to new and unfamiliar situations. In his classic treatise *Affect, Imagery, Consciousness*, the late Silvan Tomkins, professor emeritus of psychology at Rutgers University, describes script theory (Tomkins, 1992). A script is a set of ordering rules for interpreting, evaluating, predicting, and controlling scenes. According to Tomkins, a scene is an event with a perceived beginning and ending that serves as the basic unit of cognitive analysis. His theory posits that certain scenes in a person's life have emotional significance and that those scenes can become magnified into a set of rules that control the person's responses to similar scenes in the future.

Schank and Abelson (1977), in their pioneering work on artificial intelligence, also developed a concept of script that is related to Tomkins theory. According to them, a script is a standard event sequence that does not include all of the details of an event but is nevertheless context-specific. Thus, scripts are predetermined sequences of events that comprise repetitive or familiar situations. In effect, people develop shortcuts to make sense of and predict how future events will unfold based on their experiences in similar situations.[1]

Cognitive theorists recognize that learning involves the acquisition or reorganization of information or observations and that the relative power of the learning varies by the degree of familiarity and the number of repeated associations to which one is exposed (Good & Brophy, 1990). Scripts, or cognitive schema, often start as simple and loosely organized networks but can evolve into systematic and complex relationships. Research findings provide evidence that these schemas form a mental model that plays a key role in predicting a person's responses to other individuals, places, and things, in future encounters or events (Bower,

1. To illustrate their concept of a script, Schank and Abelson (1977) describe a visit to a restaurant. They argue that we know what is likely to occur in a restaurant because we have developed restaurant scripts. For example, without really thinking about it, we know that we will be shown to a table, that we will be given menus, that a waiter will take our order, and that he or she will bring us our food when it is ready. Although the details of any visit to a restaurant will vary, the restaurant script will remain fairly stable across situations.

Black, & Turner, 1979; Brehm, Kassin, & Fein, 2002; Read, 1987). Once formed, persons, places, or things that have familiar characteristics or properties, activate these cognitive schemas. For example, it is likely that these schemas or biases will be triggered when judging the behavior of a person that accords with one's pre-existing mental image for the group to which the person belongs, especially when the observed behavior is ambiguous (Darley & Gross, 1983; Sagar & Schofield, 1980). Specifically, a person may respond in a learned way to another who is a member of a particular group with which he or she has experiences or a history. Once a person has identified another individual or a group by an assumed role, future behavioral patterns will be predicted upon the developed schema.

The role of stored information, including cognitive schemas, in decision-making has been the subject of much social cognition research. The accessibility of information, or the ease with which it can be recalled, is a strong predictor of how people make judgments about people and events, and ultimately how they behave (Sherman, Judd, & Park, 1989). Furthermore, accessibility is directly related to the number of specific instances that can be brought to mind (Tversky & Kahneman, 1973). In the realm of attitudes and their influence on behavior, attitudes are most accessible when they are based on direct experience with the object of the attitude (Fazio, Chen, McDonel, & Sherman, 1982; Fazio, Zanna, & Cooper, 1978), and they influence behavior in proportion to the amount of attitude-specific information that can be retrieved from memory (Kallgren & Wood, 1986).

Taken together, this body of literature suggests that attitudes, beliefs, and stereotypes are most likely to develop when police have repetitive contacts of a similar type with persons from the same group. Moreover, stereotypes act as organizational scripts for social memory and thus guide perceptions of future encounters (Noseworthy & Lott, 1984). Once triggered, stereotypes result in an ecological fallacy (Robinson, 1950) as perceived group generalizations are applied to individuals regardless of their individual characteristics (Grant & Holmes, 1981). As police repeatedly encounter males and females under differential conditions of criminality, they likely begin to develop cognitive scripts that associate criminality and violence with men. This, in turn, makes it more likely that police will process new situations through the filter of existing schemas, which are easier to recall because of the larger number of crime and violence-related contacts with males than with females.

Suspicion, Gender, and the Police

Studies that have addressed the effect of gender on police decision-making have shown differing results. Smith and Visher (1981) found that gender had no effect on the decision to arrest, but Visher (1983) later found in a reanalysis of the data that demographic variables were more important in arrest decisions for females than males. Lundman (1994) found that, in confrontations with juveniles and for public drunkenness encounters, gender played no role in the

decision to arrest. Similarly, Klinger (1996) found that sex had no effect on the arrest decision.

Contrary to the above findings, Worden and Shepard (1996) reported that in encounters with subjects, being male significantly increased the likelihood of arrest. Novak, Frank, Smith, and Engel (2002) also found that being male significantly predicted arrests in situations where probable cause existed that the citizen committed an offense. Riksheim and Chermak (1993) concluded in their review of the literature that the data on arrest and gender are inconsistent but also point out that the type of contact with police changes the way in which variables affect arrest decisions.

Research on police behavior toward females in the traffic stop arena is relatively scant. Lundman's (1979) early observational study of police in a large Midwestern city revealed that men were more likely to receive traffic citations than women. Using data from the 1999 police–public contact survey, Lundman and Kaufman (2003) found that women were significantly less likely than men to report being stopped by the police. They were also more likely than men to report that they were stopped for a legitimate reason and that the police acted properly during the stop. Knowles, Persico, and Todd (2001) found roughly equivalent "hit rates" (searches that uncovered drugs) among males and females in a sample of 1,590 searches of motor vehicles by the Maryland State Police. Conditioning simultaneously on race and gender, however, showed lower hit rates (possible bias) for White women compared to African-American women. Most recently, Engel and Calnon (2004) also used the 1999 police–public contact survey to report on the influence of gender on police behavior during traffic stops. They found that gender played an important role in citations, searches, arrests, and use of force when controlling for other relevant variables. Altogether, being male increased the odds by 23 percent of respondents reporting a citation, 300 percent for a search, 180 percent for an arrest, and 230 percent for force. Although the influence of race increasingly has been the focus of police traffic-stop research, the impact of gender on police decision-making during traffic stops has received comparatively little treatment.

If the literature on traffic stops and gender is thin, then research on police suspicion and how it may vary by suspect gender is almost nonexistent. The little work that has been done in the area comes primarily from Europe. British researchers have documented how police develop suspicion on the basis of time, place, behavior, and appearance, among others (Quinton, Bland, & Miller, 2000). During 800 hours of field observation with police in Denmark, researchers identified a similar set of indicators that police officers used to define suspicion and thus to stop someone. Incongruity, prior information, and appearance were all important variables in the stop calculus. Officers appeared to gather social information based on suspect appearance and behavior. Race and gender were among the variables that officers used as cues to identify potential criminals (Holmberg, 2000). Similarly, researchers in the Neatherlands found that gender was an important predictor of suspicion among police in Dutch municipalities.

Using 64 simulated car thefts in various cities, the researchers manipulated the gender, race, and appearance (tidy vs. untidy) of suspect-actors to gauge the effect on police officers investigating the events. They found that gender was the most important variable in the development of suspicion, with women being treated with less suspicion than men (Willemse & Meyboom, 1978).

In addition, a body of research on verbal and nonverbal deceit and deception has been developed in Europe that has used gender as an independent variable, but not as an experimental condition. Actions such as speech patterns, gaze aversion, facial expressions, and others have been used to explain the presence of deceit but have not been designed to explore whether suspect gender has an effect on research subjects' perceptions of truthfulness (Memon, Vrij, & Bull, 2003; Vrij et al., 2000). As a result, this literature adds little to the question of how suspect gender influences police suspicion or whether people in general are more likely to find ambiguous behavior suspicious when it involves a man rather than a woman.

Taken together, the literature on gender and police decision-making reveals that researchers have paid remarkably little attention to the importance of suspicion both as an outcome itself and as a possible predictor for arrests or other sanctions. Furthermore, identifying what factors cause police to become suspicious and whether suspicion influences decision-making has implications for a variety of current law enforcement research topics beyond the issue of gender, including racial profiling research and anti-terrorism studies. Although stereotype-based suspicion may be inappropriate in some contexts (e.g., racial profiling), the identification of factors that lead to *successful* suspicion is highly relevant in the struggle to prevent to terrorism or thwart garden-variety crime. Although this article represents a renewed focus on the salience of suspicion in police decision-making, its focus on gender is but one aspect of an inquiry that clearly needs further exploration.

Specification of the Theory

Our theoretic approach begins with the axiom that police officers view themselves first and foremost as crime fighters—soldiers in a "war" on crime with battle lines drawn between us (the police) and them (criminals) (Betz, 1988; Crank, 2004; Kraska, 2001; Kraska & Kappeler, 1997). From this perspective, officers quickly learn to become suspicious of anyone who does not wear a police uniform. Suspicion, however, is not uniformly applied. Van Maanen (1996) noted the differences in how police treat those who they suspect of having committed a crime (suspicious persons) compared to those who do not accept the police definition of a situation ("assholes") or those who fall into neither of the other two categories ("know-nothings). Moreover, police beliefs about which citizens are likely to be involved in crime are based on a variety of individual, behavioral, and situational cues, including race and gender (Bittner, 1991; Rubenstein, 1973; Skolnick, 1993).

As a result, police in some communities have a long and ill-famed reputation for racial discrimination and increased suspiciousness of minorities (Smith, Visher, & Davidson, 1984; Walker, Spohn, & DeLone, 2004.; Williams & Murphy, 1990) In the area of traffic enforcement, these views may result in the differential treatment of minority, powerless, or disrespectful citizens (Lundman, 1979). By the same token, police are not immune to the unpleasant reality that crime is unevenly distributed in American society (Smith & Petrocelli, 2001). African-Americans, for example, commit more violent street crime on a per capita basis than do Whites and Asians (Bureau of Justice Statistics, 2002b; Federal Bureau of Investigation, 2002), poverty is one of the predictors for the prevalence of crime in neighborhoods (Block, 1979; Taylor & Covington, 1988), and age is strongly and consistently linked to criminality (Hirschi & Gottfredson, 1989). Likewise, men exhibit significantly higher rates of criminality than women (Bureau of Justice Statistics, 2002a; Federal Bureau of Investigation, 2002).

Overlaid with the predisposition of police toward suspiciousness and the skewed distribution of crime in society is a cognitive perspective on stereotyping which suggests that repeated contacts with groups that demonstrate disproportionate levels of crime or anti-social behavior may influence the degree of suspicion with which police view those groups. From this perspective, police are likely to develop stereotypical views of groups with whom they disproportionately interact in street-level encounters involving crime and violence. Consequently, they will develop subconscious suspicion scripts for these groups. Once these cognitive schema are formed, they are easily recalled and likely will influence future attitudes and behavior.

Recognizing that disproportionate contact by police with crime-prone groups may result in the development of suspicion scripts for those groups does not diminish the influence that society may also have on stereotype formation by police officers. Stereotypes are formed as the result of both social and individual cognitive processes (Allport, 1954; Aronson, 1991; Mackie, Hamilton, Susskind, & Rosselli, 1996). For example, the influence of parents and friends on the development of racial attitudes is well documented (Goodman, 1952; Patchen, Davidson, Hofmann & Brown, 1977). Moreover, in contemporary society, the mass media serves as an important transmitter of social stereotypes and labels (Bell, 1992; Stinton, 1980; Wilson & Gutierrez, 1985). Even social-structural and economic competition can foster and perpetuate the existence of stereotypes (Aronson, 1991; Dollard, 1987).

As representatives of the cultures and communities from which they come, police officers no doubt arrive on the job with the full panoply of stereotypes and biases that exist in contemporary American society. We suggest, however, that police work itself creates the necessary conditions for the development of group stereotypes and suspicion scripts beyond those that exist in society at large. Police officers, along with other social-service occupations that have routine, face-to-face contact with crime-prone groups, are likely to develop subconscious suspicion scripts for those groups. Furthermore, we posit a linkage

between the existence of suspicion scripts among police and discretionary decision-making.

Following the thorough review and meta-analysis of Dovidio, Brigham, Johnson, and Gaertner (1996), who found a statistically significant (but modest) relationship between attitudes and discriminatory behavior, we suggest that some groups are more likely than others to be the targets of street-level sanctions *because* police apply pre-existing, subconscious suspicion scripts in their interactions with those groups. Under this approach, suspicion scripts do simply exist in a vacuum; rather, they unconsciously influence the discretionary *behavior* of officers toward crime-prone groups. However, it is not group membership per se that results in a higher probability of negative outcomes; instead, it is the influence of suspicion, differentially applied, that drives sanctions. As a result, suspicion acts as a mediating variable on the relationship between group membership and the probability of sanction. Thus, police not only will be more likely to develop suspicion scripts for crime-prone groups but will act upon those stereotypes in making discretionary decisions, which will likely produce disproportionate outcomes among groups.

Finally, we note that our theory was developed to help explain police behavior as it relates to gender. As a result, the analysis and discussion that follows utilizes gender as the primary independent variable of interest. Whether our theory can be applied to explain police attitudes and actions toward other identifiable groups in society (e.g., racial minorities) remains an open question and is beyond the scope of this paper. However, some have indeed suggested unconscious cognitive bias as a possible explanation for disparate police treatment of minorities in the traffic stop context (Tomaskovic-Devey, Mason, & Zingraff, 2004). Under our theoretical approach outlined above, cognitive bias toward racial minorities most likely would develop among officers assigned to high crime, predominantly minority neighborhoods. We leave it to future researchers to test or otherwise apply our theory with suspect race as the principal variable of interest.

Research Focus

The analysis that follows explores three aspects of our theory on suspicion and police behavior. First, we examine the role that suspect gender plays in police suspicion. Consistent with our theory and the distribution of crime among the sexes, we hypothesize that police will be more suspicious of men than of women. Second, we investigate whether suspicion influences the probability of arrest net of other factors. Based on our theory that links suspicion scripts to decision-making, we hypothesize a positive correlation between suspicion and the likelihood of arrest. Finally, we explore whether suspicion attenuates the relationship between gender and arrest. Consistent with our theory of suspicion as a mediating variable, we expect that suspicion will lessen the impact of gender on the probability of arrest.

Visher's (1983) seminal work looked at gender differences in arrests and concluded that women who exhibited traditional middle-class characteristics and behaviors were afforded chivalrous treatment by police. The observational data that she used in her research were derived from the 1977 Police Services Study and excluded traffic stops because so few resulted in an arrest. Instead, her sample focused exclusively on suspected criminal or public-order violations.

In contrast, we explore the influence of gender on police behavior specifically in the traffic stop context by examining first whether gender influences police suspicion and second whether police suspicion mediates the influence of gender on the arrest outcome. Although the data used in this study do not allow for a direct test of our differential exposure theory, the analyses that follow should provide an initial indication of whether the link between gender, suspicion, and arrest is consistent or inconsistent with our theoretical framework. In conducting our analysis, we account for a number of important contextual variables, which are discussed in greater detail in the Data and Methods section below.

Building on the work of Visher (1983) and others, we add to the literature on gender and police decision-making and take up the challenge of Engel et al. (2002) for a theoretically driven approach to the analysis of police traffic stop data. We also extend Worden's (1989) assessment of the influence of police attitudes on behavior, in which he found weak and inconsistent effects. We hope that by focusing on measures of suspicion, we might further our understanding of disparities in the treatment of identifiable groups by police and shed additional light on the reasons behind police decision-making. Finally, we note that traffic stops are the most common reason for encounters between the police and the public (Langan, Greenfeld, Smith, Durose, & Levin, 2001). By utilizing a large traffic-stop data set for our analysis, we examine events where police frequently and directly impact the everyday lives of citizens.

Data and Methods

The data for this research were collected as part of a racial profiling study of the Miami-Dade County Police Department. As part of that study, patrol officers were required to complete a citizen contact card on every traffic stop made between April and October 2001.[2] The data-collection effort produced 66,109 traffic stop records. The contact card itself contained fields for a variety of data elements related to the reason for the stop, the outcome or result of the stop, and actions taken by the officer during the stop. Demographic information on the driver was also captured on the cards and included data on driver race, ethnicity, age, and gender. Although not part of the current analysis, the contact card data were later supplemented with data on the officers who made

2. We note that the data-collection period spanned the 9/11/2001 terrorist attacks in New York and Washington, DC. A before-and-after analysis revealed that although stops dropped off slightly during October 2001, the racial and gender makeup of drivers detained remained consistent.

Table 1 Description of variables

Variable	Description and coding	Mean	Percent female of total
Dependent variables			
FI card	FI card completed; 1 = yes	14%	17
Record check person	Record check conducted of motorist; 1 = yes	25%	20
Record check Vehicle	Record check conducted of vehicle; 1 = yes	11%	22
Arrest	Motorist arrested; 1 = yes	2.4%	11
Suspect characteristics			
Suspect gender	1 = female	30%	-
Suspect age	Age in years	37	-
Suspect race	Two dummy variables; (1) 1 = Black, (2) 1 = Hispanic	(1) 27% (2) 45%	-
Neighborhood context			
Census tracts	*n* = 258; each dummy coded	-	-
Stop context			
Night-time stop	Nighttime stop (7 p.m.–7 a.m.); 1 = yes	46%	36
Vehicle age	Age of vehicle in years	8.1	-
Moving traffic Violation	Stop made for moving violation; 1 = yes	82%	32
Equipment violation	Stop made for an equipment violation; 1 = yes	13%	22
Contraband Discovered	Contraband discovered during stop; 1 = yes	.3%	11

the stops (age, race, gender, complaint history, etc.) and on the areas where the stops occurred (racial composition, arrest rates, social disorganization, etc.). The variables used in the analysis and their means appear in Table 1.

Suspicion Analysis

To address the question of whether police suspicion varies according to citizen gender, we selected three items from the citizen contact card to serve as dependent variables in the logistic regression models described below. According to the data-collection protocol, officers were instructed to indicate on the contact cards whether they completed a Field Interview (FI) card for the driver or whether they requested a record check for the motorist or the vehicle involved in the stop. An FI card, which is separate from the citizen contact card, is completed when officers suspect that a citizen may be involved in criminal activity and wish to create a record of the stop. FI cards are kept on file and are

used to generate leads if a crime is later reported in the area where the stop occurred. They capture identifying information on the citizen (name, address, physical description, date of birth, etc.) and provide a brief description of the location and suspicious circumstances surrounding the stop.

Not all traffic stops conducted resulted in the completion of an FI card, even those made specifically for investigative purposes or which resulted in an arrest. In fact, FI cards were completed in only 14 percent (n = 9,098) of all traffic stops recorded during the data-collection period and in 40 percent of the stops made to investigate possible criminal activity (n = 349/870). Even in arrest situations, officers completed FI cards only 62 percent (993/1,614) of the time. Thus, the completion of an FI card is a discretionary activity typically undertaken when officers suspect that a citizen has committed or may soon commit a crime and when the officer believes that the stop should be memorialized for future investigatory purposes. As such, FI cards serve as an indicator of suspicion above and beyond the legal justification present to support an investigative detention or an arrest.

In addition to the FI card variable, the citizen contact cards contained information on whether officers requested computer record checks of motorists or vehicles involved in the stops. Officers requested these checks over their radios to determine whether motorists had valid driver's licenses or had warrants on file for their arrest. They also requested checks on vehicles to obtain registration information or to ascertain whether a vehicle or its license plates were stolen. Of the 66,109 traffic stops recorded, 25 percent resulted in a record check of a motorist (n = 16,518) and 11 percent in a record check of a vehicle (n = 7,372). These items served as dependent variables in the suspicion analysis and thus as proxy indicators for suspicion on the part of officers.

Using these variables, then, we estimated three separate logistic regression models, the results of which are presented together in Table 2. The principal independent variable of interest in the models was driver gender, coded 0 for male and 1 for female. Also included in the models were a number of additional independent and control variables. In addition to gender, and following the police discretion literature, we included two additional driver-related demographic variables: age and race. Race was dummy-coded for Blacks and Hispanics. Non-Hispanic Whites served as the referent category. *Stop Context* variables were taken from the contact cards and were included in the models either because they have been associated with gender or racial differences in previous studies of police traffic stops (Alpert Group, 2004) or because they appeared logically related to police suspicion. Thus, dummy variables were computed for stops made for moving traffic violations and for equipment violations, with investigative stops serving as the referent category. In addition, variables were included for vehicle age and whether the stop occurred during the nighttime (7 p.m. to 7 a.m.).

In order to control for possible neighborhood-level influences on suspicion, we created dummy variables for each of the 258 census tracts in unincorporated

Table 2 Logistic regression estimates for police suspicion

	FI card		Record check of person		Record check of vehicle	
Variable	Coeff.	Odds	Coeff.	Odds	Coeff.	Odds
Suspect gender	−.73**	.48	−.59**	.55	−.35**	.71
Suspect age	−.02**	.98	−.02**	.98	−.01**	.99
Suspect Black	.44**	1.56	.30**	1.35	.22**	1.24
Suspect Hispanic	.29**	1.33	.08**	1.09	.00	1.00
Nighttime stop	.49**	1.63	.64**	1.90	.56**	1.75
Vehicle age	.03**	1.04	.03**	1.03	.03**	1.03
Moving viol.	−1.09**	.34	−.81**	.44	−.76**	.47
Equip. viol.	−.71**	.49	−.44**	.65	−.55**	.57

Note. FI card model: n = 62,926; chi-square = 6,111.72; pseudo-r square = .17. Record check of person model: n = 62,926; chi-square = 7,416.90; pseudo-r square = .16. Record check of vehicle model: n = 62,926: chi-square = 3,662.73; pseudo-r square = .11

Miami-Dade County where traffic stops took place and included them in the regression models discussed below. Although we considered using an HLM approach to account for the nesting of stops within tracts, we elected to use tract-level dummy variables and traditional logistic regression modeling for two reasons. First, although we had some census-tract level variables in the data set that might be of interest (e.g., racial composition, percent owner-occupied housing, residential stability, etc.), our theoretical focus was on the influence of gender on suspicion, and subsequently, on the arrest decision. Since we sought to measure the influence of gender *independently* of neighborhood context, it made sense to control for neighborhood characteristics rather than examine them as variables of interest.[3] Second, creating dummy variables for each census tract allowed us to control for all census-tract related characteristics—not just those for which we had data. We treat these characteristics as unobserved, thus allowing them to be arbitrarily correlated with stop-level characteristics (Wooldridge, 2002, pp. 328–331).[4]

3. We agree with one of the reviewers of our paper that community context can play an important role in police decision-making (see Smith, 1986). We note only that our analysis was theoretically driven, rather than exploratory, which mitigated against the inclusion of community-level variables in the models. For the same reasons, we, like others who have examined police discretion (Smith et al., 1984; Visher, 1983), also did not include officer characteristics in our analysis. Moreover, we did not control for officer characteristics in the models (like we did for census tracts) because no single officer accounted for more than 1 percent of the total number of stops, and the sheer number of officers represented in the data (more than 1,600) suggested that officer characteristics were not true level 2 variables (see Raudenbush & Bryk, 2002). We confirmed this by re-running the models without the high-stop officers included (greater than 2 standard deviations away from the mean), which produced no substantive changes to our findings.

4. In the interest of brevity, we do not report the 257 census tract-based dummy variables in the tables below. The full results of the regression analyses are available from the authors upon request.

Arrest Analysis

Our theory of suspicion and police decision-making suggests that suspicion will have an influence on the probability of arrest and will operate to mediate the effect of gender on the arrest decision. Because police are likely to be more suspicious of men than of women, some of the gender disparity in arrests may be driven by suspicion rather than by gender per se. In order to test for these possibilities, we estimated two logistic regression models with arrest as the dependent variable. In the first model, we included gender but did not include the suspicion variables. In the second model, we included both gender and the suspicion variables (FI card, record check of person, record check of vehicle) to determine whether gender remained a significant predictor of arrest once suspicion was controlled for and to gauge the impact of suspicion on arrest net of other factors. Again, custody arrest served as the dependent variable for this analysis. Out of the 66,109 stops recorded, 1,614 (2.4 percent) produced an arrest. Eleven percent of those arrests involved females (n = 176), while the remainder were males. In both models, we included the independent and control variables discussed previously.

Limitations

We investigate the linkages between gender, suspicion, and arrest under the generalized assumption that police come into more frequent contact with men as criminal suspects than women. Our analysis is confined to the research questions outlined above and is constrained by the limitations of the data. Although the Miami-Dade County data represent an extraordinarily rich source of information on police traffic stops in a major metropolitan area, they were collected as part of a racial profiling study and are limited in scope. For example, the data set does not include a number of important variables that, based on prior research (Klinger, 1996; Lundman, 1998; Novak et al., 2002; Riksheim & Chermak, 1993: Smith & Visher, 1981; Visher, 1983), we would have preferred to include in our analyses, including information on the presence of bystanders, the demeanor and social class of the suspect, the nature of the offense, and the strength of the evidence, among others. Had they been included in our models, these variables might have affected the outcome of our analysis.

Another concern related to the data is their source. The contact card data were self-report data captured by officers in the field, and officers were required to identify themselves on the contact cards. Given the concern over the accuracy and reliability of racial profiling data captured elsewhere (Landis, 2001), it is appropriate to question whether officers were being truthful in their responses. As to this issue, we conducted a number of checks to help determine whether the data being reported were accurate.

As officers submitted cards, their sergeants checked them for accuracy and completeness. Cards with missing or inappropriate data were returned to the

officers for correction. Three validity checks were performed to determine if the data were valid. First, a workload analysis determined that the number of traffic tickets issued by officers did not change significantly from previous years. Second, an analysis of Signal 19 radio calls (radio calls for traffic stops) ascertained that the number of stops reflected in the contact cards was consistent with the number of traffic stops reported by officers over the radio. Third, a random sample of thirty contact cards was pulled, and the citizens' color pictures from the Department of Highway Safety and Motor Vehicles were printed and compared to the race indicated by officers on the contact cards. In all but one case, the race and gender reported by the officers was confirmed by the pictures. In addition, we note that officers were assured in writing by the chief of the Miami-Dade County Police Department, with support from the Police Benevolent Association, that no individual would be disciplined as a result of the data collection. This perhaps adds confidence that the data were reported accurately.

Finally, our findings represent an initial and partial test of our theory. They are based on data from a single police department and cannot be generalized. Our hope is that future analyses will shed further light on the role of scripts in the development of police suspicion and on how suspicion impacts police decision-making. Until our findings are replicated with other sources of data and extended in other cities, they should be viewed as preliminary.

Findings

Gender and Suspicion

Consistent with our theoretical constructs set forth above, the level of police suspicion differed substantially for males and females (Table 2). Across all three measures, females were less likely than males to trigger suspicion. The gender effect was strongest in the F.I card model but was significant in the other two models as well. Suspect age had a moderate influence on suspicion, and the direction of the effect was as expected—older suspects engendered less suspicion among police than younger suspects across all three models.

In contrast to age, suspect race was a stronger predictor of suspicion, especially for Black suspects. Consistent with most of the existing literature on racial profiling, which shows racial disparities in the outcomes of traffic stops (Engel & Calnon, 2004; Farrell, McDevitt, & Bailey, 2004; Farrell, McDevitt, Cronin, & Pierce, 2003, Harris, 2002; Smith & Petrocelli, 2001; Smith et al., 2003), all models showed increased suspiciousness by police of Black motorists. Two of the three models also showed increased suspiciousness of Hispanic drivers as well, but the associated probabilities were considerably lower for Hispanics than for Blacks, especially in the record check models.

Not surprisingly, police were more likely to be suspicious at night than during the day. The nighttime stop variable was strongly and consistently correlated

with suspicion in all three models. In contrast, vehicle age was consistently but only weakly associated with suspicion. If viewed as a crude proxy for socioeconomic status, the vehicle-age variable operated in the expected direction; police were more suspicious of drivers of older vehicles than of newer police vehicles.

Stops made for moving traffic violations and equipment violations were substantially less likely than investigative-based stops (referent category) to result in suspicion after the stops occurred. Investigative stops, at a minimum, must be supported by reasonable suspicion that the vehicle or its occupants are involved in criminal activity (*Delaware v. Prouse*, 1979; *Terry v. Ohio*, 1968). As a result, police should have some minimum level of suspicion before initiating these stops. The findings suggest that the initial suspicion giving rise to an investigative stop will have a higher probability of ripening into a record check or the completion of an FI card than in stops made for traffic infractions or equipment violations.

Although the chi-square scores for all three models were significant, the models do not include a selection of variables that prior research has suggested may influence police attitudes or behavior. Chief among these is information on suspect demeanor or other behaviors that may affect suspicion. With some exceptions (Klinger, 1994), most researchers have found that suspect demeanor influences the arrest outcome (Lundman, 1994; Visher, 1983; Worden & Shepard, 1996). It is plausible that demeanor may also influence suspicion. Similarly, social psychologists have documented behavioral cues associated with deceit that may increase the likelihood of suspicion on the part of an officer (Vrij et al., 2000). In all likelihood, a variety of factors probably influence the level of police suspicion in any given police–citizen encounter. Due to limitations in our data, the suspicion models discussed above, as with most in the behavioral sciences, could be specified more completely.

Suspicion, Gender, and Arrest

The findings from Table 3 indicate that suspicion is a significant predictor for arrest, net of other factors. In fact, except for the presence of contraband, the suspicion variables increased the probability of arrest more than any other variable in the second arrest model. As noted above, we did not have data on the nature of the offense, which prior research demonstrates also has a significant impact on the arrest decision (Klinger, 1994, 1996; Lundman, 1994; Smith & Visher, 1981; Worden, 1989). However, the magnitude of the coefficient for the suspicion variables suggests that suspicion is an important factor in arrests that has been overlooked in the existing literature on police discretion.

Unlike the general measures of police attitudes available to Worden (1989) in his analysis of the PSS data, our measure of suspicion was situationally dependent. Thus, it perhaps represents a blending between traditional attitudinal measures of cynicism or role orientation and situational variables such as the

Table 3 Logistic regression estimates for arrest

	Model 1		Model 2	
Variable	Coeff.	Odds	Coeff.	Odds
FI card	–	–	1.41**	4.10
RChkPerson	–	–	1.18**	3.26
RChkVeh	–	–	.79**	2.201
Suspect gender	−1.04**	.35	−.73**	.48
Suspect age	−.01**	.99	.00	1.00
Suspect Black	.34**	1.41	.16	1.17
Suspect Hispanic	−.02	.98	−.11	.89
Nighttime stop	.68**	1.97	.41**	1.50
Vehicle age	.05**	1.06	.04**	1.04
Moving viol.	−.50**	.61	.01	1.01
Equip. viol.	−.75**	.47	−.44**	.64
Contra. found	4.28**	72.39	3.61**	36.95

Note. Model 1: n = 62,926; chi-square = 2,032.97; pseudo-r square = .15. Model 2: n = 62,926; chi-square = 3,920.24; pseudo-r square = .29.

nature of the offense. To the extent that the suspicion variables capture how officers feel about the probability of criminal involvement by a suspect, they probably overlap with measures of evidentiary strength found in other studies. However, the theoretical basis for our research suggests that suspicion is triggered because of pre-existing cognitive scripts. Scripts, then, can be thought of as unconscious attitudes that are triggered by existing circumstances and which clearly have an influence on discretionary decision-making.

In addition, and consistent with our specified theory, suspicion served to mediate the influence of gender on the arrest outcome, although the mediative effect was not strong. In the first model, without the inclusion of the suspicion variables, the coefficient for gender was significant and in the expected direction—females were less likely to be arrested than males. When the suspicion variable was added in the second model, gender remained a significant predictor for arrest, but the size of the coefficient dropped by approximately 26 percent. Thus, suspicion appeared to account for some of the influence that gender had on arrest, but it did not eliminate it. Nonetheless, police in Miami-Dade County were more suspicious of males than of females, which provides a partial explanation for why men were more likely to be arrested than women. Although not the focus of this paper, we also note that suspicion mediated the effect of suspect race to an even greater degree than gender. In fact, the coefficient for Black suspects became non-significant (although it approached significance at p = .55), and the impact of race on arrest was less than half of what it was before suspicion was accounted for in the second model.

Interestingly, moving violations, which decreased the probability of arrest without controlling for suspicion (Model 1), dropped out as a significant predictor

of arrest once suspicion was added to the second model. On the other hand, stops based on equipment violations continued to show a decreased likelihood for arrest. Taken together, these findings suggest that suspicion plays a greater role in the outcome of stops made for moving traffic infractions than in stops for equipment violations. Officers may be more wary of drivers who commit moving violations than of drivers with minor equipment problems with their automobiles. Moreover, because the equipment violation coefficient remained strongly negative in the second model, MDPD officers did not appear to use equipment violations as a common pretext for stopping those suspected of criminal activity (*Whren v. United States*, 1996). If that were the case, the addition of the suspicion variables would be expected to have a stronger mediative effect on the negative relationship between stops for equipment violations and arrest.

Discussion and Conclusion

Our theory of differential suspicion suggests that police may develop suspicion scripts based on repeated criminal contacts with particular subgroup populations. As the result of these unconscious, cognitive schemas, police are likely to be suspicious of groups who they repeatedly encounter in street-level situations involving crime and violence. Likewise, once imprinted with these scripts, police are likely to act upon them when making discretionary decisions, which may result in the disproportionate application of sanctions or other burdens to certain groups.

The preceding analysis presents an examination of selected components of this theory using suspect gender as the principal independent variable of interest. We hypothesized that police would be more suspicious of men than of women, that suspicion would predict arrest net of other factors, and that as a mediating variable, suspicion would attenuate the relationship between gender and arrest. Using three measures of suspicion taken from a large traffic stop data set in Miami-Dade County, Florida, and after controlling for available variables related to suspect characteristics, neighborhood context, and the stops themselves, we verified that police were significantly more suspicious of men than of women in traffic-stop encounters. Specifically, suspect gender was strongly correlated with the decision by officers to complete a field interview card or to request a record check of the driver or his vehicle.

Next, we found that suspicion was strongly associated with the decision to arrest and that it had a modest, attenuating affect on gender and arrest. With the exception of the discovery of contraband, the suspicion variables had by far the strongest influence on the decision by police to arrest. The addition of suspicion variables to an existing logistic regression model of arrest modestly reduced the impact of gender on the probability of arrest. This finding was consistent with our theory that suspicion helps explain some of the observed differences in the likelihood of arrest among men and women. Nevertheless, gender remained a statistically significant predictor of arrest even after controlling for suspicion.

This suggests that at least for males and females, other factors besides suspicion continue to operate and drive police decision-making.

The implications of these findings for our theory of differential exposure are several-fold. Clearly, Miami-Dade officers were more suspicious of men than of women, and this suspicion was strongly associated with the decision to arrest. Thus, our findings are in accord with those of other researchers who have documented greater police suspicion of males and generally more punitive treatment of males compared to females (Engel & Calnon, 2004; Willemse & Meyboom, 1978). Again, while our analyses do not constitute a discrete test of our theory, the findings are consistent with a theory of cognitive bias based on differential exposure by police to crime among males. At this point, research is needed that explores more directly how unconscious police bias can affect discretionary decision-making as it relates to gender.

Testing our theory among the police in real-world settings poses significant challenges. Assuming that exposure of the police to higher levels of criminality among males is the norm, ideally, researchers would look for a sample of officers exposed primarily to criminality among females to serve as a comparison group for the purpose of testing our theory. Given the distribution of gender and crime in society at large, such a sample would be difficult to find in most police settings. One plausible research strategy may be to examine differences in gender treatment by campus police officers at predominately male and female colleges, although levels of criminality in either setting may be too low to trigger bias scripts. Alternatively, researchers could assess discretionary decision-making among an analogous professional subgroup—juvenile or adult correctional officers—assigned to male and female correctional institutions. Examination of actual decision-making or responses to hypothetical decision-making vignettes (involving male and female inmates) in an experimental setting could yield differences in gender treatment among officers exposed to primarily male or female offenders. Graham and Lowery (2004), for example, subliminally exposed a sample of police and probation officers to race-related words in an experiment that uncovered differences in racial attitudes among those exposed to racial stereotype words compared to those exposed to race-neutral words. A similar procedure could be undertaken with gender as the priming variable and experimental groups comprising correctional officers assigned to male and female institutions.

Finally, while not the primary focus of this research, our theory on differential suspicion also may provide insight into understanding why some officers treat minorities differently from Whites in discretionary situations. In contrast to gender, suspect race had a non-significant impact on arrest once suspicion was held constant (see Table 3). Thus, suspicion mitigated the influence of race on arrest in a more powerful way than for gender. This suggests that suspicion scripts of Blacks may have greater salience for police and may influence decision-making more directly. Furthermore, our theory suggests that these suspicion scripts may develop as the result of disproportionate contacts by police with Black offenders.

However, because Black drivers comprised the majority of those stopped in only three of Miami-Dade County's eight police precincts (Alpert Group. 2004), most officers represented in the data did not routinely stop large numbers of potential Black offenders. Thus, our theory of differential exposure would appear to require some modification as a general explanation of police behavior toward racial minorities. As we suggested above when specifying our theory, differential exposure to group criminality as a causative mechanism for the development of suspicion scripts is most plausible for officers who disproportionately contact minority offenders. Officers who possess unconscious biases toward racial minorities but who are not differentially exposed to such groups could be demonstrating a different sort of cognitive bias, perhaps one grounded in social learning (Kowalski, 2003; LaViolette & Silvert, 1951) or illusory correlation (Hamilton & Gifford, 1976) mechanisms.[5] Thus, at this early juncture, we urge caution in extending our gender-based theory of differential exposure to help explain police behavior toward racial minorities.

With that caveat in mind, research that focuses on the connections between race, crime, and suspicion is needed to help explore the causes of racial profiling and to assist law-enforcement administrators in managing it. In particular, future research should address how disproportionate exposure to particular groups of offenders may create scripts that make officers more suspicious of certain races. To do this, researchers could compare the attitudes and actions of officers at high risk for developing racially dependent scripts to those that are less likely to have them. For example, the attitudes and actions of officers assigned to beats with high concentrations of crime and minority residents could be compared to those of officers assigned to beats that have lower crime rates and more racially heterogeneous or predominantly White populations. Along the same lines, research that compares the attitudes and behaviors of seasoned officers to new officers could also shed light on this subject.

Our theory of differential suspicion also has relevant policy implications. By identifying predictors of suspicion, police departments can better understand why officers may act in a seemingly biased manner in discretionary situations. Engel and Calnon (2004) suggest that even though males are three times more likely to be searched by the police, searches of females are just as likely to produce contraband. Similarly, they report that while Blacks and Hispanics are significantly more likely to be searched by the police than Whites, searches of Caucasians were twice as likely to produce contraband than searches of non-Caucasians. This may suggest that basing suspicion on gender and race is inaccurate and efficient. Considering the strength of the relationship between gender and suspicion found in our data, police departments may want to respond with policies that promote gender and race neutrality with respect to suspicion-related activities such as the completion of FI cards or the running of record checks.

5. Illusory correlation refers to the cognitive tendency to overestimate infrequent or otherwise unique events that occur among small (e.g., minority) groups.

Since our theory explains that suspicion is based on cognitive scripts that are developed by disproportionate exposure to certain groups of offenders, policies that focus on breaking down those scripts can be key to changing officer attitudes and behavior. For example, officers assigned to a predominantly minority, high crime area for an extended period of time may develop scripts that make them suspicious of minorities in general. Regularly changing officers' beat assignments based on crime characteristics and neighborhood demographic factors could help prevent the development of those scripts. Similarly, officers that work in specialty units (e.g., gang or juvenile) that bring them into disproportionate contact with young, male, minority offenders may also develop these scripts. Rotating officers out of these units at regular intervals may help to reduce the development of racial stereotypes.

This research set out to develop a theory of police behavior that focuses on how police suspicion may be created by differential exposure to particular groups of offenders and how this suspicion mitigates the effects that individual characteristics have on police encounters with the public. Our data indicate a relationship between key suspect characteristics (gender and race) and police suspicion. They also show that suspicion mediates the relationship between suspect characteristics and the probability of arrest.

Conventional views on racial or other types of profiling focus on discriminatory intent. In fact, proof of purposeful discrimination is a necessary component of an Equal Protection-based claim of racial profiling (*United States v. Armstrong*, 1996). Our theory of differential suspicion, however, suggests that if racial or gender profiling is occurring, it is most likely the result of subconscious influences on attitudes and behaviors possibly caused by differential exposure to group criminality or some other unconscious cognitive mechanism. No one argues that gender animus is responsible for the overrepresentation of males in police traffic stops. Yet that is the first explanation many give for observed racial disparities in traffic stop data. Differential exposure theory offers an alternative argument for the existence of group disparities in discretionary outcomes and provides fertile ground for future researchers to explore the causes of these disparities. In providing what is clearly just a beginning for this line of inquiry, though, our research answers the call of Engel et al. (2002) for a theoretically driven approach to the study of police traffic stops and lays the groundwork for a body of knowledge that may begin to provide causal explanations of police officer behavior.

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