

GENDER DIFFERENCES AND PERCEIVED SANCTION THREATS: THE EFFECT  
OF ARREST RATIOS

By

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When studying perceptions of punishment certainty, researchers often focus on either the effects of actively engaging in crime or the effects of formal sanctioning, and occasionally both. Studies that have combined each of these angles have found that it is important to assess arrest ratios when examining individuals' sanction perceptions. However, studies that have examined arrest ratios and perceived sanctions have focused only on male offenders. This paper furthers the research on this topic by examining a sample of male and female Colorado inmates and measuring arrest ratios and sanction perceptions for eight different crime types. OLS regression analyses reveal that gender differences are evident among the sample, with males reporting significant experiential effects for five out of the eight crimes as well as reporting arrest ratio effects for five of the crimes. Females reported no significant experiential effects and female offenders in only one crime type showed arrest ratio effects. Limitations and implications of this research are then discussed.

## CHAPTER 1 INTRODUCTION

Deterrence and rational choice literature has gone down many paths, first measuring deterrent effects of sanctions at aggregate levels (Gibbs, 1968; Tittle, 1969; Chiricos and Waldo, 1970), and then realizing that deterrence is a perceptual theory, at the individual level (Waldo and Chiricos, 1972). Relating one's perception of sanctions to their behavior is a key method of measurement used to support or refute the deterrence doctrine as it relates to crime participation. Many researchers have used this same or similar measure to capture how an individual's past behavior can relate to the current perceptions and further how current perceptions affect future criminal behavior.

Once it was determined that micro-level research seemed to be the way forward, deterrence research continued to branch out, encompassing research investigating formal and informal sanctioning (Anderson et al., 1977; Green, 1989; Williams and Hawkins, 1986), certainty and severity (Waldo and Chiricos, 1972; Stafford et al., 1986; Grasmick and Green, 1980), experiential and deterrent effects (Greenberg, 1981; Saltzman et al., 1982), generalized others versus specific deterrence (Jensen et al., 1978; Paternoster et al., 1983a; Silberman, 1976), as well as encompassing a multitude of different offenses and deviant behaviors. Although the deterrence literature has been abundant, this body of research has resulted in conflicting evidence depending on the data employed or the behaviors measured (Nagin, 1998). These mixed results, along with additional gaps in the research, make the deterrence doctrine and the rational choice framework a continued interest in criminological work. One particular example of this kind of gap is that

researchers have been keenly interested in the experience of crime, the experience of sanctioning, and the effects of gender on deterrence, yet no study has examined how these key variables interact. Horney and Marshall (1992) elaborate on this issue:

The interpretation of the negative correlation between perceived risk and self-reported criminality as a rational experiential effect rests on the implicit assumption that people are generally successful in committing crimes. If, on the other hand, people commit illegal acts but are caught and sanctioned, a rational choice perspective would predict that the experiential effect would be modified; people whose deviant behavior results in negative sanctions would (realistically) perceive punishment as more certain than those who violate the law with impunity. It is thus important to consider not only whether individuals engaged in criminal behavior, but also whether they have experienced formal sanctions as a result of that behavior. (p. 576-577)

With this line of reasoning in hand, several types of questions appear to guide the path through the extant literature and the current focus of this study. This research is guided by questions basic to the deterrence doctrine, including 1) does the experience in formal sanctions have a deterrent effect, 2) is the experiential effect evident among a group of offenders, 3) do perceptions of sanctions influence behavior, 4) is there a relationship between the perceived risk of sanction, experience in crime, and the experience of formal sanctions, and 5) what role does gender play within the deterrence process.

## CHAPTER 2 REVIEW OF LITERATURE

### **Deterrence Theory and Formal Sanctions**

When deterrence theory emerged as an area of emphasis in the 1960s, mixed reviews of its utility and validity were identified. Some of the early literature regarding the deterrence doctrine found varied magnitudes of support for its basic tenet that punishment, or the threat thereof, has an inverse relation with crime participation, especially in regards to the certainty element of criminal deterrence (see Anderson et al., 1977; Burkett and Jensen, 1975; Blumstein, Cohen, and Nagin, 1978; Cohen, 1978; Geerken and Gove, 1975; Jensen, 1969; Jensen, Erickson, and Gibbs, 1978; Kraut, 1976; Silberman, 1976; Tittle and Rowe, 1973; Waldo and Chiricos, 1972). More recent research has shown support for the deterrence doctrine (see Nagin, 1998 for a review), including research that has used a variety of approaches to measure the different aspects of deterrence. For example, Stafford et al. (1986) found that a theory of deterrence fits substantially better when certainty and severity measures are used interactively rather than in an additive fashion. This is similar to the conclusion that Grasmick and Green (1980) drew from their research in which they found that certainty and severity interacted and could be operationalized as the perceived threat of legal punishment. Furthermore, they concluded that perceived threats of legal sanctions, moral commitment to the law, and social disapproval could be included into a simple additive model that reveals a deterrent effect of the variables.

Additional research has also gone in many different, non-traditional directions, including examining deterrence with different types of deviance such as shoplifting (Kraut, 1976), cheating (Tittle and Rowe, 1973), intimate violence (Miller and Iovanni, 1994; Miller and Simpson, 1991), traffic violations (Cohen, 1978), parking violations (Chambliss, 1966) and drug use (Anderson et al., 1977; Burkett and Jensen, 1975; Waldo and Chiricos, 1972; Smith and Paternoster, 1987), as well as utilizing different types of samples. Some have aimed at expanding the utility and universe of the deterrence doctrine, such as Piquero and Rengert (1999) who examined active residential burglars' perceptions of risks and rewards through hypothetical scenarios of house burglaries. They found that when burglars faced a hypothetical burglary situation with a high probability of being caught, they were less likely to commit the crime, suggesting support for deterrence. In another twist, Maxwell and Gray (2000) examined the perceived certainty of sanctions among respondents who participated in an Intensive Supervision Probation program in New Jersey. They found that there was a positive effect for the probationer's perceived certainty of sanctions and length of time staying in the program.

Some research has focused on whether the experience of formal sanctioning, as opposed to perceptions of risk, does in fact indicate a deterrent effect. As with many other aspects of the deterrence literature, results of these studies have also produced mixed results. Some research has found evidence of a deterrent effect, including an early (and likely methodologically problematic) study that found that for parking violations, an increase in certainty and severity of punishment provided a deterrent effect (Chambliss, 1966). In addition, Kraut (1976) found that apprehension increased shoplifters' estimates of formal risk, a finding similar to that of Paternoster and colleagues (1985) whose

analysis suggest, “that an increase in being formally sanctioned is related to an increase in the perceived likelihood of one’s own punishment” (p. 426). Piliavin et al. (1986) also found partial support that the number of prior arrests and experience in crime affected the respondent’s risk perceptions, but this pattern was only seen in the youth portion of their sample.

Nevertheless, it seems that much of the research has found little or no support for the deterrent effects of formal sanctioning (Williams and Hawkins, 1986). Burkett and Jensen (1975) found minor evidence that suggested being caught did not affect the relationship between risk perceptions and self-reported behavior. Similar conclusions were drawn by subsequent researchers, where Greenberg and colleagues (1979) suggested that there was no deterrent effect for formal sanctions and two sets of studies conducted by Richards and Tittle (1981, 1982) found no significant relationship between arrest experience and risk estimates. This finding is also supported among a sample of college students responding about drinking and driving when Lanza-Kaduce (1988) found that the being stopped by police does not affect risk perceptions. Piquero and Paternoster (1998) also considered drinking and driving and found that the experience of arrest did not significantly affect projections to drink and drive. Apospori and colleagues (1992) also found no support for a deterrent effect of sanctioning when examining a group of respondents with varying levels of experience with the criminal justice system.

Although it seems that there is much evidence to suggest a lack of deterrent effect of punishment, methodological issues might have lead to misleading results. One criticism is that the samples of respondents employed often lack in the number of people who have experienced sanctions (Horney and Marshall, 1992). Another issue is related

to the measurement of arrest as an absolute number. Richards and Tittle (1982) state regarding their own research:

It would have been better if we could have employed a relative measure such as number of times arrested relative to number of times that the individual violated the law. This would have enabled us to more realistically tap the kind of experiences that logically ought to influence perceptions about arrest chances. (p. 341, see also Horney and Marshall, 1992)

This would support the use of arrest ratios over raw counts in order to assess how experience in crime *and* arrest play a role in the deterrence process.

A third criticism deals with the measure of general sanctioning, rather than specific, when interpreting the deterrent effect. This refers to measuring overall arrests, rather than crime-specific arrest counts. This issue is identified by Horney and Marshall (1992):

If *any* arrest makes the risk of arrest for *all* crimes a more credible threat, then these measures [general measures of formal sanctions] should be related to perceptions of risk for each crime. If, however, an arrest for writing a bad check changes the estimates of the likelihood of an arrest for writing a bad check but does not change the perceived risk of using marijuana, predicted relationships may go undetected when measures of general sanctions rather than crime-specific sanctions are used. (p. 578, emphasis in original)

As a result of the combination of extremely varied results and methodological issues, early deterrence research has left the state of deterrence theory a bit cloudy and researchers have questioned the findings regarding the deterrence doctrine (see Greenberg, 1981; Erickson, Gibbs, and Jensen, 1977; Minor and Harry, 1982, Saltzman et al., 1982; Williams and Hawkins, 1986). In a comprehensive review of the state of deterrence theory research, Nagin (1998) discusses the many different techniques used in deterrence research and the limitations and gaps that extant research faces. Although noting that research thus far is flawed, he concludes that the American justice system *does* provide a deterrent effect on crime but that the current limitations make specific deterrent predictions difficult.

### **Problems with Deterrence Theory Research**

There has been a variety of research that finds that the deterrence doctrine is lacking in several aspects. As early as 1972, some research had called into question specific aspects of the deterrence doctrine, with Waldo and Chiricos (1972) finding that even though perceptions of certainty impact participation in crime, the perceptions of severity of punishment have no effect. Although Green (1989) did find a deterrent effect, his study found that for drinking and driving, deterrence was only present when considering informal and not formal sanctions.

In an even stronger argument against deterrence, Piliavin and colleagues (1986) declared that deterrence and rational choice models of crime are too simplistic, and once other factors (i.e. sex, previous crimes committed, etc.) are added into the model, neither the perception of formal nor personal risks determined future behavior (see also Burkett and Jensen, 1975). Some research has even suggested that there is no true deterrent effect at all for formal sanctions (Richards and Tittle, 1981,1982; Greenberg et al., 1979). In addition, there have been numerous studies which argue that a key issue that is problematic in the early deterrence research is that the methodologies used in these studies prevented researchers from ciphering out experiential effects from deterrent effects. Here, researchers were concerned with the temporal ordering of the key deterrent variables, realizing that the deterrent effects that emerged came from measuring the inverse relationship between prior behavior and current perceptions. However, researchers began to question whether the deterrent effect was actually being captured or whether this type of research was actually revealing an experiential effect of being involved in crime (see Greenberg, 1981; Saltzman et al., 1982; Paternoster et al., 1983a, 1983b; Minor and Harry, 1982). This issue has been further examined by numerous

researchers and found to be an important aspect of deterrence research. The next section reviews the current state of literature regarding the role of experiential effects in deterrence research.

### **Experiential Effects**

Although he never used the term ‘experiential effect,’ Greenberg (1981) clearly addressed this issue in his response to Grasmick and Green’s (1980) study that had claimed to find a deterrent effect for three control-inhibitory variables on criminal behavior. Greenberg argued that this claimed deterrent effect could be interpreted differently, emphasizing the possibility that Grasmick and Green had reversed the causal order of the variables. This meant that the variables (threat of legal punishment, social disapproval, and moral commitment to the law), which Grasmick and Green claimed inhibited participation in crime, could actually be the consequences of involvement or non-involvement in crime. In order to help solve this problem, Greenberg suggested that the use of longitudinal or panel data is needed and that cross-sectional data, like that used by Grasmick and Green, are inadequate. Grasmick (1981) responded to these criticisms by arguing that the data were not determining causality, but just inferring it based on a set of assumptions and that the importance of the study was to bring together the refinement of the measurements of deterrence and the confounding variables of various theories of crime. Furthermore, he argued that the data currently available at the time did not allow for researchers to conduct the ideal tests of deterrence and other theories of crime. Thus what was important was to develop measurements and theory that can later be tested with more adequate data.

One group of colleagues attempted to overcome the limitations of the early deterrence studies by following Greenberg’s (1981) suggestion and utilizing panel data

on the self-reported deviance of university students. Using longitudinal data, Saltzman et al. (1982) found that the experiential effect is much stronger than the weak support found for the deterrence doctrine, concluding that the “relationship between perceived sanctions and behavior is likely reciprocal and processual” (Saltzman et al., 1982, p 184; see also Paternoster et al., 1983a, 1983b). They found that since perceptions are not stable over time, the experiential effect will be its strongest when the deviant behavior has just occurred and that the effect of the behavior is strongest for first time users, suggesting a novelty effect. In another study, these researchers further expanded upon these findings by revisiting the issues of perceptual stability in samples of high school and college students (Paternoster et al. 1983b). They found that for both groups, little perceptual stability was evident, even within a six-month time span. Furthermore, they found that the experiential effect was consistently stronger than the weak (although in some cases significant) deterrent effect. They also found further support for their proposed novelty effect, with considerable declines in the perception of risk for first time offenders from Time 1 and Time 2. This same group of researchers further expanded on these initial lines of reasoning, noting that the effects of perceived sanctions on criminal behavior was minimal after controlling for factors such as moral commitment and informal sanctions (Paternoster et. al, 1983a).

In a study that replicates the findings of Saltzman et al. (1982), Minor and Harry (1982) found that perceptions of risk are not particularly stable and experiential effects are consistently larger and more often significant than deterrent effects. Additionally, Minor and Harry found that the experiential effect was strongest for those who originally had higher risk perceptions (suggesting a naiveté effect more than a novelty effect). In a

study that followed, Paternoster et al. (1985) tried to bring together the novelty effect found in Saltzman et al. (1982) and the naiveté effect from the Minor and Harry (1982) study. The authors found that those who were inexperienced in committing the crime had higher perceived certainty than the experienced offenders and that, in some cases, the inexperienced reduced their perceptions more so than those who were less naïve and less inexperienced after committing a crime. They also found that for petty theft and bad-check writing, a reduction in perceived certainty was significantly related to an increase in the behavior. Finally, they found that an increase in formal sanctioning was related to an increase in perceived certainty for the same two offenses.

Additional studies that examined the experiential effect have also been undertaken. Miller and Iovanni (1994) found support for an experiential effect for courtship violence, with the prior use of violence diminishing the perceptions of risk for intimate violence. Piquero and Paternoster (1998) tested Stafford and Warr's reconceptualization of deterrence and found that, as predicted, the more the respondents had successfully driven while drunk, the more likely they were to report intentions to drink and drive in the future. Apospori, Alpert, and Paternoster (1992) examined respondents with varying levels of experience in the criminal justice system in order to assess the interactive effect of experience in crime and prior involvement with the criminal justice system on sanction perceptions. They found support for the existence of an experiential effect and furthermore, found that those adults with more extensive experience in the criminal justice sanctions reported an even stronger experiential effect than those with little or no experience. Although this would be evidence contrary to deterrence, the authors suggested that this pattern might have been observed simply because those with more

experience in the criminal justice system are offending at much higher levels than those with little involvement (meaning that the experiential effect may not be working for those with limited offending experience). Another explanation offered was that due to the belief that one's chance of being arrested is small, once they are arrested, their chances of being arrested again will be reset and thus be unlikely (Pogarsky and Piquero, 2003).

Extant research has consistently found that the experiential effect is an important issue and contribution to the deterrence perspective; however, much is left to be explained. A review of the state of deterrence literature by Paternoster (1987) revealed that issues of temporal ordering and spurious relationships tended to diminish support for deterrence and iterated the importance of separating experiential from deterrent effects. Additionally, the current review reveals a need to take the experiential effect one step further to understand how arrest/formal sanctions operate within a rational choice model that takes into account previous offending. In addition, gender issues must be taken into account in order to fully understand deterrent and experiential impacts as well as further understanding differences between male and female offending. The next section will discuss what has been found so far regarding the role that gender plays in deterrence perspectives and their experience of committing and sanctioning of crime.

### **Gender and Deterrence**

Although largely ignored in the deterrence literature, the extant research that has addressed gender has generally found it to be an important factor to consider with the rational choice/deterrence perspectives. A large gap exists between the offense rates of men and women, with little research explaining such a gap. In the literature that has taken into account gender, much of it reported on differences between men and women using gender only as a control variable (see Anderson et al., 1977; Jensen et al., 1978;

Silberman, 1976; Tittle and Rowe, 1973). Moreover, researchers were often focusing on gender differences in delinquency (see Canter, 1982; Figueira-McDonough and Selo, 1980; Jensen and Eve, 1976; Smith, 1979), leaving much room to continue to explore gender issues within deterrence. Even in the early literature, the role of gender in delinquency and deterrence varied across different studies, with some research finding that gender had an important impact (Tittle and Rowe, 1973; Silberman, 1976) and other research finding that gender did not significantly contribute to deterrence components (Anderson et al., 1977<sup>1</sup>; Jensen et al., 1978).

Like many other aspects of the deterrence perspective, the role of gender within this process is currently not clearly defined, with extant research finding mixed results on how gender operates. When exploring marijuana use in males and females, Smith and Paternoster (1987) stated, “It is currently unclear whether sanction threats are a more effective deterrent for males or females” (p. 149). Although there is no agreement throughout the literature, one finding that has been replicated is that women tend to have higher perceptions of sanction certainty than do men.

Richards and Tittle (1981) were among the first researchers to focus on gender differences in perceptions of risk. They found that women had higher risk perceptions than men for all the offenses they were queried about, but were quick to note that these differences in perception could not account for the large disparity between men’s and women’s offending. Their results suggested that differential visibility and differential stakes in conformity were the most influential factors when explaining the differences

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<sup>1</sup> Anderson et al. (1977) actually found that the perceptions of both formal and informal sanctions impacted males more than females; however, the differences were so slight that they warrant a conclusion of “no differences by sex” (p.109).

between men and women and concluded that sanction risks may be interpreted differently depending on one's position in the social structure.

Additional studies have found evidence that supported the findings of Richards and Tittle (1981). Finley and Grasmick (1985) explored differences in genders and differences in traditional versus non-traditional females. They found that females in general report higher levels of perceptions of legal sanctions than do males and furthermore that traditional females seemed to be more susceptible to high perceptions of punishments than were non-traditional females. Similar results were found when Tibbet and Herz (1996) examined drunk driving and shoplifting in order to understand gender differences in rational choice variables and the effect those variables have on intentions to commit the offenses. First they found that nearly all of the rational choice variables differed significantly between men and women, with men perceiving lower levels of formal and informal sanctions. Second, they found that overall, the perceived threat of shame accounted for most of the gender effect on offending intentions.

In a throng of research derived from the Oklahoma City surveys, a similar pattern of gender and perceived threats emerged. Grasmick, Blackwell, and Bursik (1993a) looked at the relationship between gender and perceived threats of shame, embarrassment, and legal sanctions for petty theft and assault (all of which could be considered costs in the rational choice perspective). They first found that for all three perceived threats, women scored significantly higher than men, with a small amount of evidence suggesting that women and men were becoming more alike in their perceived threats during the years between the two survey administrations. In another paper, Grasmick, Blackwell, Bursik, and Mitchell (1993b) explored perceived threats of shame,

embarrassment, and legal sanctions in relation to interpersonal violence. Like before, men perceived all three threats as lower than women but that for the threat of embarrassment, men scored significantly higher in 1992 than in 1982. Blackwell and Eschholz (2002) reviewed the same data and also found gender to be significantly related to threat perceptions, but only found slight support for their prediction of gender convergence. Finally, Blackwell (2000) employed one wave of this data in a test of Power-Control Theory. She found a significant impact of gender on the perceived threats of legal sanctions, shame, and embarrassment. In addition, she also found that for the perceived threat of legal sanctions and embarrassment, these differences vary across household origin.

Despite the amount of research reporting gender disparities, several studies have led to different findings. Smith and Paternoster (1987) tested the need and importance of gender-specific theories of crime by studying male and female marijuana use. They found that for this type of offense, traditional theories were not gender specific and factors that influenced marijuana use were similar for males and females. They found that the effect of the perceptions of certainty on marijuana use had an equally significant negative effect for males and females, and concluded that, "It appears more likely that sex differences in the volume of deviance reflect *differential exposure* to factors that precipitate deviant behavior among both males and females" (p.156, emphasis in original). Along these same lines, Piquero and Paternoster (1998) concluded from their study of drinking and driving that there were many more similarities between men and women than there were differences and that the same general form of the deterrence model applied to both men and women. In addition, Uggen and Kruttschnitt (1998)

examined gender difference in crime cessation and concluded that regardless of gender, rational choice variables were of little value in predicting desistance from crime.

However, they did note that women were more likely to leave their criminal ways behind and remain crime free for longer periods of time, but they suggested that this could be attributed to how men and women hold different places in social life.

Finally, two related studies did find gender differences, but in the opposite direction of the previous studies. In the first, Miller and Simpson (1991) questioned whether the factors that affect male perceptions of violence influenced females in a similar manner. After analyzing data regarding courtship violence, they found that, overall, men and women feel differential perceptions of sanction risks and severity, with males perceiving more certainty in formal and informal sanctions. They also found evidence for an experiential effect in males that affected perceptions of formal and informal sanctions and for females in regards to attachment costs. In a similar study, Miller and Iovanni (1994) examined perceptions of risk regarding intimate violence and found that females' perceptions of arrest certainty were actually *lower* than males. In addition, they found that the effect of the prior use of violence (the experiential effect) showed the largest difference between genders with regard to the perception of formal risk and that males exhibited a significant experiential effect that was not found in females.

The extant research regarding gender and deterrence draw uncertain conclusions on if and how gender impacts the deterrence/rational choice process. It seems that a pattern has emerged suggesting gender is important to consider, and that females tend to perceive higher sanction threats than males, although this was not the case across all studies. There

is also some evidence to suggest that gender is not an important factor in deterrence and that in the case of rational choice variables, men are more similar to women. Overall, the findings from the extant research leave much to understand about the impact of gender on criminal involvement, including how experience in crime and arrest may operate differently for males and females, especially any offender samples.

### **Current Focus**

The point of departure for the current study is based on an earlier study that examined perceptions of sanction certainty and involvement in crime and punishment for a sample of male convicts. Horney and Marshall (1992) examined male, incarcerated felons in order to assess the relationship among the perceived risk of sanctions, arrest (sanction) history, and frequency of offending. The authors used a single-item measure of perceived certainty of arrest for nine different crimes and calculated an arrest ratio for the same crimes in order to determine the respondent's participation in crime. The first key conclusion they drew was that the experiential effect (an increase in participation in crime leads to a decrease in risk perception) is relevant for a sample of serious offenders, suggesting generalizability of the findings. As a result, the authors concluded that it is important to use a measure that takes into account the number of arrests related to the number of crimes committed when studying sanction variables (i.e., arrest ratio). This conclusion is drawn from findings which suggested that for eight out of the nine crimes assessed, differences in risk perceptions of active offenders from non-active offenders in that crime type were based on the ratio of arrests to offenses. Additionally, higher perceptions of arrest were found for those active offenders who experienced larger arrest ratios for four out of the six crimes that had at least 100 active offenders. The two offenses that did not fit this pattern were assault and auto theft.

In sum, the current state of deterrence research leaves much to be understood, and primarily how sanction perceptions are formed and modified in response to behavior and its consequences (Nagin, 1998). The current study aims to contribute to the gap of research that has left unexplained the extent to which the effects of experience in crime and arrest are perceived differently by females and males. By using a sample that includes both male and female felons, this research extends the current body of knowledge by expanding that line of research into the role of gender. Based on the review of the extant research, several predictions will be addressed in the current study. It is hypothesized that 1) the experiential effect will result in lower perceptions of certainty, 2) that arrest ratios will be important in that respondents who experience high arrest ratios will provide higher certainty estimates than those with low arrest ratios, and 3) females and males will react differently to the experience of crime and arrest, with females being more greatly impacted by these factors.

## CHAPTER 3 METHODOLOGY

### **Data**

The data employed in this study come from self-enumerated questionnaires completed by male and female inmates admitted into the Diagnostic Unit of the Colorado Department of Corrections (English and Mande, 1996). Beginning in July 1988, sampling was conducted one day a week through December 1989. Male respondents were selected by allowing correctional officers to select inmates who had been admitted within the last week from the most convenient cell block (inmates are randomly assigned to the cells) and this sample represented anywhere from 25-100 percent of that week's inmate intake population. For females, every *n*th inmate from an alphabetical list was selected during three separate visits to the Women's Facility and represented the entire population of female prisoners rather than the intake cohort. The respondents were surveyed in groups ranging between 10 to 20 inmates for the men and 35 to 45 for the women. Although the inmates themselves completed questionnaires, help was provided in calculating the number of street months and establishing a calendar for reference for the crime participation. Additionally, pictures were used along side short descriptions in order to assist the inmates in differentiating the crime types. The survey participation rate was approximately 90 percent; however, an unknown number of inmates also refused to leave their cells and never met with the researchers (although this is estimated to be less than 10 percent). Participants were either given a long form (65 pages) or a short form (45 pages) self-administered survey that was designed to assess criminal

involvement for the 12 months of street time (not incarcerated or hospitalized) prior to their current arrest. The long form version will be used for the current study, which includes 1146 respondents, with 91 percent male (1018) and 9 percent female (128).

### **Dependent Variable**

**Perceived certainty**—the perception of sanction certainty was measured for each crime that the respondent reported committing. Respondents recorded their perceptions of the chance of being arrested when they were engaging in each of eight crimes (burglary, robbery, assault, theft, motor vehicle theft, forgery, fraud and drug dealing) on a four-point scale: 1-low, 2-some, 3-high, and 4-certain. This particular measure was used for two reasons. First, crime-specific indicators were used for perception certainty in order to prevent certain relations from going undetected through a more generalized measure (Horney and Marshall, 1992), and second because perceived punishments for oneself have been found to provide stronger relationships with self-reported criminality than perceptions for a generalized other (Jensen et al., 1978; Paternoster et al., 1983a; Horney and Marshall, 1992).

### **Independent Variables**

**Gender**—the sex of the respondent will be used in split-gender analyses for all the models. The survey reports three measures of gender: anonymous male, confidential male, and anonymous female. This will be dummy coded into two categories, 0=males and 1=females.

**Arrest ratio**—for each of eight crimes, respondents were asked questions regarding their involvement in the crime and any experience of arrest for that crime

during the 12 street months prior to the arrest that led to the current incarceration<sup>2</sup>. These crimes were burglary, robbery, assault, theft, motor vehicle theft, forgery, and drug dealing.<sup>3</sup> Taking the count for the number of arrests in each crime and dividing it by the number of times that same crime was committed determined the arrest ratio. This measure was calculated for respondents who had been active in the specific crime during the street months.

### **Control Variables**

Following Horney and Marshall, there are several control variables included in the models. The total number of crime-specific offenses and the total number of lifetime arrests were included in the model as well as the respondent's age, race, level of education, age at first arrest, and whether the respondent reported drinking alcohol frequently during the street months. Due to the skewed nature of the number of crimes committed variable, this variable was dichotomized by including those individuals scoring under the 25<sup>th</sup> percentile (0, low number of crimes committed), and those scoring above the 26<sup>th</sup> percentile (1, high number of crimes committed). The respondents' ages ranged from 17 to 66, with a mean of 30.04 and a standard deviation of 8.21 years. Almost forty-eight percent (47.8%) of respondents were white, 25.2 percent were black, 23 percent were Hispanic or Mexican, and 4 percent were of another race or the race was unknown. The level of education ranged from 0 years to 18 years, with an average of 10.98 years and a standard deviation of 2.05. The age at first arrest is used as a measure

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<sup>2</sup> This deviates from the Horney and Marshall (1992) study because street time was measured in their data for a 36 month period.

<sup>3</sup> This also deviates from the Horney and Marshall data. In the current data, counts for personal and business robbery were combined into one question, although respondents were questioned on whether they had or had not been involved with each. Horney and Marshall treat these as separate crimes.

of overall depth of criminal involvement (see Horney and Marshall, 1992) and had a range of 6 years to 63 years, with a mean of 18.39 and a standard deviation of 6.77. To assess if the respondents drank frequently during the street months, the question was asked “During the street months, did you get drunk often?” Responses were labeled ‘0’ for ‘No’ and ‘1’ for ‘Yes’. Overall, 62.4% of the sample responded that they did not get drunk often and 37.6% reported that they did get drunk often.

### **Analytic Plan**

The experiential effect, the effect of formal sanctioning, and a combination of the two will be explored using split-gender analyses in order to assess gender differences. The experiential effect will be assessed by using perceptions of risk as the dependent variable and participation in each crime type, with age, race, level of education, age of first arrest, and frequent alcohol use as independent variables. The next step will be to determine the influence of formal sanctions on perceptions of risk. Once again a split-gender analysis will be used to determine how the perceptions of sanction certainty for each crime are a function of the arrest ratio, controlling for number of lifetime arrests, age at first arrest, age, race, level of education, and frequent alcohol use. For all model estimations, OLS regressions are employed because the outcome variables met OLS assumptions.

## CHAPTER 4 RESULTS

The first set of analyses presented in Table 1 displays the experiential effect for the full sample. Several findings can be noted from this table. First, significant experiential effects can be observed for three crimes: burglary, assault, and motor vehicle theft. Two other crime types, forgery and fraud, approach significance at  $p < .10$ . The second finding is that the crimes display effects in the predicted direction, except for burglary. For all crimes except burglary, perceptions of sanction certainty for each crime type are decreasing as participation in that crime type increased during the twelve street months confirming evidence of an experiential effect. The unexpected direction of burglary is difficult to explain. When examining the mean amount of crimes committed, burglary does not display a higher mean than the other crimes, indicating that the unusual finding for the experiential effect of burglary is not due to excessive participation in that crime compared to the others.<sup>4</sup> This effect is also not due to extremely high estimates of sanction certainty for burglary compared to the other crime types.<sup>5</sup> It may simply be that burglary participants do not carry high certainty estimates to begin with and merely increase their perceptions of certainty with participation and/or arrest, thinking that sooner or later their luck will run out, a common finding in the qualitative literature on property crimes (Tunnell, 1992). This point is returned to in the discussion section.

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<sup>4</sup> Mean number of times participating for each of the crimes: burglary (44.69), robbery (9.31), assault (3.92), theft (41.45), motor vehicle theft (46.48), forgery (65.70), fraud (44.93) and drug dealing (495.46).

<sup>5</sup> Mean estimates for perceptions of certainty: burglary (1.80), robbery (1.75), assault (1.72), theft (1.91), motor vehicle theft (1.71), forgery (1.98), fraud (1.57) and drug dealing (1.83).

The next set of analyses examine if the experiential effect varies across genders for a sample of convicted offenders. Table 2 presents the regression results for males for each of the eight crime types and Table 3 presents these results for females for five of the crime types. The reason for the missing data in Table 3 is due to the lack of female participation in burglary, motor vehicle theft, and fraud to adequately conduct regression analyses. The most apparent finding from these two tables is that the experiential effect seems to be operative for males, but not for females. Males appear to be driving the significant effects found for the full sample model, with significant experiential effects for the crimes of burglary, assault, theft, motor vehicle theft, and fraud. In addition, forgery approaches significance for males. Females show no significant experiential effects, although they approach significance for robbery. It seems that there are apparent gender differences for the experiential effect, with males' perceptions decreasing as participation in the same crime increases and females showing no impact on perceptions for crime participation. Despite the lack of statistical significance, the females do seem to be coefficients that are quite large, in fact larger in some of the cases than the male coefficients. This would suggest that the sample size may be an issue that hinders statistical significance in the analyses for the female portion of the sample and that these coefficients may provide significant results if the sample were larger. Finally, for all the models that examine the experiential effect (full, male, and female) there are no distinct patterns of significance that emerge for the control variables.

Tables 4 through 6 present the findings for the regression analyses that take into account the influence of participation in crime and sanctions on perceptions of sanction certainty. An arrest ratio was calculated for each participant for each crime type and is

included in the regression analyses to predict perceptions of sanction certainty. Table 4 presents the full model that includes both males and females. Five crimes are found to have significant arrest ratio effects, including assault, theft, forgery, fraud, and drug dealing. All the crime types with significant findings display the predicted direction of the relationship, meaning that as the arrest ratio increases (increased number of arrests related to number of crimes committed), perceptions of sanction certainty also increase. Burglary and robbery, although not significant, display effects in the opposite direction as was predicted, indicating that as the arrest ratio increases, perceptions of sanction certainty decrease.

Tables 5 and 6 present the results from the regression analyses for the arrest ratios for males and females, respectively. Once again, it seems that the males are driving the findings for the full sample model, displaying significant effects for the same crimes that were significant in the full model: assault, theft, forgery, fraud, and drug dealing. In practical terms, this suggests that males are updating their beliefs on sanction certainty as a result of participation in these crimes and arrest. More specifically, as the number of arrests increases relative to the number of crimes, males are increasing their perceptions of sanction certainty. Females, however, do not seem to be affected by arrest and participation in crime like their male counterparts, with the only crime that displays significance for an arrest ratio being forgery. Table 6 presents the results for females. Similar to the experiential effect analyses, the other variables that are controlled for in all of the models display no discernable patterns that contribute to the overall outcomes.

Table 1. Experiential Effect-Full Model

# of Crimes	Burglary			Robbery			Assault			Theft			MVT			Forgery			Fraud			Drug Deal		
	n=211			N=108			n=257			n=194			n=104			n=148			n=63			n=267		
	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta
# of Crimes	.248	.138	.130**	-.072	.173	-.041	-.352	.133	-.172***	-.123	.146	-.060	-.447	.176	-.251*	-.301	.206	-.121	-.440	.274	-.208	-.049	.121	-.025
Age 1st Arr	.010	.016	.046	.018	.019	.103	.008	.013	.043	.018	.013	.115	.001	.020	.002	-.015	.015	-.105	.009	.021	.064	.003	.012	.018
Age	.011	.011	.080	.008	.013	.061	.021	.010	.145*	.023	.010	.188*	.012	.015	.089	.021	.015	.149	.020	.016	.187	.007	.009	.048
Race	-.011	.086	-.009	.049	.127	.039	-.018	.078	-.015	.018	.087	.015	-.044	.123	-.035	.234	.129	.152**	-.017	.198	-.011	-.066	.070	-.059
Education	-.039	.034	-.083	.011	.047	.024	-.017	.033	-.032	.017	.035	.037	.069	.041	.178**	.044	.043	.092	-.042	.051	-.109	.012	.029	.026
Drinking	-.083	.128	-.046	.031	.177	.018	.026	.130	.013	-.163	.131	-.088	-.175	.171	-.100	-.154	.186	-.069	.202	.254	.109	-.180	.112	-.107

\*p<.05, \*\*p<.10, \*\*\*p<.01

Table 2. Experiential Effect- Male Model

# of Crimes	Burglary			Robbery			Assault			Theft			MVT			Forgery			Fraud			Drug Deal		
	n=204			n=97			n=234			n=169			n=98			n=115			n=57			n=240		
	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta
# of Crimes	.270	.142	.140**	.014	.180	.008	-.334	.140	-.163*	-.265	.151	-.135**	-.448	.184	-.254*	-.323	.220	-.139	-.490	.277	-.245**	-.057	.123	-.030
Age 1st Arr	.010	.017	.044	.025	.024	.119	.011	.013	.058	.015	.016	.078	-.009	.021	-.043	-.027	.019	-.159	.017	.025	.104	-.005	.012	-.031
Age	.014	.011	.100	.007	.013	.060	.023	.010	.162*	.024	.010	.191*	.014	.015	.107	.011	.016	.072	.016	.016	.156	.011	.009	.082
Race	-.014	.089	-.012	.040	.131	.033	-.001	.082	-.001	.045	.092	.037	-.001	.127	-.001	.217	.141	.146	-.041	.201	-.027	.001	.071	.001
Education	-.042	.035	-.089	.015	.051	.033	-.011	.034	-.021	.036	.036	.081	.052	.043	.134	.070	.046	.155	-.067	.054	-.180	.024	.030	.055
Drinking	-.088	.131	-.048	.007	.182	.004	.014	.136	.007	-.053	.137	-.029	-.134	.177	-.077	-.245	.202	-.115	.234	.258	.129	-.157	.113	-.096

\*p<.05, \*\*p<.10, \*\*\*p<.01

Table 3. Experiential Effect-Female Model

	Burglary			Robbery			Assault			Theft			MVT			Forgery			Fraud			Drug Deal		
	n=7			N=11			n=23			n=25			n=6			n=33			n=6			n=27		
	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta
# of Crimes	n/a			-.667	.341	-.416	-.040	.610	-.020	.569	.579	.248	n/a			-.838	.643	-.260	n/a			-.209	.425	-.080
Age 1st Arr				-.061	.023	-.649*	-.001	.054	-.004	.032	.042	.335				-.016	.036	-.146				.053	.033	.324
Age				-.010	.035	-.094	-.029	.052	-.159	.009	.039	.090				.051	.040	.417				-.052	.042	-.247
Race				1.024	.361	.870*	-.036	.296	-.031	-.163	.253	-.136				.346	.322	.200				-.891	.268	-.608***
Education				.297	.090	.611*	-.134	.170	-.206	-.110	.148	-.207				-.102	.123	-.182				-.132	.102	-.248
Drinking				-.160	.341	-.100	.211	.500	.101	-.563	.468	-.268				.172	.469	.068				-.645	.451	-.264

\*p<.05, \*\*p<.10, \*\*\*p<.01

Table 4. Formal Sanctions and Risk Perceptions-Full Model

	Burglary			Robbery			Assault			Theft			MVT			Forgery			Fraud			Drug Deal		
	n=191			n=96			n=228			n=181			n=102			n=139			n=53			n=248		
	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta
Arrest Ratio	-.0642	.086	-.056	-.0829	.161	-.057	.398	.107	.244***	.259	.075	.244***	.129	.164	.080	.612	.250	.206*	1.213	.433	.388***	.452	.267	.109**
Total Arrests	.0020	.005	.036	-.0008	.006	-.016	-.0045	.005	-.059	-.0039	.004	-.072	-.0075	.011	-.088	.0124	.007	.171**	.0070	.006	.164	-.0000	.004	.000
Age 1st Arr	-.0045	.019	-.020	.0142	.022	.083	.0084	.014	.046	.0121	.014	.082	.0051	.024	.026	-.0098	.016	-.069	.0097	.022	.071	-.0034	.013	-.020
Age	.0043	.012	.028	.0056	.015	.044	.0224	.011	.160*	.0221	.010	.182*	.0150	.016	.109	.0208	.015	.150	.0034	.020	.029	.0096	.010	.070
Race	-.0148	.089	-.013	-.0282	.138	-.023	.0142	.080	.011	.0286	.089	.023	-.0706	.126	-.057	.262	.130	.167*	.0637	.213	.040	-.0737	.073	-.064
Education	-.0088	.037	-.019	.0122	.051	.027	-.0072	.036	-.013	.0030	.036	.006	.0475	.042	.125	.0389	.042	.084	-.0051	.058	-.013	.0148	.030	.034
Drinking	-.0664	.134	-.038	.0730	.197	.043	.0578	.136	.028	-.194	.133	-.106	-.199	.178	-.116	-.249	.190	-.111	.164	.278	.089	-.149	.118	-.087

\*p<.05, \*\*p<.10, \*\*\*p<.01

Table 5. Formal Sanctions and Risk Perceptions-Male Model

	Burglary			Robbery			Assault			Theft			MVT			Forgery			Fraud			Drug Deal		
	n=184			n=86			n=206			n=156			n=96			n=106			n=47			n=222		
	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta
Arrest Ratio	-.0700	.087	-.061	-.104	.164	-.075	.508	.120	.288***	.264	.075	.274***	.155	.167	.099	.456	.272	.165**	1.302	.418	.450***	.439	.260	.115**
Total Arrests	.0016	.005	.029	.0006	.006	.012	-.0037	.005	-.049	-.0040	.004	-.079	-.0069	.011	-.083	.0064	.007	.097	.0071	.006	.179	.0011	.004	.018
Age 1st Arr	-.0061	.020	-.027	.0208	.029	.100	.0083	.015	.045	.0069	.016	.038	-.0057	.025	-.029	-.0241	.020	-.141	.0199	.025	.131	-.0104	.013	-.062
Age	.0076	.013	.050	.0031	.015	.023	.0245	.011	.178*	.0218	.011	.171*	.0177	.016	.133	.0148	.017	.099	-.0017	.019	-.015	.0133	.010	.101
Race	-.0184	.092	-.016	-.0427	.146	-.035	.0058	.083	.005	.0616	.096	.050	-.0411	.129	-.034	.257	.146	.171**	.0509	.216	.033	.0019	.075	.002
Education	-.0115	.038	-.025	.0121	.053	.028	-.0013	.037	-.002	.0240	.036	.054	.0254	.044	.066	.0550	.046	.126	-.0405	.063	-.106	.0264	.030	.062
Drinking	-.0690	.137	-.039	.0734	.201	.045	.0395	.140	.019	-.108	.139	-.061	-.175	.184	-.104	-.349	.211	-.163	.183	.284	.103	-.127	.120	-.078

\*p<.05, \*\*p<.10, \*\*\*p<.01

Table 6. Formal Sanctions and Risk Perceptions-Female Model

	Burglary			Robbery			Assault			Theft			MVT			Forgery			Fraud			Drug Deal		
	n=7			n=10			n=22			n=25			n=6			n=33			n=6			n=26		
	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta	B	Se	Beta
Arrest Ratio	n/a			.382	.464	.217	-.0460	.321	-.042	.291	.497	.135	n/a			1.787	.669	.457*	n/a			3.550	3.711	.170
Total Arrests				.0794	.067	.796	-.0180	.036	-.211	.0082	.032	.077				.0610	.026	.588*				.0029	.021	.027
Age 1st Arr				.0112	.093	.121	-.0103	.074	-.054	.0259	.047	.270				.0182	.044	.168				.0450	.038	.279
Age				-.126	.127	-1.164	-.0237	.078	-.130	.0091	.048	.089				.0015	.049	.012				-.0495	.047	-.232
Race				1.660	.645	1.426	.204	.349	.157	-.0921	.265	-.077				.167	.292	.097				-.820	.295	-.569*
Education				.420	.115	.806**	-.180	.207	-.279	-.145	.162	-.273				.0399	.107	.071				-.113	.107	-.213
Drinking				-.236	.378	-.139	.440	.551	.206	-.659	.501	-.314				.0862	.386	.034				-.616	.460	-.255

\*p<.05, \*\*p<.10, \*\*\*p<.01

## CHAPTER 5 DISCUSSION AND CONCLUSIONS

Horney and Marshall (1992) took an important step forward in deterrence research by assessing risk perceptions among a sample of serious offenders. Their research filled important gaps in the literature by first examining whether the experiential effect was evident for different crime types among serious offenders as well as assessing how formal sanctioning and the experience of crime together influence perceptions of sanctions. The analyses conducted in the current research were meant to expand upon the work of Horney and Marshall by examining these same issues on a sample of convicted felons that included both males and females. Several hypotheses were outlined, with partial and mixed support found.

First, it was hypothesized that the experiential effect would be evident among this sample, indicating that lower perceptions of sanction certainty would result for those who have increased involvement crime. Mixed results were found regarding this hypothesis, with partial support resulting from significant negative experiential effects for the crimes of assault and theft for the full model and for the crimes of assault, theft, motor vehicle theft, and fraud for males. Females were not found to display significant experiential effects.

Despite what seems as support for the first hypothesis, significant results were also found for burglary, but in the opposite direction as expected. Reasons for this finding are not quite clear and only speculations on why this might be the case can be made.

Burglars are often thought of as fitting subjects for rational choice research since their

crimes are usually planned ahead, allowing for rational calculations of risks and rewards (Piquero and Rengert, 1999). Extant research has found significant evidence that burglars employ evaluations of risks and rewards; however the burglars often evaluated the risks as low and chances of apprehension as slim (Bennett and Wright, 1984; Decker et. al., 1993; Piquero and Rengert, 1999; Rengert and Wasilchick, 1985; Wright and Decker, 1994). These findings may suggest one reason that the experiential effect was found to work in the opposite direction for burglars. Perceptions of risk seem to be very low to begin with for burglars, often so low that they believe that there is no chance of being caught (Bennet and Wright, 1984). This could suggest that the perceptions of sanction certainty can only change to reflect higher sanction risks as the burglars begin and continue to offend, thus explaining the findings contradictory to what the experiential effect would predict. Furthermore, if burglars do get apprehended, it may be that they believe that their capture was due to the luck of the police or their own bad luck (Rengert and Wasilchick, 1985), so their perceptions of risk may reset to the original low standards they carried (see Apospori et al., 1992; Pogarsky and Piquero, 2003), thus explaining why higher arrest ratios resulted in lower perceptions of sanction certainty. Still, this interpretation is purely speculative and further research should be conducted to fully understand the unique results for burglary.

The second hypothesis posed was that those offenders with higher arrest ratios will provide higher certainty estimates than those who have low arrest ratios. Support was found for this hypothesis, with five out of the eight crimes demonstrating this effect for the full model and the male model. This would support the conclusion that Horney and Marshall (1992:589) drew regarding sanction variables in that “it is necessary to use a

relative measure that takes into account the number of crimes being committed". Once again, however, females did not demonstrate the same effects as their male counterparts, with forgery serving as the only crime with an arrest ratio effect for females.

The third hypothesis predicted that males and females would display different reactions to the participation in crime and arrest, thus resulting in greater changes in perceptions of sanction risk as a result of increased sanction-to-number of crimes committed for the females. Support was found for the first part of the hypothesis, that differences do exist, however, it was not found for the predicted direction of the difference. As previously stated, females do not seem to be influenced by participation in crime or sanctions as do the males in the sample, with their sanction certainty perceptions un-influenced by either of these variables. Findings from the split-gender analyses for the experiential effect would suggest that gender is an important factor to consider in these types of analyses, since males show significant relationships but females do not. Findings from the split-gender analyses that included the arrest ratio produced similar results as the experiential effect across gender. These findings may be attributed to several reasons, including males' higher levels of participation in crimes, females' higher sanction certainty estimates, or simply females being less affected by these experiences.

Naturally, there are limitations to this study. First, the sample size prohibited performing regression analyses for several of the crimes for the females. Being able to examine differences across all crime types could provide more insight into the differences in perceptions of men and women, including comparing genders to better understand the unusual direction of the experiential effect found by men for burglary. In the same vein, even though only one of the female coefficients attained statistical significance, many of

the coefficient estimates are quite large—in many cases larger than the male estimates. This raises another sample size issue, but also may indicate that with a larger  $n$ , the female coefficients could become significant as well. Second, the respondents in this study only answered questions regarding participation in the crimes for the twelve street months prior to their current incarceration. This amount of time may be too short to adequately determine the effect of crime participation. Although the significant results would suggest that this measure is capturing the desired effects thus making it an acceptable measure, different results might be found if a longer street time is taken into consideration. The measures used here might also be reflecting a recency and primacy effect that can diminish if both a longer street time were to be used or if the offenders were no longer in prison.

Third, only formal sanction certainty was taken into account in the measures. It may be that informal sanctions would demonstrate a larger effect on perceptions of sanction certainty than do formal sanctions (see Paternoster et al., 1983a). Future research should take informal and formal sanctions into account as well as other variables that have been included in deterrence and rational choice literature. Additionally, the variable assessing alcohol use during the street months could also be improved upon by measuring whether alcohol and/or drugs were used during the commission of the act instead of an overall measure of alcohol use. It is believed that the effects of alcohol use may mediate the role that rational choice variables play during decision making (Assaad and Exum, 2002).

Finally, the use of the arrest ratio may need to be further expanded. For example, what does having a high arrest ratio really mean when linking it to perceptions of

sanction risk? As the results for five of these crimes suggests, having a higher arrest ratio leads to higher perceptions of sanction certainty. Does this suggest that deterrence is not really working? If it were simply the experience of sanctions that drive up the perceptions of sanction certainty and participation in crime was irrelevant, then the deterrent effect would be working as predicted. However, if perceptions are affected by experience in sanctions relevant to participation in crime, then this might suggest that the deterrent effect does not emerge unless a person experiences an unusual amount of sanctioning. This might suggest that there is a “tipping point” for deterrence and that sanctions are ineffective until this point. Further research should delve into this topic further to understand whether this phenomenon is evident and, if so, whether males and females demonstrate different tipping points. This has obvious implication for deterrence based public policies.

In the end, this research serves an important purpose within the deterrence literature since it explores a topic that has been ill-studied. As gender considerations trickle into research on crime, it becomes evident that the field does not have a firm understanding of how gender relates to different aspects of the deterrence process. Differential patterns of offending and reporting of perceptions by men and women is a topic that can still benefit from future research. Continued research in this area should include gender as well as further explore how perceptions are originally formed, if the formation process varies by gender, and if the formation process determines how influential later experiences in crime and arrest may be on perceptions. That several of the offenders in this study engage in ‘belief updating’ (Pogarsky and Piquero, 2003) suggests that sanction experiences do

serve to increase individual sanction certainty estimates, as deterrence would expect and policymakers would hope for.

Learning behavior such as belief updating can have considerable implications for deterrence based criminal justice policies and how the system handles offenders. If it is true that some offenders are participating in belief updating, this shows that offenders are susceptible to the effects of criminal sanctioning. More specifically, offenders are learning what behaviors they can and cannot participate in without being apprehended and can thus calculate a prediction of likelihood of being caught. This would suggest that in order to increase offenders' perceptions of the risk of certain behaviors, it may be that criminal justice policies need to place focus on increasing criminal justice contact with offenders. Future research should continue to explore the impact of increased certainty of sanction in comparison to the increased severity of sanctions to see which more greatly impacts offenders' perceptions. If it is found that offenders perceptions are updated more due to an increased certainty, less focus could be placed on severe sanctions and more resources be placed on the detection and contact of current or suspected offenders.

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Stephanie Carmichael was born on October 31st, 1978, in Bowling Green, Kentucky. After growing up in Fort Thomas, Kentucky, she returned to Bowling Green to attend Western Kentucky University, where she earned her Bachelor of Arts degree in psychology and sociology in 2002. She moved to Gainesville to enter the graduate program in sociology at the University of Florida in fall of 2002, where she is pursuing her Ph.D.

Stephanie currently has one journal publication forthcoming that looks at the effect of anger on rational decision making, coauthored by Dr. Alex Piquero. She is currently working on several other manuscripts in the areas of criminological theory and white collar crime and will be continuing work on her Ph.D. in the Department of Criminology and Law at the University of Florida.