PROBABILITY OF ARREST BASED ON SEX: A LONGITUDINAL ANALYSIS

OF SIMPLE ASSAULT, AGGRAVATED ASSAULT, AND ROBBERY FROM

1996-2010

By

KATIE LYNN CLEMONS

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To the Faculty of Washington State University:

      The members of the Committee appointed to examine the dissertation of

KATIE LYNN CLEMONS find it satisfactory and recommend that it be accepted.

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Jennifer Schwartz, Ph.D., Chair

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Clayton Mosher, Ph.D.

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Faith Lutze, Ph.D.

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Abstract

by Katie Lynn Clemons, Ph.D.
Washington State University
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Chair: Jennifer Schwartz

It is clear that statistics show vast differences in arrest rates between males and females for criminal behavior, with the most drastic differences found among violent offenses. However, the extent to which sex impacts the likelihood of arrest has proven much more difficult to establish, making the "true" size of the gender gap more elusive. Furthermore, if there is an influence of sex on the likelihood of arrest, whether that relationship has been consistent or if it has changed over time has gone unexamined. This study takes a longitudinal approach to examine the relationship between sex and arrest likelihood, as well as the influence of the relationship of race, co-offending, and various contextual factors. To analyze these relationships data from the National Incident Based Reporting System from 1996-2010 for simple assault, aggravated assault, and robbery were utilized. Results show gender similarity in arrest likelihood for simple assault and aggravated assault, but a higher likelihood of arrest for females for robbery. These findings refute the commonly held belief of chivalry accorded to female offenders.

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Chapter 1: Introduction and Literature Review

In 2011 alone, there were 12.41 million arrests, one-quarter of whom were women (FBI, Crime in the United States 2011). For violent crimes, the male-female difference in arrest (the gender gap), is even larger with females making up less than one-fifth (19.6%) of all arrests. Yet there is debate surrounding female arrest statistics and the extent to which they reflect gender differences in social control practices versus gender differences in offending patterns.

Some theorize that women are given preferential treatment and these "chivalrous" practices actually inflate the gender gap (Anderson, 1976). The gender gap reflects the difference in male offending compared to female offending, but as it is typically reported based on arrest statistics this could be influenced by law enforcement practices. The chivalry argument suggests law enforcement treat females protectively as the "fairer sex," so are less likely to arrest females creating a larger male-female difference in arrest statistics than the actual male-female difference in offending behavior. In other words, the chivalry hypothesis would suggest that crime rates for females are artificially low and the gender gap in arrest statistics is artificially large.

Conversely, the "evil woman" hypothesis suggests that women who do not follow traditional gender expectations, such as when they are particularly violent, are actually more likely to be arrested (Visher, 1983), thus portraying a narrower gender gap due to greater likelihood of arrest for women than men.

Lastly, is the theory that there is not gender bias in policing and arrest statistics are therefore a good marker of female and male offending. This theory would suggest that any gender differences in arrest likelihood may be explained by contextual differences in male and female offending.

Further fueling this debate is the fact that in recent years the most often used official crime statistics, the Uniform Crime Reports (UCR), have shown a narrowing in the gender gap for simple assault[2], aggravated assault[3], and, to a lesser extent, robbery[4]. This change has led to an increased interest in the topic of gender and crime, specifically an interest in examining potential changes over time. Leading criminologists have debated the most important causes of the narrowing gender gap in arrests. Some posit that it is due to the crime rate for males decreasing at a faster pace than the crime rate for females, and argue that the decreases in the gender gap are "real and not artifacts" (Lauristen, Heimer, & Lynch, 2009, p. 362; Schwartz et al. 2009). Other scholars stress the importance of the "net-widening" effect of changes in policies, police practices, and decreased societal tolerance for minor level offenses – which females have higher involvement in – leading to an increase in arrests for females that does not reflect real change in female violent behavior over time (Steffensmeier et al., 2005; Schwartz et al., 2009).

Female criminality has long been debated and a major focus in the field of criminology, yet it is also important to the larger society. The debate regarding the narrowing gender gap has spilled over into mainstream media with now common phrases about "bad girls," leading the general the public to believe that

female criminality has increased and there is therefore a need for increased social control (Schwartz, Steffensmeier, and Feldmeyer, 2009). Increased social control inevitably leads to increases in incarceration, which impacts not just criminals but everyone in the United States, a country that already has the highest incarceration rate in the world. Incarceration is costly to society and claims that it improves local economies has been challenged in longitudinal research (Hooks et al., 2010). Thus, research regarding changes in arrest likelihood and further examining the potential impact of changes in policing has policy implications.

The current study aims to provide insight into the potential changes in arrest likelihood over time for female suspects, which may play a role in the narrowing gender gap. Past research on the likelihood of arrest has primarily been done either at the individual level using direct observational studies, where researchers and/or trained civilians accompany law enforcement while on duty, or at the aggregate level by comparing data from official statistics to non-official victimization surveys, and/or self-report data. While these past studies have provided a wealth of data to build upon and theories to further test, as with all studies there are certain limitations. Observational studies have inherent limitations due to reactivity, as well as limited generalizability, whereas aggregate level analyses do not directly test theories, such as changes in chivalry, as can be done at the individual level.

The current research study has the advantage of using the National Incident Based Reporting System (NIBRS), a single data set that links a reported

crime incident with identifying offender information (i.e., an offender's sex and race) and a subsequent arrest record. This relatively new data set has been profitably drawn upon in the work of Stolzenberg and D'Alessio (2004) as well as Stahl and Coontz (2012) to examine probability of arrest. Both found mixed results for the relationship between sex and arrest, with findings that varied based on age, race, contextual factors, and offense type. These studies demonstrate the ability to test the relationship of sex and arrest likelihood using NIBRS at the individual level, which may provide insight into potential police practices.

In order to advance this realm of research and test the theories proposed regarding changes in the gender gap, longitudinal research is needed. Despite new research examining the effect of sex on arrest probability utilizing NIBRS, these studies, similar to much of the past research, were cross-sectional – that is, limited to only one year of data. The lack of longitudinal studies examining arrest correlates is a serious gap in the criminological literature, as little is known regarding whether the effect of sex on the probability of arrest has changed over time. As gender norms have changed over time, it seems plausible that the effect of sex on arrest probability also may have changed.

A longitudinal research study on the effect of sex on arrest probability for violent offenses would contribute to the ongoing academic discussion regarding female arrest rates and the narrowing gender gap. Specifically, an individual-level analysis of changes in the probability of arrest based on offender sex would suggest corresponding changes in police practices, such as a decrease over

time in chivalry towards females or an increase in net-widening practices, rather than a difference in offending patterns.

In order to test these theories it is important to also consider potential variables that may influence sex differences in arrest probability. Past research has shown that race influences the relationship between sex and arrest, but other contextual factors, such as weapon use and extent of injury to a victim may also impact the findings if not controlled for in the analysis. To control for gender differences in the context of offending was not always possible in past research, but NIBRS collects much more detailed contextual information on all offenses allowing for additional controls and testing of potential interactions. In order to ascertain whether differences in arrest are based on gender or contextual differences it is essential to examine the situational factors such as weapon use, location, and victim-suspect relationship.

Another common characteristic of past research is that it excluded cases where there was more than one offender. Due to the fact that a significant number of crimes are committed by more than one offender, this means the examination of arrest probability has gone unexamined in a large number of cases, as has any potential difference in arrest probability based on solo versus group offending. It may be that there is more or less chivalry accorded to female offenders who commit offenses in groups rather than solo offenses. Women working in groups may be seen as more or less gender conforming, which could influence the probability of arrest. Just as women tend to play more marginal roles compared to men which likely reduces their probability of arrest; it may also

be that all co-offenders have a different probability of arrest than solo offenders. While fleshing out the underlying reasons is beyond the scope of this research, this study will provide a valuable step in furthering this area of research by determining if a difference in arrest likelihood exists for female compared to male co-offenders.

Accordingly, this study seeks to build upon past research on sex and arrest likelihood for violent offenses by taking a longitudinal approach. Furthermore this research seeks to examine the interaction of sex and race, as well as the interaction of sex and co-offending status, on arrest likelihood. This research will explore these areas by addressing the following research questions:

1. To what extent does sex influence the likelihood of arrest for simple assault, aggravated assault, and robbery?

2. Has the relationship between sex and arrest likelihood changed over time for simple assault, aggravated assault, and/or robbery?

3. Under what conditions does the influence of sex on arrest likelihood vary for simple assault, aggravated assault, and robbery?

   a. Does the effect of sex on arrest vary by contextual factors, such as weapon use, location, and victim-offender relationship?

   b. Does the effect of sex on arrest vary across racial groups?

   c. Does the effect of sex on arrest vary by co-offending status?

In order to address these questions, this research will draw on the official law enforcement statistics of NIBRS from 1996-2010 focusing on simple assault, aggravated assault, and robbery.

These data allow for an analysis of trends in arrest likelihood and changes over time. NIBRS is unique in that it allows for these questions to be addressed at the individual level because it provides an initial offender report that can be linked to an arrest record for the same incident. This individual-level data may then inform theories about patterns at the macro level in terms of potential changes in police practices. It further provides detailed contextual variables to control for various other factors, such as victim-offender relationship, weapon use, and extent of victim injuries, which may influence the probability of arrest. NIBRS is also unique in its ability to explore the intersectional effect of gender with race, co-offending, and other contextual factors relative to the probability of arrest.

Past studies have shown that the impact of sex on arrest varies based on offense and therefore it is important to examine more than one offense type varying in severity which is why simple assault, aggravated assault, and robbery will all be utilized in this research. Another critical factor for this study is that these offenses all occur person to person. This means there is a victim who can provide identifying information to the police in the initial report to law enforcement to compare with the subsequent arrest record to examine differences in arrest likelihood based on suspect demographics.

LITERATURE REVIEW

Women are arrested at a much lower rate than men. Although it is well-established in criminology that women have lower involvement in serious violent

crimes and there is a clear gender gap in offending, the degree to which arrest

statistics reflects the true magnitude and extent of this gender gap is not entirely

agreed upon. Many criminologists suggest that women simply commit fewer

crimes, especially violent crimes. Others suggest women are less likely to be

arrested than men, which explains a significant portion of the gender gap in

arrest data. Both perspectives are explored below.

The reasons for the gender gap in arrest statistics have been the focus of

a great deal of research and theorizing. Some of this research has focused on

reasons for the gender gap in terms of differential behavior of females and

males. This area of research includes theories that females commit fewer crimes

due to being socialized differently (Heimer & De Coster, 1999; Mears, Ploeger, &

Warr, 1998; Steffensmeier & Allan, 1996), and due to a lack of opportunity

(Steffensmeier & Terry, 1986; Daly, 1989).

Another main body of work on the gender gap examines the possibility of

differential enforcement, as this study will do. Arguably, the most notable theory

of differential enforcement is the chivalry hypothesis, which suggests that the

criminal justice system tries to shield females, "as the weaker sex", from the

negative effects of a criminal record and criminal sanctions (Anderson 1976).

Similarly, Daly (1987, 1989) posited that women receive less harsh treatment

throughout the criminal justice system due to chivalry or paternalism, looking out

for women "for their own good" such as a parent would. Daly argues that this

treatment is due to womens' care-giving responsibilities, to protect the children,

and to avoid family disintegration. If these theories are true, one would expect to

find a lower probability of arrest for females than males, inflating the gender gap in arrest data.

Yet, conversely, multiple past studies examining sentencing rather than arrest have found that adolescent females who do not comport with traditional gender stereotypes receive harsher, not lighter sentencing (Chesney-Lind, 2006; Moore and Padavic, 2010). Additionally, Visher's (1983) study on arrest likelihood found that it was only women who followed "appropriate gender roles" who received chivalrous treatment. The concept of an "evil woman" breaking gender expectations may have the opposite effect on the likelihood of arrest than the chivalry hypothesis would suggest for females performing violent crimes. The "evil woman" hypothesis would suggest that women may have a higher likelihood of arrest than men, particularly when their crimes are more masculine, such as using a gun or inflicting serious harm to the victim. This would have the effect of presenting a smaller gender gap in arrest data than the true gender gap in offending behavior.

This research will test if chivalry (females have lower arrest probability) or the evil-woman perspective (females have higher arrest probability) is supported by incident level data.

Sex and Arrest Data

Past research on sex and the likelihood of arrest has not provided convincing evidence to substantiate what, if any, discrepancy there is between the true gender gap in offending and the gender gap that is indicated in arrest

data. It is somewhat surprising, given the strong correlation between sex and crime, that there has not been more conclusive research on the influence of sex on arrest likelihood. This may be due, in part, to the multiple difficulties and limitations in being able to accurately examine this relationship, leaving many challenges for researchers studying this area to try to overcome.

One common method used in past research to determine the likelihood of arrest, based on sex and/or race, or some aspect of the crime itself, has been direct observational studies (Lundman,1974; Smith & Visher, 1981; Visher,1983). These studies have trained observers accompany law enforcement on patrol or during routine interactions between uniformed officers and citizens.

Lundman (1974) examined public drunkenness encounters using observational data from a large Midwestern city over a 15 month period beginning in June, 1970. He found that the most significant determinants of arrest were factors other than race and sex: offense conspicuousness (closed public locations, such as a library, were classified as more conspicuous than open public places, such as a sidewalk), offender powerlessness (those from the lowest social class), and offender disrespect toward the officers. Although Lundman determined race and sex were not overall determinants of arrest, he did observe some racial bias against Native Americans based on a higher probability of arrest compared to whites even when controlling for the offender's display of disrespect toward the police.

Smith and Visher (1981) and Visher (1983) relied upon observational data collected in 1977 over twenty-four police departments in Missouri, New York, and

Florida that included 742 police encounters (traffic stops were excluded). Smith and Visher (1981) concluded that males and females were equally likely to be arrested given similar offending behavior.

In a follow-up study, Visher (1983) examined in further detail the circumstances in which males and females were treated similarly or differently. Visher found that females who represent "appropriate" gender behavior (submissive and not hostile toward the police officers) and specific demographic characteristics (older and white) were less likely to be arrested than men for violent offenses. Visher acknowledged that this study does have the limitation of low external validity and a small sample size, as is common for observational studies. One must also consider the possibility of reactivity, in that the police officers knew they were being observed, so they may have actually been more conscientious about avoiding biased behavior.

Furthermore, past research has been limited by the lack of a single data source to link an initial police report to a subsequent arrest. Therefore past researchers have had to compare summary Uniform Crime Report (UCR) statistics to the National Crime Victimization Survey (NCVS) (Hindelang,1979; Hindelang,1981). In Hindelang's (1979) innovative and highly cited research using this methodology, he did not find a significant relationship between gender and arrest. He found the NCVS and UCR were "in close agreement" (p.147) in the high gender disparity for simple assault, rape, robbery, burglary, and motor vehicle theft, suggesting that the arrest statistics accurately portray offending and therefore, the gender gap. His research also showed that for aggravated assault

and robbery females were actually somewhat overrepresented in the UCR compared to NCVS reports, providing limited support for the evil woman hypothesis.

Hindelang's research examined the years 1972-1976 (the first years the NCVS was available) and he did not find any changing trend in reporting of female criminality, but he proposed that future research would need to take a more longitudinal approach when data were available. NIBRS provides the ability to do so and to test Hindelang's findings within a single data source.

Stolzenberg and D'Alessio (2004) took an original approach to research on sex and arrest likelihood by using the newer data source of the National Incident Based Reporting System (NIBRS) that allows for the comparison of an original police report and subsequent arrest record. In analyzing data from NIBRS 2000, the authors found that for kidnapping, forcible fondling, simple assault, and intimidation, females were less likely to be arrested than males when controlling for various offense characteristics (weapon use, location, victim injury, victim demographics). They did not find a difference in arrest for forcible rape or robbery. However, their research did indicate that the relationship between sex and arrest probability was impacted by race, with black females being more likely to be arrested than white females. The findings were only statistically significant for simple assault and aggravated assault with black females having a higher probability of arrest than white females, although these offenses also had the largest sample sizes making statistical significance more likely.

This research by Stolzenberg and D'Alessio was an important contribution to the literature on sex and arrest likelihood. However, longitudinal research is still needed to test if the relationship between sex and arrest likelihood has been consistent or if it has changed over time. This may help explain recent changes in arrest statistics and the decreasing gender gap for violent crimes.

Trends in Sex and Arrest Data

The lack of strong longitudinal research on sex and arrest is a clear gap in the literature. Trends in female crime have been a hotly debated issue since Simon (1975) and Adler (1975) theorized that women's liberation would lead to increases in female offending, including violent crimes. More recent debate on this issue focuses on the fact that arrest statistics from the UCR have shown an increase in female participation for aggravated and simple assaults. One side of the debate suggests that this is due to the crime rate for males decreasing more quickly than the crime rate for females, therefore positing that changes in the gender gap for arrest reflect changes in the gender gap for violent behavior (Lauristen, Heimer, & Lynch, 2009). Other researchers point out that while there is a narrowing gender gap in the UCR (as demonstrated by an increase in the percentage of female arrests from about 15% in 1980 to 25% in 2003), the gender gap has remained stable (with females' percentage of assaults about 12%) according to the National Crime Victimization Survey (NCVS) (Steffensmeier et al. 2006).

This disconnect between arrest statistics and victimization reports support the counter argument that the narrowing gender gap in the UCR results from "net-widening" whereby changes in criminal definitions, changes in policing, and a lowered tolerance by the larger society for minor violence has impacted the arrest statistics of females due to their higher involvement in less serious violent offenses, rather than any real significant changes in their behavior. Therefore, the declining rate of female arrests is less than what it ought to be, resulting in the appearance of a faster decline for males in the UCR (Steffensmeier et al, 2005; Schwartz et al. 2009).

Stahl and Coontz (2012) used NIBRS data from 2005 to further examine the "net-widening" hypothesis for the decreasing gender gap in arrests for juvenile offenders. Their research used descriptive statistics to examine if changes in domestic violence mandatory arrest policies help account for the decrease in the gender gap. Female profiles based on age and sex of the arrestee(s) and victim(s), victim-offender relationships, location, weapon use, and injury inflicted were compared to their male counterparts. Girls were more likely than boys to be arrested for less serious assaults, incidents that took place in a residence, and assaults involving a family member. Thus, Stahl and Coontz conclude that these descriptive analyses lend support for the idea that policy changes surrounding mandatory arrest and the general "net-widening" hypothesis do seem to be influencing factors in the narrowing of the gender gap. Their cross-sectional study focused only on juveniles, so further investigation is needed to confirm that this holds true for adult females. As well, future research

should examine the impact of sex on arrest over time and use more advanced statistical analyses.

Therefore, this research study will examine if the relationship between sex and arrest likelihood has changed over time using NIBRS data from 1996-2010. An increased likelihood of arrest for females over time would support the theory that part of the narrowing gender gap in recent years for violent offenses may be a result of changes in enforcement rather than changes in offending patterns, whereas a stable trend in the likelihood of arrest would suggest that the narrowing gender gap in recent years is due to a change in behavior of offenders.

Influences on Sex and Arrest Likelihood: Contextual Factors, Race, and Co-offending Status

Contextual Factors

It is important to note that past research on gender differences in violent crime has found contextual differences between crimes committed by females and crimes committed by males. Females are more likely to commit violent offenses against family or intimates and less likely to offend against stranger-victims (Schwartz, 2007). It is also well-established that females are more likely to be expressively motivated, meaning they commit crime due to emotions or for a relationship, whereas males are more likely to be instrumentally motivated for money or material goods (Letendre, 2007). Additionally, females are less likely to use a weapon, especially a gun. These contextual differences reduce the

likelihood of arrest for females. Thus, these differences may be influencing

factors confounding the true impact of sex on arrest likelihood and therefore will

be controlled for in this analysis. Furthermore, as the "net-widening" perspective

proposes that society has developed a lower tolerance for lesser forms of

violence, these contextual differences may also have a different impact over

time.

Intersection of Sex and Race

Recently, in all areas of social science research, there has been a growing

focus on addressing intersectionality, that is, the interaction of multiple (primarily

minority) statuses on one's experiences. Burgess-Proctor (2006) made strong

arguments for the need for feminist criminology to use an intersectional

framework. She pointed to the work of criminologists such as Steffensmeier,

Ulmer, and Kramer (1998) who found differential sentencing based on age, race,

and sex, specifically finding that young, black, men receive harsher criminal

sentencing. Burgess-Proctor (2006) and Bernard (2013) both argued that

intersectionality clearly affects criminality and sanctioning as evidenced by a

multitude of past research (Sampson & Wilson, 1995; Lynch, 1996; Richie, 1996;

Maher, 1997). With a growing body of research addressing intersectionality and

criminal activity, the lack of research addressing intersectionality and arrest

likelihood becomes even more apparent and represents an obvious gap that

needs to be addressed.

Bernard (2013) provided a case study examining one woman's entry into crime as an example to demonstrate her theoretical argument that it is essential to take an intersectional approach when exploring female criminality. The case study focused on a young Afro-Caribbean woman who was incarcerated for a drug offense. Bernard addressed the institutional inequality her participant experienced based on multiple minority statuses that influenced this woman's entry into criminal activity. While her argument focused on causes of criminality, it holds that individuals continue to have differential experiences based on gender and race once coming into contact with the criminal justice system, influencing arrest probability.

Moreover, the limited amount of past research that has included analyses on the intersectionality of sex and race has found that there is a differential probability of arrest based on sex by racial categories. As mentioned previously, Visher's (1983) observational research concluded that younger, black females were more likely to be arrested than older, white females. Stolzenberg and D'Alessio (2004) also found black females had a higher probability of arrest than did white females for aggravated assault and simple assault. These findings suggest a need for further investigation to examine the intersectional effect of sex and race on arrest likelihood and to test the stability of the relationship over time.

Bernard et al. (2005) provide further reason to examine this relationship over time by theorizing that new efficiency-based social control policies may result in cumulative differences in outcomes for various racial groups. The authors purport that policy changes based on efficiency, which include racial

profiling and concentrated patrol, result in higher arrest and higher incarceration for racial minorities. Bernard et al. suggest that due to scarce resources being concentrated in areas with high crime rate groups, such as in low-income neighborhoods with many minorities, the result is that these groups are processed differently than those in low crime rate groups. These social control practices may inflate the racial gap in arrest rates.

This theory is somewhat similar in nature to the net-widening hypothesis, which suggests changes in policy rather than changes in behavior are influencing changes in the gender gap over time for sex and arrest. These theories can be further informed through this study by examining arrests at the individual-level and examining each of these correlates alone and as an interaction effect over time.

Sex and Co-offending Status

One potentially powerful contextual variable that has gone virtually unexamined with regard to the impact on arrest likelihood is co-offending status. Criminologists have determined that a large portion of crime occurs in groups (McGloin et al., 2008). Despite the fact that much crime occurs with co-offenders, there is a gap in knowledge on the relationship between co-offending and arrest likelihood even though early groundbreaking work in the area of co-offending discussed the possibility of solo versus co-offending having differential impacts on the chance of arrest (Reiss, 1988).

Reiss theorized that at times having co-offenders may reduce the risk of arrest or apprehension by diverting attention, whereas at other times it may increase the risk. He also stated that the relationship between co-offending status and arrest needs to be viewed intersectionally as arrest likelihood may vary based on age with younger offenders being more likely to be arrested (1988). Hindelang (1976) also suggested that those who offend only in groups have higher risk of arrest than those who offend solo only, but those who have a mix of solo and co-offending patterns have similar levels of arrest to solo offenders. More recently, Snyder (2005) has suggested that a higher likelihood of arrest for co-offending in groups may be why juveniles are over-represented in arrest data.

This research will test if this relationship between co-offending status and arrest likelihood also varies based on sex. It is possible that having a female offender present increases or decreases the chance of arrest for all offenders in a crime group. Male offenders report not wanting to work with females (Steffensmeier and Terry, 1986) and one of their reasons is the belief that doing so increases their vulnerability to arrest due to their traditional stereotypes about women (they lack "heart" and trustworthiness). By examining the influence of co-offenders' gender composition on arrest likelihood, this concern may be supported or perhaps shown to be completely inaccurate.

An additional possibility is that in the presence of others, including other offenders, police officers have less biased practices and any influences of chivalry or the evil woman factor decrease. The influence of co-offenders also

may vary for each sex. Visher (1983) found that males' likelihood of arrest was more influenced by situational factors, such as the location of the offense, and females' likelihood of arrest was more influenced by individual factors, such as age and race. Arguably, the presence or absence of co-offenders is an important situational factor, therefore Visher's findings suggest this may have a larger influence on males.

Lastly, it may be that contextual differences in female co-offending reduce the likelihood of arrest. Since women tend to be relegated to marginal roles in crime groups (Maher & Daly, 1996; Steffensmeier &Ulmer, 2005) it seems probable that female co-offenders are less likely to be arrested than male co-offenders. As the lower arrest rate would be a result of lower culpability, this would suggest differences in arrest are not due to differential police practices for women, but differences in offending.

While NIBRS does not provide enough information to control for various roles, regression analysis does hold constant varying contextual factors on the seriousness of the crime for each offender. The probability of arrest for all-females, wherein not all females can possibly be in a marginal role, compared to all-male and mixed-sex groups will also provide a comparison for arrest likelihood between male and female co-offenders.

None of the past research on the impact of sex on arrest likelihood has accounted for the potential impact of co-offending status on the likelihood of arrest. In fact, certain studies (D'Alessio & Stolzenberg, 2003; 2004, for example) have limited the cases examined to those of solo offenders due to the

complications of determining probability of arrest with multiple offenders in the same crime incident and the complications of culpability. This study uses an offender rather than an incident level of analysis and also used robust standard errors to account for clustered groups to help control for these issues.

In the present study, changes in arrest likelihood over time will be examined and the following hypotheses evaluated:

1. Chivalry Hypothesis: Females suspects will have a lower likelihood of arrest than male suspects with all other variables being equal.

    - Counter-hypothesis: Evil Woman Hypothesis: Female suspects have a higher likelihood of arrest than male suspects net controls.

    a. The strength of the relationship between sex and arrest likelihood will be stronger for simple assault than for robbery or aggravated assault.

2. Decreasing Chivalry Hypothesis: The lower likelihood of arrest for female suspects than male suspects has diminished over time.

3. Contextual influences hypothesis: Gender differences in the likelihood of arrest will decrease when controlling for seriousness of the offense, such as gun/knife use and the injury inflicted.

4. Sex by race intersectionality hypothesis: The likelihood of arrest will vary across racial groups, with female racial minorities receiving less chivalry than white female suspects.

5. Sex by co-offending status hypothesis: The likelihood of arrest will vary based on offender status, with female co-offenders having a lower likelihood of arrest than male co-offenders.

Chapter 2: Data and Methods

Data

This study will rely on the official statistics reported by local, state, and federal law enforcement agencies to the FBI as part of the National Incident-Based Reporting System (NIBRS) for the period of 1996-2010. NIBRS was developed to expand on the data that have been collected and presented for years in the Uniform Crime Reports (UCR). While UCR data have provided a wealth of knowledge and macro level data for the study of criminology, NIBRS provides a more comprehensive picture of crime for law enforcement and academia. The information reported to NIBRS includes extensive detailed contextual data for each crime incident and each offender involved.

As Stolzenberg and D'Alessio (2003; 2004) argued in their research using this newer data source, NIBRS is perfectly suited to address questions surrounding arrest likelihood. This is because NIBRS allows research that was not previously possible with the UCR, in that the incident data (including suspect demographics) originally reported to the police can be linked with subsequent arrest data allowing for an individual-level approach to investigating the relationship between sex and arrest likelihood. NIBRS collects data on what is categorized as "offenders" and "arrestees." An offender is a suspect who is considered to have committed the crime, but who may or may not have been apprehended, arrested, or identified (Carrington and Mastrigt, 2013). An "arrestee" is someone who has been arrested. For ease of understanding in this study, offenders as categorized in NIBRS will be referred to as suspects.

NIBRS also allows for examination of the intersectionality of sex and race that was not possible with the UCR. Additionally, as previously mentioned, NIBRS includes contextual data for every crime incident, which allows for factors such as weapon use, victim-offender relationship, location of the offense, and extent of injury to the victim to be controlled via logistic regression analysis.

All data sets have inherent strengths and weaknesses. NIBRS is no different. As NIBRS is much more comprehensive than the UCR in contextual data, which only collects such detailed data in the Supplemental Homicide Reports, it has been a slow succession as the FBI's primary data source due to the large amount of work it places on police. Therefore, one limitation NIBRS presents for the researcher is that large cities have been relatively slow in implementing the program. Also, NIBRS has been steadily increasing in reporting and there is variation in which agencies report each year. While NIBRS data is available from 1991-1995, NIBRS implementation increased from covering a population of 4.1 million in 1991 to 14.8 million in 1996. Therefore this study will begin with data from 1996. However, NIBRS participation has continued to steadily increase since that time, growing to 6,444 participating law enforcement agencies, representing 25% of the US population and 25% of the crime by 2008 (Federal Bureau of Investigation, 2009) and 36 states representing 28% of the population in 2010 (Carrington and van Mastrigt, 2013).

Because of the small number of reporting agencies and being an incident-based reporting system there has been concern about the accuracy of the NIBRS data compared to the UCR data. However, this concern is minimal, based

on a report by the Bureau of Justice (Rantala, 2000), which found that the NIBRS Index crime rate was 2% higher than the Summary UCR data and the violent crime rate was higher by less than 1%. Since this 2001 BJS report, voluntary reporting of NIBRS has continued to increase, improving the representativeness of the data.

Another concern due to the large amount of contextual data collected is reliability between jurisdictions. The coding schemes for NIBRS make up four volumes published by the FBI (Mosher et al., 2012). The complexity of the coding as well as the high workload may result in irregularities between jurisdictions as well as missing data. Although, with the high level of Ns any errors in coding will hopefully result only in random error that will cancel itself out.

Due to the massive size of NIBRS, the data are reported in multiple segments including batch header, administrative, victim, offense, offender, property, and arrestee. The Inter-University Consortium for Political and Social Research (ICPSR) provides an extract file that has merged each of these segments together with four options for a unit of analysis. This study uses the offender based unit of analysis, which includes co-offenders linked by incident number.

While NIBRS data records up to 10 offenses, 999 victims, 99 offenders, and 99 arrestees, the ICPSR extract files have limited each of the other segments to three records merged with the segment unit of analysis. Therefore, for the offender unit of analysis used in this study, there is a record for each offender, but the maximum number of victim records, offense records, and

property records provided for each offender is three. For example, if an incident had five offenders and five victims, each offender's information would be reported, however only the first three victims' information is reported for each offender. Importantly though, ICPSR reports that 99% of NIBRS incidents have three or fewer offense, victim, offender, and arrestee records, minimizing this limitation.

As noted, the three crimes that will be examined in this study are aggravated assault, robbery, and simple assault. In addition to having an inherent increased salience due to the nature of the offenses, there are methodological advantages to focusing on more serious crimes in terms of having more accuracy, less missing data, and higher clearance rates. The most essential reason for the inclusion of these crimes is that they occur person to person. Thus, there is a victim who can provide identifying information to the police, such as sex and race in the initial report to law enforcement to compare with the subsequent arrest record. This also results in a relatively small amount of missing data, especially for key variables such as sex and race.

Moreover, violent crimes are ideal for studying the gender gap. These offenses are where we see the largest gender gap in arrest statistics, with women representing only about 10% of arrests for both homicide and robbery, 25% for aggravated assault, and less than 40% for simple assault. As noted, in 2011, women were only 20% of all arrestees for violent crimes, but the gender gap for violent offenses, particularly assault, has been narrowing over time. Again, the causes of this narrowing have been the focus of the recent debate in

criminology regarding the gender gap for violent crimes. By studying the trend in arrests for violent offenses over a 15 year time period, this research will help inform potential changes to policing practices over time that have influenced the gender gap for violent offenses. For instance, if the influence of sex on arrest has increased or decreased this may suggest a change in policing that is being reflected in changing gender gap in arrest statistics rather than a change in behavior.

Furthermore, studying violent offenses that range in seriousness provide an excellent place to test the chivalry hypothesis versus the evil woman hypothesis. Violence is atypical gender behavior for women, so violent offenses provide a chance to examine whether women who violate gender norms more severely, via more serious violence, experience a decrease in chivalry and/or harsher treatment as the "evil women" hypothesis would predict. Past studies have shown that the impact of sex on arrest varies based on offense and therefore it is important to examine more than one offense type varying in severity (Smith and Visher, 1981; Visher, 1983; Stolzenburg & D'Alessio, 2004). Lastly, violent offenses are appropriate as they provide various contextual variables, such as use of a weapon, victim-offender relationship, and extent of injury to a victim to test under what conditions sex influences arrest likelihood.

Variables

The dependent variable is whether or not an arrest occurred for each suspect. It is coded as a dichotomous dummy variable (arrest =1, no arrest=0).

As previously noted, NIBRS is the first data set that has an initial offender (suspect) report and a subsequent arrest report. If there is an arrest report for an offender, then arrest is coded as 1. An offender report with no subsequent arrest report is coded as 0.

The primary independent variable of interest is the sex of the suspect, which will be examined within the context of the interaction of sex and race and the presence of co-offenders. Because this study is longitudinal, the other independent variable of interest is time, comparing if these relationships have changed over time from 1996-2010.

Suspect's sex: Sex is coded as male and female. The sex is unknown in 8% (n=82,468) of robbery cases, 4% (n=86,714) of aggravated assault cases, and 2% (n=164,007) of simple assault cases. Cases where the suspect's sex is unknown will be treated as missing and will not be included in the analysis.

Year: Year will be recoded and included in the analysis with 1996 beginning as zero and adding 1 to each subsequent year in numerical order. This will test if over time the odds of being arrested have increased or decreased. The interaction effect of year and sex and year and race will also be tested in the model.

Controls

Suspect's age: Age is recorded in NIBRS with a maximum age of 98 and will be utilized as a continuous variable.

Suspect's race: NIBRS categorizes race into five categories: White, Black, American Indian/Alaskan Native, Pacific Islander, and unknown. Due to the small number of cases with American Indian/Alaskan Native and Pacific Islander these suspects' race will be coded as other. Cases where the suspect's race is unknown will be treated as missing data and will not be included in the analysis. Unfortunately, NIBRS does not code the suspect's ethnicity, so it is not possible to control for Hispanic versus non-Hispanic in the analysis.

Number of Suspects: NIBRS collects data on up to 99 suspects. The number of suspects is included as a continuous variable ranging from 1 to 99.

Victim/Suspect Relationship: In the NIBRS offender extract files, relationships are coded for all suspects with up to three victims. NIBRS codes these relationships quite specifically (grandparent, babysitter, common-law spouse, etc.). For the purpose of this study, relationships were recoded into three categories: intimate/family, acquaintance, and stranger. For the logistic regression analysis a hierarchy rule will be employed (intimate or family, acquaintance, then stranger). Therefore, if the suspect had an intimate or family relationship with any victim, it is coded as intimate/family. Next, if the suspect was an acquaintance to any victim (but not an intimate or family member) it was coded as acquaintance. Otherwise, the incident was coded as a stranger incident. Cases where the victim-suspect relationship is unknown will be treated as missing data and will not be included in the analysis. Acquaintance was used as a reference category in the regression models.

Victim's age: Age of the first victim will be included as a continuous variable with a maximum of 98.

Victim's race: The victim's race is categorized as White, Black, American Indian/Alaskan Native, Pacific Islander, or unknown. As with suspect's race, due to the small number of cases, American Indian/Alaskan Native and Pacific Islander will be coded as other. If there were multiple victims, for the sake of parsimony and to minimize missing data, only the first victim's race is included.

Victim's sex: The victim's sex is categorized as male, female, or unknown. If the sex is unknown it is coded as missing. Again, data from the first victim only is included.

Injury to the victim: Injury was coded as a dummy variable (1=serious injury, 0=minor injury or no injury). A serious injury includes apparent broken bone(s), possible internal injury, severe laceration, unconsciousness, loss of teeth, and other severe injuries. Minor injury is recorded in NIBRS simply as "apparent minor injury" without further detail.

Weapon: Weapons are categorized as: gun, knife, other, and no weapon. "Other" weapons include things such as motor vehicles, poisons, explosives and blunt objects. NIBRS records up to three weapons per incident; these were coded using a hierarchy of gun, knife, other, and none (e.g., if any weapon was a gun, incident was coded as "gun").

Location: While NIBRS codes location in 25 detailed options, in this study location has been limited to six dummy variables (school/college, home/residence, bar, street/parking, bank, and other). Home/residence, which is

the most common place for an offense to occur, is used as the reference category.

Data Analysis

The data were analyzed using basic descriptive statistics, bivariate analysis, and logistic regression. Basic descriptive statistics were first run on all variables of interest. They were then also used to plot trends in the proportion of female suspects versus female arrestees over time. The next step was simple bivariate analysis testing if there is a relationship between sex and the likelihood of arrest and providing a simple test of the first hypothesis (chivalry). However, this analysis fails to control for a spurious relationship between sex and arrest likelihood. Therefore, logistic regression is the best option to control for other influencing variables and to take advantage of the contextual information provided in NIBRS. Logistic regression works well when the dependent variable is a dummy variable, as the variable of interest in this study is (arrest=1, no arrest=0). Stolzenberg and D'Alessio also point out that in addition to allowing for independent variables that are continuous and categorical, the results are easily interpretable odds, presenting the likelihood of arrest based on a change in the independent variable. The regression model can also be used to provide predicted probabilities of arrest.

Sex disaggregated models will be employed with the logistic regression models to more clearly assess how sex interacts with the various contextual factors. This will provide easily comparable coefficients across male and female

models. The coefficients represented as odds ratios will show similarities and differences in the size of the effect among female and male suspects for variables such as time, race, and co-offending status on arrest likelihood. As suspects may be members of a crime group, clustered robust standard errors will be used to account for correlated error structures. The full regression models are presented, however nested models were also tested using likelihood ratio to assure that the full model is the best and most parsimonious model.

The nested models began first with the variable sex to test the first hypothesis of chivalry and the counter hypothesis of the evil woman perspective. An odds ratio that is lower than 1 (with an alpha level below .05) would support the chivalry hypothesis and an odds ratio that is higher than 1 would support the evil woman hypothesis. The second model added the variable year, which tested the second hypothesis that chivalry has diminished over time. The third model included the number of offenders as a control. The fourth model added race which allows for analysis of the third hypothesis that chivalry toward females will be lesser for racial minorities. Victim characteristics were then added to the fifth nested model as controls.

Models six through ten added in additional contextual factors in this order, victim-suspect relationship, serious injury to the victim, population and region of the offense, weapon use, and location of the offense (school, parking lot, etc.). These factors will further flesh out each of these hypotheses and help clarify under what conditions sex (Hypothesis 1) or sex and race (Hypothesis 3) may influence arrest likelihood or if any relationship between sex and arrest is

controlled for by contextual factors and not a result of police bias. This allows for an examination of masculine characteristics of an offense such as gun use and serious injury to a victim to examine if women committing non-gender stereotypical behaviors receive less chivalry, supporting the idea of the "evil woman" influence.

Lastly, interaction effects such as race by year, sex by year, weapon use by year were tested to assess whether sex effects on arrest likelihood changed over time.

In addition to the logistic regression analyses, predicted probabilities were run using the full regression model. The predicted probabilities provides another way to view the data. This shows the likelihood of arrest for any given variable while holding all other variables in the model at their mean.

Chapter 3: The influence of sex on the likelihood of arrest over time (1996-2010)

The main goal of this research is to identify the relationship between sex and arrest likelihood over time. Furthermore, the goals include examining the influence of other correlates, such as race, co-offending status, and contextual factors (weapon, injury, victim-suspect relationship) and their impact on the relationship between sex and arrest. In this chapter, the focus will be on the primary issue of the relationship between sex and arrest likelihood over time. In order to examine this relationship, basic descriptive statistics were first run on the NIBRS data from 1996-2010.

Descriptive Analysis

TABLE 1: Percent of Female Suspects for Robbery, Aggravated Assault, and Simple Assault from 1996-2010						
	Robbery		Aggravated Assault		Simple Assault	
	N	%	N	%	N	%
Female Suspects	70,546	7	426,274	21	1,897,608	26

As can be seen in Table 1, women make up a small percentage of all suspects. Women represent only 7% of robbery suspects, 21% of aggravated assault suspects, and 26% of simple assault suspects. These percentages have remained quite stable over the time period 1996-2010. As seen in Figure 1, the percentage of female suspects ranges from 7%-8% for robbery, 21-23% for aggravated assault, and 22-29% for simple assault. Over 15 years there was a relatively small increase in the percentage of female suspects for robbery with less than a 1.5% increase, and a slight increase for aggravated assault of about

2%. The greatest change in percent of female suspects is for simple assault with an increase of 7%. This could also be seen as a decrease of 14% in the gender gap between male and female suspects, as the difference in percent of male and female suspects fell from 55% to 41%.

Figure 1. Percentage of Female Suspects
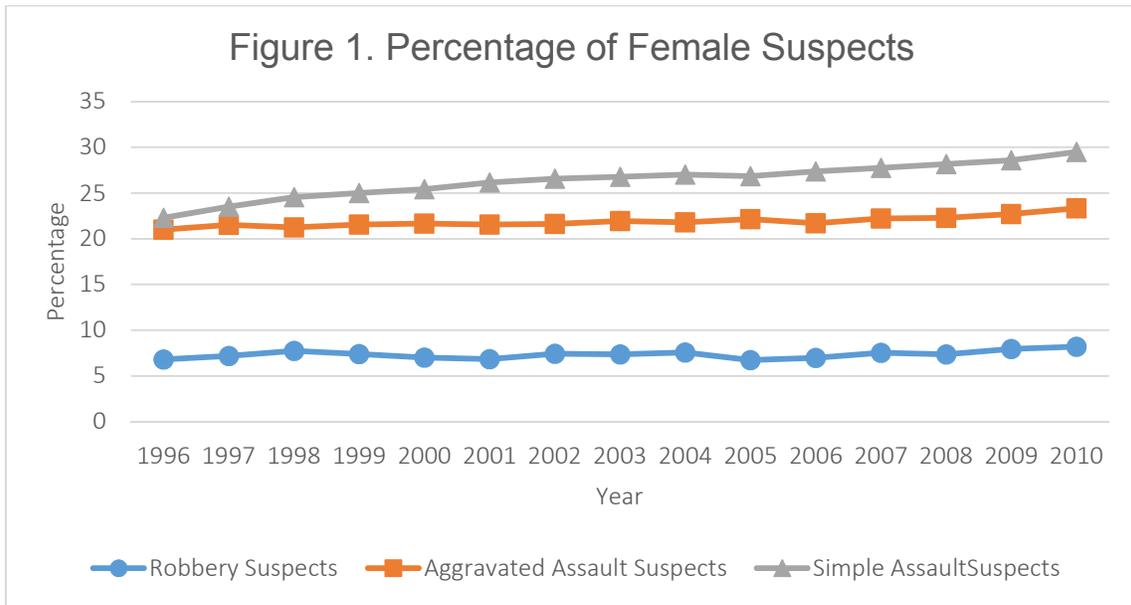
As discussed in the literature review, previous research had noted the increase in the percentage of female arrestees with a good deal of debate surrounding the cause for this decrease in the gender gap. One of the main theories suggested that part of the cause for the decrease in the gender gap is due to a change in policing. In order to get some idea of any change in policing, the female percentage of suspects can be compared to the female percentage of arrestees as shown in Figure 2. A change in female arrestees that is not mirrored in a change in female suspects would suggest that there may be a change at the social control level that is not occurring at the behavioral level, such as a policy practices in arrest.

Figure 2. Percentage of Female Arrestees
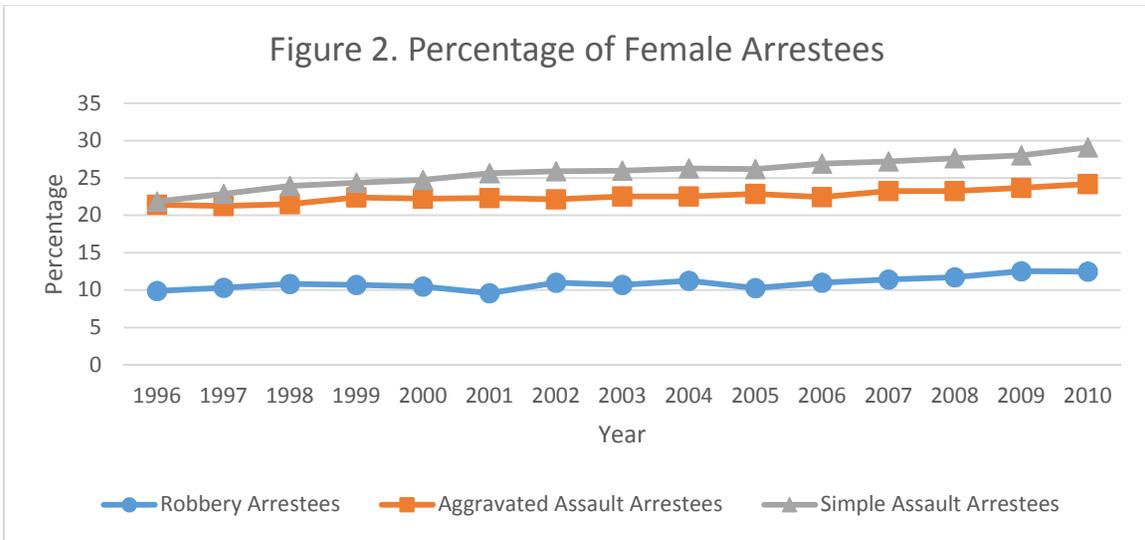
Figure 2 shows the percentage of female arrestees from 1996-2010 for robbery (10-13%), aggravated assault (21-24%), and simple assault (22-29%). As these numbers show, there is very little variation over time in the percentage of female arrestees, similar to what was seen for the percentage of suspects in Figure 1. The largest increase over this time period is the percentage of female arrestees for simple assault. Figure 3 shows both the percentage of female suspects and percentage of female arrestees.

Figure 3. Comparison of Percentage of Female Suspects and Percentage of Female Aresttees
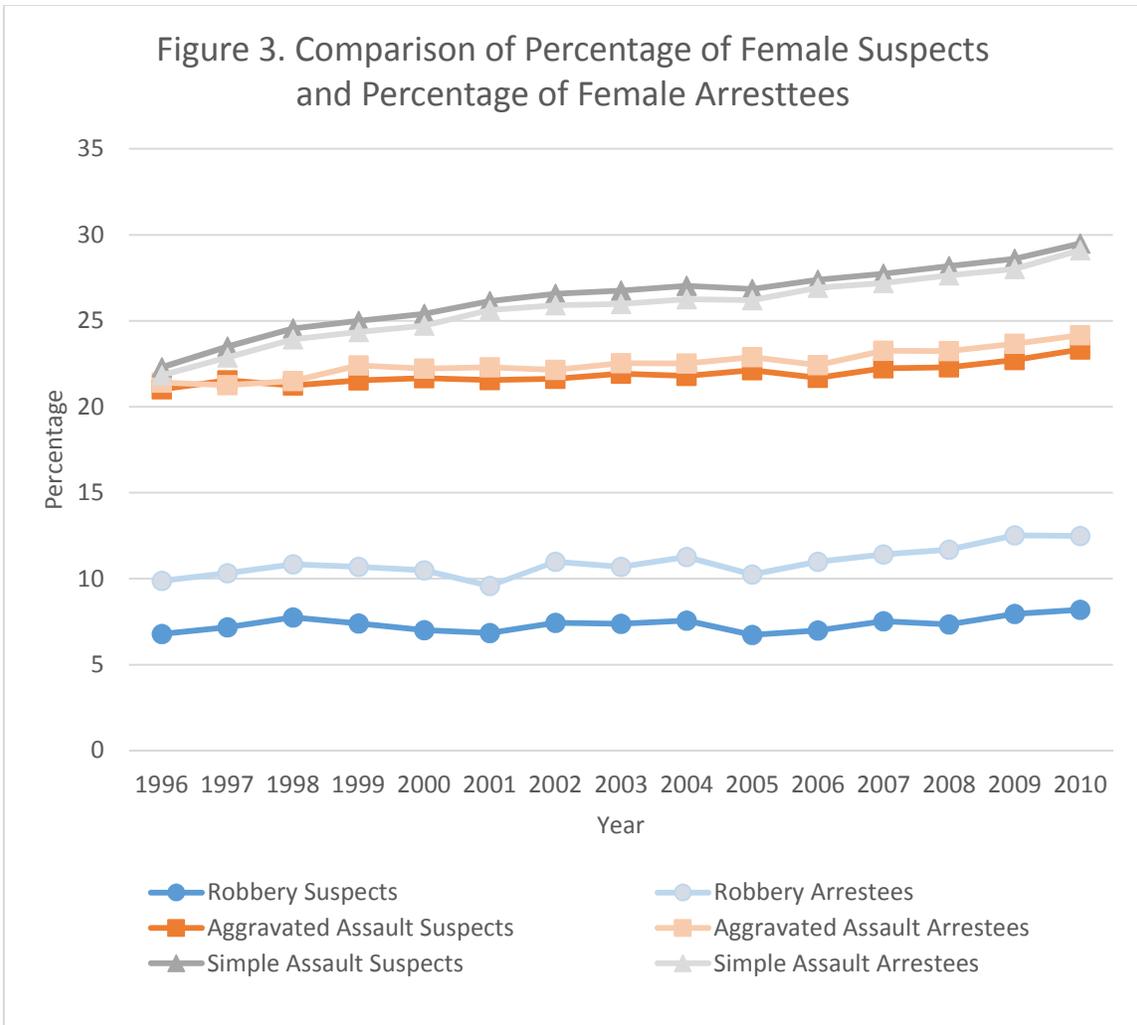
Figure 3 shows that when comparing the percentage of female suspects and the percentage of female arrestees for simple assault and aggravated assault the percentages are very similar to one another indicating a lack of influence of sex on arrest likelihood. However, for robbery there is a large gap between the percentage of female suspects and female arrestees, with female arrestees making up a much higher percentage than female suspects. This suggests that the gender gap for actual behavior is higher than that seen in arrest statistics and that females committing robbery are more likely to be arrested than their male counterparts. Based on these simple descriptive

statistics, it appears that females are more prone to arrest, rather than less

prone, as proposed by the chivalry hypothesis. This instead shows support for

counter hypothesis one, the evil woman hypothesis, for robbery. Hypothesis 1a,

further purported that the chivalry in arrest for female suspects would be stronger

for simple assault than aggravated assault and robbery. Not only is there no

chivalry indicated, the strongest relationship between sex and arrest likelihood

based on these descriptive statistics is for robbery. Of course, multivariate

analysis is needed to further investigate these findings.

Additionally, Figure 3 shows that these trends seem to be quite stable

over time. Thus, there is no support shown for the second hypothesis, that

chivalry decreased over time, as there is none indicated to begin with, and the

percentage of suspects and arrestees mirror one another over the fifteen year

time period of 1996-2010.

Bivariate Analysis

Before discussing the results of the multivariate analysis, Table 2 shows

the odds ratio of arrest for female suspects compared to male suspects for

robbery, aggravated assault, and simple assault with no other variables in the

model.

Table 2. Bivariate logistic regression results: Odds ratio of arrest for female suspects for robbery, aggravated assault, and simple assault for 1996-2010			
	Robbery	Aggravated Assault	Simple Assault
Female	2.03(.02)***	1.09(.00)***	.94(.00)***
Constant	0.37	1.08	1.00
Wald Chi	5397.70***	508.67***	978.36***
Pseudo R-squared	0.0067	0.0002	0.0001
N	952341	1934137	7006865

While the descriptive analysis showed support for the evil woman hypothesis with a higher percentage of female robbery arrestees than female robbery suspects, the bivariate analysis in Table 2 shows even greater support with a large odds ratio for female suspects of robbery compared to male suspects at 2.03. This may also be interpreted as female robbery suspects having 103% [(2.03-1)*100] higher odds of arrest compared to male robbery suspects. The odds ratio for females suspects compared to male suspects of aggravated assault is 1.09, showing a small relationship for females who have 9% higher odds of arrest than males for this offense. Whereas simple assault has an odds ratio of 0.94 for female suspects compared to male suspects. Thus, without controlling for any other variables, female suspects have 6% lower odds of arrest compared to male suspects for simple assault. This lends some minor support for the chivalry hypothesis for the offense of simple assault only, the least serious of the three violent offenses included in the study.

However, while the bivariate analysis does show a statistically significant relationship this is largely due to the extremely large number of cases. The model explains very little about the likelihood of arrest as indicated by a pseudo r2 that is less than 0.01. This suggests that sex of a suspect alone explains less than 1% of the likelihood of arrest.

Multivariate Analysis

In order to further examine this relationship, and to rule out the possibility of a spurious relationship between sex and arrest likelihood, multivariate

analyses were used. The chivalry hypothesis purported that female suspects would have a lower likelihood of arrest than male offenders due to differences in police practices and the desire to go easy on the "fairer" sex as had been proposed by previous scholars (Anderson, 1973). It was further specified that the strength of the relationship would be stronger for simple assault than for robbery or aggravated assault.

The results of the descriptive statistics though showed little evidence of this. In fact, the results in both the descriptive statistics and the bivariate analysis showed more support for the evil woman theory, the idea that females who do not follow traditional gender roles will be more likely to be arrested (Visher, 1983). However, this is only true for the results for robbery, which show that women are more likely to be arrested than men. As robbery is considered a much more masculine crime (Miller, 1998), it then follows that women would be treated more harshly according to this theory. Yet, it may be other factors of the crime besides the sex of the suspect influencing this sex difference in likelihood of arrest. For instance, perhaps females are more likely to use a gun when committing a robbery and any suspect using a gun may be more likely to be arrested. Past research has also shown that females are more likely to offend against intimates when perpetrating violence (Schwartz, 2007) and this may result in them being more easily identified and arrested.

In order to decipher as much as possible the degree to which these other factors influence the relationship between sex and arrest and to further test the chivalry hypothesis and the opposing evil woman hypothesis, the relationship

between sex and arrest likelihood was tested using logistic regression analysis to control for other variables. As mentioned in the methods section, nested models were run using the likelihood ratio test. The full model is presented in Table 3.

As Table 3 shows there is a relationship between being a female suspect and the likelihood of arrest, but it does not clearly support either the chivalry hypothesis or the evil woman hypothesis. The regression analysis shows that females have a higher likelihood of arrest for robbery than males, while there is small to no influence of sex on arrest for assault. When looking at robbery, here there is a relationship between sex and arrest likelihood with females having a higher, not lower, likelihood of arrest with an odds ratio of 1.19 when controlling for all other variables in the model.

This means that female robbery suspects have 20% higher odds of arrest than male robbery suspects, controlling for other suspect, victim, and offense characteristics. However, when looking at aggravated assault, there is almost no relationship between sex and arrest likelihood with an odds ratio of 0.99. For the least violent offense, simple assault, the odds ratio for arrest for females compared to males is 0.96, showing that when controlling for all other variables in the model, female suspects have 4% lower odds of arrest than males.

Table 3. Logistic regression results: Odds ratios of arrest for all suspects 1996-2010			
	Robbery	Aggravated Assault	Simple Assault
Female	1.19(.02)***	.99(.00)*	.96(.00)***
Year	1.02(.00)***	1.02(.00)***	1.01(.00)***
Number of suspects	1.26(.01)***	1.07(.00)***	1.07(.00)***
Suspect Demographics			
Suspect Age	.99(.00)***	1.00(.00)***	.99(.00)***
Suspect Race (Omitted: Black)			
White	1.38(.02)***	1.13(.01)***	1.17(.00)****
Other	1.43(.08)***	1.24(.03)***	1.49(.01)***
Victim One Characteristics			
Victim Age	1.00(.00)***	1.01(.00)***	1.01(.00)***
Victim Race (Omitted: Black)			
White	1.18(.01)***	1.21(.01)***	1.14(.00)***
Other	1.19(.05)***	1.18(.03)***	1.17(.01)***
Victim Female	1.21(.01)***	.98(.00)***	1.00(.00)
Victim-Suspect Relationship (Omitted: Acquaintance)			
Family/Intimate	1.23(.03)***	1.69(.01)***	2.10(.00)***
Stranger	.58(.01)***	.97(.01)***	1.19(.01)***
Serious Injury	1.06(.02)**	1.22(.01)***	.97(.04)
Population	1.00(.00)***	1.00(.01)***	1.00(.00)***
Region (Omitted: South)			
Northeast	2.08(.05)***	1.24(.01)***	1.57(.01)***
Northcentral	0.97(.01)***	.91(.00)***	.78(.00)***
West	0.97(.00)***	1.10(.00)***	1.79(.01)***
Weapon (Omitted: Other)			
Gun	0.90(.02)***	1.01(.01)	N/A
Knife	1.00(.02)	1.40(.01)***	N/A
Personal	0.87(.02)***	1.07(.01)***	N/A
None	.88(.02)***	.71(.01)***	N/A
Location (Omitted: home/residence)			
school/college	1.70(.09)***	1.14(.02)***	1.57(01)***
Bar	1.11(.05)*	.85(.01)***	.84(.01)***
street/parking	0.93(.01)***	.87(.01)***	.90(.00)***
Bank	1.71(.08)***	.92(.08)	.78(.03)***
Other	1.2(.02)	.88(.01)***	.92(.00)***
Constant	.42(.01)***	.54(.01)***	.47(.00)***
N	418285	1463613	6472741
Wald Chi	14560.62***	58040.62***	319820.8***
Log Pseudolikelihood	-246536	-953980	-4235666
Pseudo R2	.0792	.0484	.0558
* p < 0.05 ** p < 0.01 *** p <.001			

Table 4. Female and Male Predicted Probabilities of Arrest						
	Robbery		Aggravated Assault		Simple Assault	
	Female	Male	Female	Male	Female	Male
Sex	0.45	0.33	0.56	0.56	0.50	0.52
N	34698	384017	346992	1117361	1758285	4714456

Another way to interpret these numbers is by looking at the predicted probability of arrest. Probabilities were run using the full regression model shown in Table 3. While the odds ratios, such as those in Table 3 above, show the odds of arrest for an attribute of a given variable in reference to another attribute of the variable, predicted probabilities give the probability of arrest for any given attribute. Table 4 shows the difference in the probability of arrest based on sex, with all other variables in the model being equal. All else equal, female robbery suspects have a higher probability of arrest at 45% compared to male robbery suspects' probability of arrest at 33%. Both males and females have an equal probability of arrest of 56% for aggravated assault. Female suspects for simple assault have a 50% probability of arrest, which is not substantively different than the 52% probability of arrest for male suspects of simple assault. As these probabilities are calculated using the regression model shown in Table 3, these results based on sex are found even when controlling for all other variables in the model.

The large difference in the probability of arrest between female and male suspects of robbery shows some support for the evil woman hypothesis. As the difference in the probability of arrest for female and male suspects of assault is

non-existent for aggravated assault or for simple assault, there is no support for the chivalry hypothesis.

The second hypothesis suggests that the relationship between sex and arrest likelihood, in particular chivalry, would diminish over time. Below, Table 5 shows that there is a lack of change over time in arrest for both males and females. Table 5 uses sex disaggregated models to look at each variable for males and females and gives a clear picture of any variation in the impact of a correlate with sex. As Table 5 shows, year is not only similar, but has the exact same odds ratio for males and females for aggravated assault (1.02), and simple assault (1.01). The difference in the odds ratio for males and females for robbery is only that of 1.02 for males and 1.03 for females. As there was almost no chivalry indicated to begin with, the second hypothesis that chivalry has diminished over time has no basis for support, and the odds ratios show that there is not a difference for males and females over time in likelihood of arrest.

Similar results of consistency in the relationship between sex and arrest likelihood over the years 1996-2010 were also seen in additional analyses run including, nested regression models, solo and co-offending disaggregated models, and a regression model including year as an interaction effect with sex. These findings were consistent across all three offenses examined. There is no evidence to support the hypothesis that the relationship between sex and arrest likelihood diminished over time as all the results show striking consistency from 1996-2010. To sum, the hypothesis suggested that chivalry would decrease over time, but this was not possible as it was not evident to begin with.

Table 5. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models						
	Robbery		Aggravated Assault		Simple Assault	
	Male	Female	Male	Female	Male	Female
Year	1.02(.00)***	1.03(.00)***	1.02(.00)***	1.02(.00)***	1.01(.00)***	1.01(.00)***
Number of Suspects	1.26(.01)***	1.19(.02)***	1.07(.00)***	1.08(.01)***	1.07(.00)***	1.09(.00)***
Suspect Demographics						
Suspect Age	.99(.00)***	.99(.00)***	1.00(.00)***	1.00(.00)***	1.00(.00)***	.99(.00)***
Suspect Race (Omitted: Black)						
White	1.38(.02)***	1.27(.04)***	1.15(.01)***	1.05(.01)***	1.18(.00)***	1.13(.01)***
Other	1.52(.01)***	.93(.12)	1.23(.03)***	1.30(.06)***	1.47(.02)***	1.59(.03)***
Victim One Characteristics						
Victim Age	1.00(.00)***	1.00(.00)***	1.01(.00)***	1.01(.00)***	1.01(.00)***	1.01(.00)***
Victim Race (Omitted: Black)						
White	1.17(.02)***	1.16(.04)***	1.23(.01)***	1.16(.02)***	1.18(.00)***	1.04(.01)***
Other	1.19(.05)***	1.20(.13)	1.21(.03)***	1.10(.06)***	1.25(.01)***	1.01(.02)
Female Victim	1.24(.02)***	1.08(.03)*	1.04(.01)***	.82(.01)***	1.11(.00)***	.74(.00)***
Victim-Suspect Relationship (Omitted: Acquaintance)						
Family/ Intimate	1.22(.03)***	1.07(.07)	1.66(.01)***	1.57(.01)***	2.03(.01)***	1.88(.01)***
Stranger	.54(.01)***	1.11(.03)**	.94(.01)***	1.18(.02)***	1.18(.01)***	1.26(.01)***
Serious Injury	1.04(.02)	1.35(.07)***	1.19(.01)***	1.30(.01)***	.96(.05)	1.10(.12)
Population	1.00(.00)***	1.00(.00)***	1(.00)***	1(.00)***	1(.00)***	1(.00)***
Region Characteristics (Omitted: South)						
Northeast	2.15(.05)***	1.61(.10)***	1.25(.01)***	1.24(.02)***	1.52(.01)***	1.63(.01)***
North-central	.98(.01)***	.92(.02)***	.92(.00)***	.88(.00)***	.78(.00)***	.72(.00)***
West	.97(.00)***	.99(.01)	1.10(.00)***	1.12(.01)***	1.78(.01)***	1.88(.01)***
Weapon (Omitted: Other)						
Gun	.89(.02)***	1.14(.06)**	.99(.01)	1.05(.02)**	N/A	N/A
Knife	.99(.02)	1.05(.06)	1.33(.01)***	1.51(.02)***	N/A	N/A
Personal	.87(.02)***	.87(.04)**	1.07(.01)***	1.08(.01)***	N/A	N/A
None	.88(.02)***	.87(.06)*	.71(.01)***	.71(.02)***	N/A	N/A
Location (Omitted: home/residence)						
School/ college	1.71(.09)***	1.42(.25)*	1.15(.02)***	1.11(.04)**	1.57(.01)***	1.63(.01)***
Bar	1.15(.05)**	1.00(.04)	.87(.01)***	.80(.01)***	.87(.01)***	.83(.01)***
Street/ parking	.93(.01)***	.97(.04)	.89(.01)***	.81(.01)***	.90(.00)***	.94(.01)***
Bank	1.66(.08)***	2.22(.32)***	.91(.09)	1.00(.18)	.79(.03)***	.77(.06)***
Other	1.18(.02)***	1.25(.05)***	.90(.01)***	.84(.01)***	.91(.00)***	.97(.01)***

Constant	.44(.02)***	.33(.03)***	.52(.01)***	.66(.01)***	.42(.00)***	.70(.01)***
N	384017	34698	1117361	346992	4714456	1758285
Wald Chi	14370.74***	871.98***	47598.32***	17874.81***	258871.01***	105331.12***
Pseudo-likelihood	-223703.11	1457.41***	-728093.05	-224590.31	-3085652.1	-1145237.7
Pseudo R2	.0803	.0607	.0484	.0539	.0553	.0603
* p < 0.05 ** p < 0.01 *** p < 0.001						

While the odds ratio for each year is the same for males and females, it is noteworthy that there is a 2% increase in the odds of arrest for each given year for robbery and aggravated assault and a 1% increase for simple assault. Over a 15 year time span this becomes a quite a large substantive change. It demonstrates an ongoing increase in social control in the United States for both males and females.

Conclusion

This chapter found that the hypothesis of chivalry for female suspects resulting in lower probability of arrest is not supported either in descriptive statistics or in multivariate analyses. Rather for the offense of robbery, there is support for the counter-hypothesis, the evil woman hypothesis, which suggested female suspects will have a higher probability of arrest. While female suspects for a less violent offense, simple assault, seem to be accorded some very small amount of chivalry as indicated by 6% lower odds of arrest for female suspects of simple assault compared to male suspects when looking at the bivariate analysis, this drops to only 4% lower odds of arrest in the full model controlling for all other variables in the model. Females suspected of having committed the more violent offense of robbery are more likely to be arrested, lending solid support for the

counter hypothesis of the evil woman. Female suspects' odds of arrest for robbery are 19% higher than males, even when controlling for various other contextual variables such as weapon use, injury to the victim, and location.

As robbery is an offense where females are breaking gender rules, this suggests further examination to consider what other factors may violate gender expectations, such as gun use, as they may increase female suspects' probability of arrest. Table 5 also showed that there were differences in the likelihood of arrest for white suspects compared to black suspects and that this varied for males and females. These additional correlates will be examined further in the following chapters.

Furthermore, a limitation that must be acknowledged is that there are certain factors that cannot be controlled for in the regression model. While female suspects are more likely to be arrested, they only represent 7% of total suspects for 1996-2010. Female suspects may be arrested more because there are so few of them it is easier to identify them. Victims may be able to provide more clarity in descriptions of female suspects than male suspects increasing the likelihood of arrest. It could even be that females who commit robbery are simply less effective and more easily caught. While most studies of this nature have related discrepancies between suspects and arrestees as a result of police discretion, it cannot be ruled out that the difference may be that it is a result of other factors out of the control of law enforcement. Many of these factors are beyond the scope or the ability of this research to isolate, therefore we can only determine the differences in likelihood of arrest and theorize about the possible implications

regarding policing and victim reporting. These other factors are likely playing a large role in the chance of arrest as the full model only explains the variation in arrest by 5-8% as indicated by the pseudo r-squared.

It is also important to note that one of the other most significant findings in this section, is the lack of a finding for change over time. There was no support for the decreased chivalry over time theory, as it was fairly non-existent to begin with and there did not appear to be any change in the relationship between sex and arrest likelihood over time based on both descriptive statistics and the multivariate analyses. This may be due, in part, to being limited to 15 years of data. Perhaps, had the data provided statistics beginning in 1950, more change over time would be indicated.

Chapter 4: The influence of contextual variables such as weapon use and injury on the likelihood of arrest

The third hypothesis states that gender differences in the likelihood of arrest will decrease when controlling for seriousness of the offense, such as gun/knife use and the injury inflicted. This chapter will focus on this hypothesis as well as determine if contextual factors impact males and females similarly or differently. As seen in the previous chapter, the differences of odds ratios between the bivariate analysis in Table 2 and the multivariate regression model in Table 3 demonstrate the importance of contextual variables when studying sex and arrest likelihood. Controlling for contextual variables greatly reduces the impact of sex on arrest likelihood for robbery. The odds ratio of arrest for female robbery suspects compared to male suspects drops from 2.03 in bivariate analysis to 1.19 for female suspects compared to male suspects when controlling for all other variables in the model. Contextual factors also have a small impact on sex and arrest likelihood for simple assault with the odds ratio for female suspects increasing from 0.94 in bivariate analysis to 0.96 in the full model. This chapter will address each of the contextual factors of weapon use, injury, and victim-suspect relationship for males and females comparatively.

Weapon Use

Weapon use is an important variable to test as previous evidence has shown that females committing more aggressive crimes are more likely to be arrested than males. It then follows that females using more violent tools such as a gun or a knife would also have a higher likelihood of arrest than males using a

gun or a knife. As weapon use is not within the definition of simple assault, this can only be tested by looking at robbery and aggravated assault within this study. A gun or knife was used in a large proportion of cases: for robbery 54% of cases involved a gun or a knife, and 40% of aggravated assault cases involved a gun or a knife. There were large gender differences in use of these deadly weapons. Males were significantly more likely to use a gun for both offenses and females were more likely than males to use a knife for both offenses.

Table 6. Percent of Suspects Using a Gun or Knife for Robbery and Aggravated Assault							
	Robbery				Aggravated Assault		
	Male		Female		Male		Female	
	N	%	N	%	N	%	N	%
Gun	435,249	50	18,941	27	327,749	22	35,705	8
Knife	63,821	7	10.23	10	268,314	18	120,050	28

The influence of using a deadly weapon impacts the odds of arrest differently within genders, but does not impact the relationship of sex and arrest likelihood. As seen below in the excerpt from Table 5, females who use a gun or knife have higher odds of arrest relative to other weapons, but among males use of a gun reduced the odds of arrest. Suspects using only personal weapons (hands, feet, teeth), or no weapon, have fairly similar odds ratios for males and females. For robbery, male suspects using a gun actually have odds of arrest 11% lower compared to males using other weapons, whereas females using a gun have odds of arrest 14% higher than females using other weapons. Male aggravated assault suspects using guns had odds of arrest 1% lower compared to males using other weapons, whereas females using guns had odds 5% higher than females using other weapons. Both male and female suspects using knives

compared to other weapons had higher odds of arrest, but it was much higher for females. For males the odds of arrest increased by 33% for using a knife and for females it increased by 51%.

Table 5a. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models				
	Robbery		Aggravated Assault	
	Male	Female	Male	Female
Weapon (Omitted: Other)				
Gun	.89(.02)***	1.14(.06)**	.99(.01)	1.05(.02)**
Knife	.99(.02)	1.05(.06)	1.33(.01)***	1.51(.02)***
Personal	.87(.02)***	.87(.04)**	1.07(.01)***	1.08(.01)***
None	.88(.02)***	.87(.06)*	.71(.01)***	.71(.02)***
N	384017	34268	1117361	346992

Table 7 shows that for aggravated assault female and male probabilities of arrest are almost equal for each weapon used. Yet for female robbery suspects, female probability of arrest is consistently higher than males, particularly for gun use (the most masculine weapon) at 42% compared to male robbery suspects using a gun at only 29%. Weapon use then does not impact the previous pattern of gender similarity in arrest for aggravated assault and gender difference, with a higher probability of arrest for females, for robbery.

Table 7. Female and Male Predicted Probabilities of Arrest by Weapon Use				
	Robbery		Aggravated Assault	
Weapon	Female	Male	Female	Male
Gun	0.42	0.29	0.51	0.50
Knife	0.46	0.38	0.62	0.63
Personal	0.45	0.35	0.58	0.59
None	0.45	0.35	0.48	0.48

Injury

As the research has so far indicated that females committing the more violent offense of robbery have a higher likelihood of arrest as suggested by the

evil women hypothesis, it seems probable that women who cause more serious injuries would also have a higher likelihood of arrest than men. The percentage of suspects who inflicted serious injury varies greatly depending on the offense and is not applicable to simple assault. The main offense this is a factor for is aggravated assault with 28% of offenders inflicting a serious injury compared to only 8% of offenders for robberies. The percent of suspects causing serious injury are quite similar for males and females as shown in Table 8.

Table 8. Percent of Suspects who Inflicted Serious Injury							
	Robbery				Aggravated Assault		
	Male		Female		Male		Female	
	N	%	N	%	N	%	N	%
Serious Injury	57,242	8	4,165	7	410,858	28	97,733	24

Table 5b below shows that female suspects who commit offenses resulting in serious injury to the victim compared to female suspects that commit offenses resulting in only minor injury or no injury have a higher likelihood of arrest compared to male suspects inflicting more serious injury versus male offenders inflicting minor or no injury. For female suspects who commit a robbery resulting in serious injury the odds of arrest are 35% higher compared to minor or no injury, but males who commit a robbery resulting in serious injury only have an increase of 4% (ns). The odds of arrest for female suspects who commit aggravated assault resulting in serious injury is 30% higher compared to minor or no injury, and for male suspects who commit aggravated assault resulting in serious injury it is only 19% higher. In other words, as predicted, causing serious injury increases the probability of arrest for both males and females, however this increased probability is greater for females than males. A female who commits a

violent act that causes serious injury increases her likelihood of being arrested more than a male who causes serious injury increases his likelihood of being arrested. This offers further support of the potential evil woman hypothesis for females who violate gender stereotypes.

Table 5b. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models				
	Robbery		Aggravated Assault	
	Male	Female	Male	Female
Serious Injury	1.04(.02)	1.35(.07)***	1.19(.01)***	1.30(.01)***
N	384017	34268	1117361	346992

The predicted probabilities of arrest are shown below in Table 9. Females and males have equal probability of arrest in aggravated assaults with serious injury and minor or no injury. For robbery though, females once again have a consistently higher probability of arrest, whether a serious injury is inflicted or not. However, the difference in probability of arrest is slightly higher when a serious injury occurs. Female suspects' probability of arrest is 13% higher than male suspects' odds when a serious injury occurs, compared to 11% higher when only minor or no injury occurs.

Table 9. Female and Male Predicted Probabilities of Arrest by Injury Inflicted				
	Robbery		Aggravated Assault	
	Female	Male	Female	Male
Serious Injury	0.50	0.37	0.60	0.60
Minor/No injury	0.44	0.33	0.55	0.55

Victim-suspect relationship

The influence of the victim-suspect relationship and the likelihood of arrest is perhaps the most surprising and it is difficult to control for what may be

influencing these results. Table 10 shows the breakdown of the percentage of the victim-suspect relationships for robbery, aggravated assault, and simple assault.

Table 10. Percent of Suspects by Victim-Suspect Relationship						
	Robbery		Aggravated Assault		Simple Assault	
	N	%	N	%	N	%
Offender stranger	398,581	50	288,465	15	546,635	8
Offender Aquaintance	124,137	16	693,094	37	2,144,082	31
Offender Family/Intimate	13,368	2	614,543	33	3,346,370	49
Unknown	257,732	32	242,756	13	819,755	12

The logistic regression analyses shows that a suspect who offends against a family member or intimate has a higher likelihood of arrest than a suspect who offends against an acquaintance and this is true for both males and females across all offenses. The most likely explanation for this is that the person is known and easy for the police to locate, but this is difficult to control for. Another possible reason for much higher arrest rates for offenses against a family or intimate, especially for simple assault, may be mandatory arrest policies that influence arrests when police respond to domestic disputes. Additionally, the results may be skewed particularly for robbery due to the large number of instances where the victim-suspect relationship is unknown. However, it is still worthwhile to compare how the suspect-victim relationship may influence the relationship between sex and arrest. It is well-known that females offend more often against intimates than strangers compared to males and it may be that this then makes females more or less likely to be arrested when offending against intimates.

Table 5c. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models						
	Robbery		Aggravated Assault		Simple Assault	
	Male	Female	Male	Female	Male	Female
Victim-Suspect Relationship (Omitted: Acquaintance)						
Family/ Intimate	1.22(.03)***	1.07(.07)	1.66(.01)***	1.57(.01)***	2.03(.01)***	1.88(.01)***
Stranger	.54(.01)***	1.11(.03)**	.94(.01)***	1.18(.02)***	1.18(.01)***	1.26(.01)***
N	384017	34268	1117361	346992	4714456	1758285

The results shown above in Table 5c indicate that while both males and females have a higher likelihood of arrest when offending against an intimate, the increase is smaller for females. The odds of arrest for robbery against a family or intimate compared to an acquaintance is 22% higher for males and 7% higher for females, aggravated assault is 66% higher for males and 57% higher for females, and simple assault is 103% higher for males and 88% higher for females. The likelihood of arrest for strangers compared to acquaintances is lower for males compared to females across all three offenses. These statistics again reinforce the theory that women who are more violent and offend in unconventional ways for females, such as committing a violent act against a stranger rather than someone they know, results in harsher treatment. The odds of arrest for robbery against a stranger compared to an acquaintance is 46% lower for males and 11% higher for females, for aggravated assault it is 6% lower for males and 18% higher for females, and for simple assault it is 18% higher for males and 26% higher for females. The predicted probabilities of arrest based on the victim-suspect relationship are shown in Table 11.

Table 11. Female and Male Predicted Probabilities of Arrest by Victim-Suspect Relationship						
	Robbery		Aggravated Assault		Simple Assault	
Victim-Suspect Relationship	Female	Male	Female	Male	Female	Male
Family/Intimate	0.52	0.45	0.65	0.65	0.60	0.59
Acquaintance	0.51	0.43	0.49	0.52	0.41	0.42
Stranger	0.39	0.29	0.49	0.50	0.45	0.46

The predicted probabilities of arrest again show similar to equal probability of arrest for males and females for assault across various victim-suspect relationships and higher probability of arrest for females compared to males for robbery. The probability of arrest for females is 7% greater than males offending against a family member or intimate. The probability of arrest is 8% higher for females than for males when offending against an acquaintance, and is 10% higher for females than males when offending against a stranger.

Conclusion

This section focused on contextual factors that may influence the probability of arrest. Contextual factors account for a large amount of the sex effect on arrest likelihood, particularly for robbery. Contextual factors were also found to influence the likelihood of arrest differently for males and females. This chapter showed that females who commit their offense in a more violent or masculine manner such as by using a gun, inflicting serious injury, or offending against a stranger increase the probability of their arrest more than males who commit offenses in a more violent or masculine manner.

The overarching theme, though, continues to be that when controlling for a variety of contextual factors females continue to have a higher probability of arrest than males for robbery, but similar probabilities of arrest for aggravated assault and simple assault.

Chapter 5: The influence of suspect characteristics and victim characteristics on the likelihood of arrest

To fully understand the relationship between sex and arrest likelihood, it is essential to look at other suspect characteristics besides sex, such as race, as well as victim characteristics because previous research (Stolzenberg and D'Alessio, 2004 & Visher,1983) has found many of these correlates to also impact the likelihood of arrest. In this chapter, the relationship between suspect characteristics of race and age on arrest probability will be examined, as well as the characteristics of sex, race, and age of the victim on arrest likelihood.

Suspect Race

Descriptive Analysis

The racial breakdown of suspects varied by offense type as shown in Table 12. For robbery, 26% of suspects were white, 73% of suspects were black and less than 1% (.61) were other races. For aggravated assault, 56% of suspects were white, 43% were black, and 1% were other races. The racial breakdown for simple assault was 64% of suspects were white, 35% of suspects were black, and 1% were other races.

TABLE 12: Percent of Suspects by Race for Robbery, Aggravated Assault, and Simple Assault						
	Robbery		Aggravated Assault		Simple Assault	
	N	%	N	%	N	%
Black	676,588	73	810,520	43	2,400,706	35
White	241,832	26	1,051,698	56	4,366,534	64
Other	5,652	1	24,913	1	95,980	1

The racial proportions as varied by offender's sex is shown in Table 13. Of the male robbery suspects 25% were white compared to 46% of female suspects who were white. Blacks accounted for 75% of male robbery suspects, but only 53% of female suspects. Other races represented 1% of male suspects and 1% of female suspects for robbery. Unlike robbery, for aggravated assault there were more white male suspects (58%) than black males (41%), but for females there were about the same share of white females (49%) and black females (50%). Other races were almost equal with 1% of male suspects and 1% of female suspects. Simple assault showed the smallest racial differences among male and female suspects. Of male suspects for simple assault, 63% were white and 64% of female suspects were white, 35% of male suspects were black and 34% of female suspects were black. Other race suspects accounted for 1% of males and 2% of female in simple assault incidents.

TABLE 13: Percent of Suspects by Race and Sex for Robbery, Aggravated Assault, and Simple Assault											
	Robbery				Aggravated Assault				Simple Assault			
	Male		Female		Male		Female		Male		Female	
	N	%	N	%	N	%	N	%	N	%	N	%
Black	639,787	75	36,801	53	601,029	41	208,607	50	1,762,832	35	636,442	35
White	210,482	25	31,350	46	847,391	58	203,697	49	3,171,709	63	1,193,126	64
Other	4,959	1	693	1	19,392	1	5,464	1	66,522	1	29,327	1

First, in order to examine if race impacted arrest likelihood simple descriptive statistics were run. Figures 4-6 compare the percentages of suspects to arrestees by race over the time period 1996-2010 for each offense. Figure 4 clearly shows that the percentage of white robbery arrestees compared to white suspects is higher, and the percentage of black arrestees compared to black

suspects is lower. This indicates that white suspects are more likely to be arrested than blacks. This is quite different from other research, but the descriptive statistics do not control for other factors, such as victim's race which is known to influence arrest probability (Black, 1970). These findings thus invite further attention with more advanced statistical measures. The percentages of other race suspects and arrestees are both very small and do not show any discrepancy between groups. This pattern of higher arrest percentages for whites and lower arrest percentages for blacks holds true for aggravated assault in Figure 5 and simple assault in Figure 6. The main difference between robbery and assault is that whites make up the majority of suspects and arrestees.

Figure 4. Percentage of Robbery Suspects and Arrestees by Race
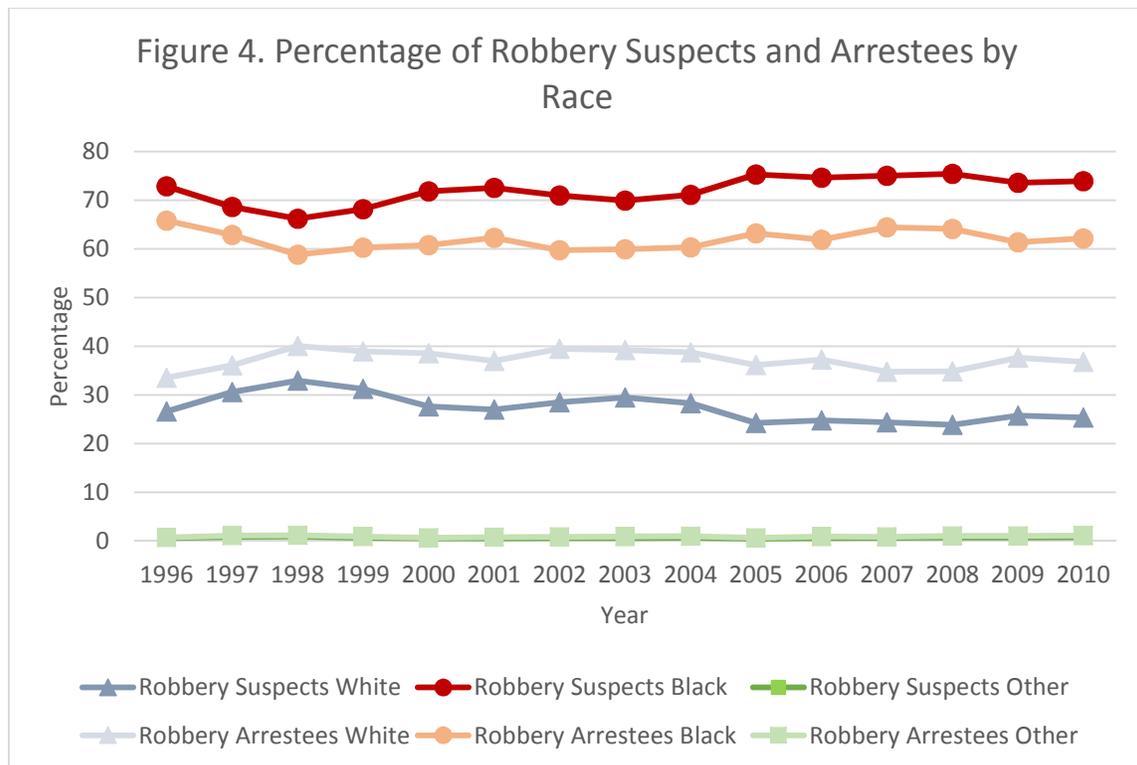
Figure 5. Percentage of Aggravated Assault Suspects and Arrestees by Race
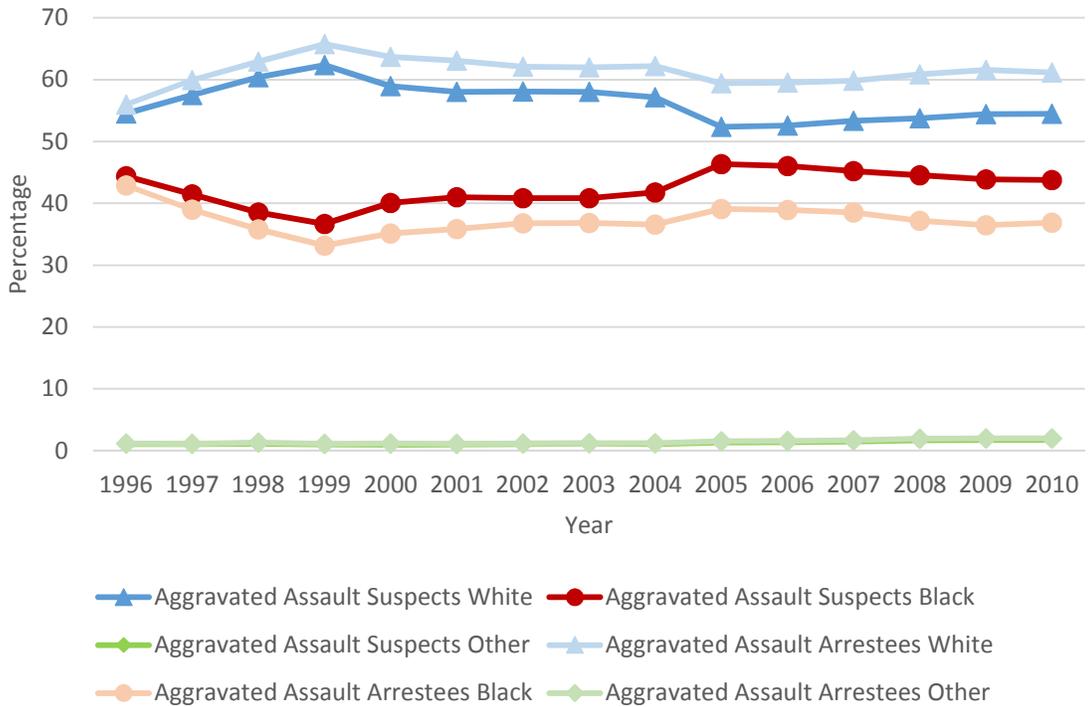
Figure 6. Percentage of Simple Assault Suspects and Arrestees by Race
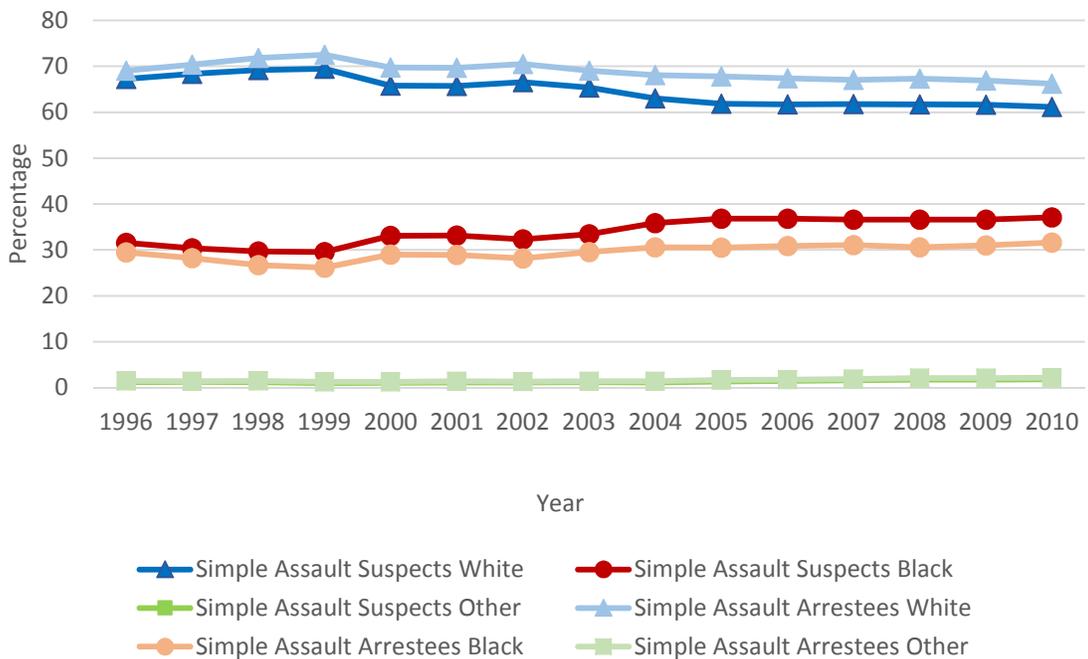
<u>Multivariate Analysis</u>

In order to assure that the influence of race on arrest likelihood is not a spurious relationship, as with sex and arrest, it is necessary to look at multivariate analysis to test the relationship of race and arrest likelihood. The descriptive analysis showed that white suspects were more likely to be arrested than black suspects. Multivariate analysis will be used to control for other variables to see if this relationship remains. Regression analysis will also be used to examine if the influence of sex on arrest likelihood varies by race as predicted in hypothesis three.

Table 3a. Logistic regression results: Odds ratios of arrest for all suspects 1996-2010		
	Robbery	Aggravated Assault	Simple Assault
Suspect Race (Omitted: Black)			
White	1.38(.02)***	1.13(.01)***	1.17(.00)****
Other	1.43(.08)***	1.24(.03)***	1.49(.01)***
N	418285	1463613	6472741

As seen above in the excerpt from Table 3, the full logistic regression model also showed whites to have a higher likelihood of arrest than blacks with an odds ratio of 1.38 for robbery, 1.13 for aggravated assault, and 1.17 for simple assault. In other words, white suspects' odds of arrest are 38% higher than black suspects for robbery, 13% higher for aggravated assault, and 17% higher for simple assault.

It is interesting to note that the largest race gap in arrest likelihood is for robbery, the offense that also had the largest influence of sex on arrest likelihood. As the majority of suspects for robbery are black, it could be that as with the evil woman hypothesis where women may be treated more harshly for

not following their gender roles, perhaps here whites are treated more harshly for not following the racial stereotypes for criminal activity. It may also be that with the smaller percentage of white suspects, they are more identifiable and therefore easier to arrest. As was discussed with sex, it may be that the variation seen between suspects and arrestees is not a result of police discretion, but the victim's ability to provide identifying information to the police.

The odds of arrest for whites are 38% higher than blacks for robbery, which is the opposite of what would be expected. Whites have higher odds of arrest for assault as well, with odds of arrest 13% higher for aggravated assault and 17% higher for simple assault for crimes. However, for these crimes that are not predominantly associated with blacks the increased odds of arrest is much smaller than was seen with robbery. Other race suspects have an even higher probability of arrest compared to blacks than whites. The odds ratio for other race suspects for robbery is 1.43, 1.24 for aggravated assault, and 1.49 for simple assault. Other race suspects' odds of arrest are 43% higher for robbery than blacks, 24% higher for aggravated assault, and 49% higher for simple assault.

This striking finding of white and other race suspects having a higher likelihood of arrest is counter to many other past studies, but is in line with other studies which have relied on NIBRS and will be addressed further in the conclusion.

Hypothesis four (sex by race intersectionality hypothesis) suggests that the probability of arrest will vary across racial groups, with female racial minorities receiving less chivalry. As there have not been findings of chivalry,

hypothesis four must be rejected, but the idea that sex likelihood varies across race and sex is indicated by the data. The sex disaggregated models in Table 5 (displayed in excerpt 5d below) show that the impact of race does vary based on the sex of the suspect. The race difference in odds of arrest is smaller for females than males. Across offenses the difference in odds of arrest with white suspects having a higher chance of arrest compared to black suspects is lower for white females compared to black females.

For robbery, white males' odds of arrest are 38% higher than black males, whereas white females' odds of arrest are only 27% higher than black females. Other race male robbery suspects' odds of arrest are 52% higher than blacks. The difference between other race females and black females was not statistically significant.

For aggravated assault, white males' odds of arrest are 15% higher than black males, whereas white females' odds of arrest are only 5% higher than black females. Other race male aggravated assault suspects' odds of arrest are 23% higher than black males and other race females' odds of arrest are 30% higher than black females. White male suspects of simple assault have odds of arrest 18% higher than black males, and female suspects' odds of arrest are 13% higher than black females. Other race males' odds of arrest are 47% higher than black males, and other race females' odds of arrest are 59% higher than black females.

Table 5d. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models						
	Robbery		Aggravated Assault		Simple Assault	
	Male	Female	Male	Female	Male	Female
Suspect Race (Omitted: Black)						
White	1.38(.02)***	1.27(.04)***	1.15(.01)***	1.05(.01)***	1.18(.00)***	1.13(.01)***
Other	1.52(.01)***	.93(.12)	1.23(.03)***	1.30(.06)***	1.47(.02)***	1.59(.03)***
N	384017	34268	1117361	346992	4714456	1758285

These statistics from the sex disaggregated regression model in Table 5 show that even when controlling for other factors in the model, including the primary victim's race, whites and other race suspects have a higher likelihood of arrest for all three offenses than black suspects for both males and females. However, white males have a significantly higher likelihood of arrest compared to black males than do white females compared to black females. This shows the importance of examining intersectionality when studying the relationship of sex and arrest likelihood.

We also see that the main finding from chapter three, that females have a higher probability of arrest than males for robbery, holds true across racial groups. This is shown more clearly in Table 14, which lists the predicted probabilities of arrest for male and female suspects for each race, based on the full regression model shown in Table 3. The probabilities of arrest for robbery show striking findings that females in each racial group have an 8-9% higher probability of arrest than males of a comparable race, showing support for the evil woman hypothesis across racial categories. The probability of arrest for a white female robbery suspect is 52% and only 44% for a white male, the probability of arrest for a black female robbery suspect is 38% and 29% for a

black male robbery suspect, and the probability of arrest for an other race female robbery suspect is 54% and 45% for an other race male.

For aggravated assault the probability of arrest is similar for females and males. The probability of arrest for a white female is 62%, a white male 61%, a black female 51%, a black male 50%, other race female 66%, and other race male 64%. In simple assault the probabilities of arrest across racial categories also show no substantial differences between females and males. The probability of arrest for a white female is 53% compared to 54% for a white male, 41% for a black female compared to 44% for a black male, and 61% for an other race female compared to 62% for an other race male.

Table 14. Female and Male Predicted Probabilities of Arrest by Suspect Race						
	Robbery		Aggravated Assault		Simple Assault	
	Female	Male	Female	Male	Female	Male
White	0.52	0.44	0.62	0.61	0.54	0.55
Black	0.38	0.29	0.51	0.50	0.41	0.44
Other	0.54	0.45	0.66	0.64	0.61	0.62

Hypothesis four posited that the probability of arrests would vary across racial groups with minority females receiving less chivalry than white females. These results support the first part of the hypothesis in that the probability of arrest does vary across racial groups, but white females are not treated less harshly than minority females. While race does impact the probability of arrest, the gender difference in robbery and the gender similarity in assault holds true across racial groups.

The characteristics of the victim are also known to influence arrest likelihood and therefore are important to examine. As stated in the methods section, in order to be as parsimonious as possible, only the first victim's information is used in this analysis. The key finding regarding victim's sex is that female suspects of assault have a lower probability of arrest when the victim is also female.

Descriptive Statistics

TABLE 15: Percent of Suspects with Female Victims for Robbery, Aggravated Assault, and Simple Assault						
	Robbery		Aggravated Assault		Simple Assault	
	N	%	N	%	N	%
Victim Female	247,799	24	812630	39	4,285,600	59
Victim Male	687,102	67	1,250,525	60	2,924,779	40
Unknown	91837	9	20770	1	45677	1

Note that, as seen above in Table 15, the percentage of suspects who offend against female victims varies greatly depending on the offense. For robbery only a minority, 24%, of offenders had a female victim, for aggravated assault the percentage increases to 39%, and for simple assault the majority of suspects, 59%, offended against a female victim.

Multivariate Analysis

In looking at the excerpt below from the full regression model shown in Table 3b we see the impact the sex of the victim has on the likelihood of arrest also varies by offense. For aggravated assault and simple assault there seems to be little to no impact on the odds of arrest based on victim's sex, with the odds

ratios being .98 and 1.0, respectively. However, if the victim is female and the offense is robbery the likelihood of arrest increases by 21%.

Table 3b. Logistic regression results: Odds ratios of arrest for all suspects 1996-2010			
	Robbery	Aggravated Assault	Simple Assault
Victim Female	1.21(.01)***	.98(.00)***	1.00(.00)
N	418285	1463613	6472741

This varies however when looking at male and female suspects separately as shown in the sex disaggregated models in Table 5e. It shows that males have a higher probability of arrest than females for all offenses when the victim is female. For robbery, male suspects' odds of arrest are 24% higher when the victim is female compared to a male victim. Males' odds of arrest are 4% higher for aggravated assault when the victim is female, and 11% higher for simple assault when the victim is female. This is quite different for female suspects, where for robbery the odds of arrest for female suspects is still 8% higher if the victim is female, however, if the offense is assault (either aggravated or simple assault) a female suspect with a female victim has much lower odds of arrest compared to when the victim is male. A female suspect's odds of arrest for aggravated assault is 18% lower when the victim is a female than if the victim is male, and the odds of arrest are 26% lower for female suspects of simple assault for a female victim compared to a male victim.

Table 5e. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models						
	Robbery		Aggravated Assault		Simple Assault	
	Male	Female	Male	Female	Male	Female
Female Victim	1.24(.02)***	1.08(.03)*	1.04(.01)***	.82(.01)***	1.11(.00)***	.74(.00)***
N	384017	34268	1117361	346992	4714456	1758285

Table 16 clarifies this relationship further by looking at the predicted probabilities of arrest when holding all other variables in the model constant. As has continually been seen throughout this research, females have a higher probability of arrest for robbery and this is true whether the victim is male or female. However, when looking at assault both males and females have a lower chance of arrest if the victim is the same sex as the suspect. In fact, for assaults male and female suspects' probability of arrest is close to equal when comparing assault on the same sex compared to assaults on the opposite sex.

For aggravated assault, female suspects with female victims have a 53% chance of arrest compared to male suspects with male victims at 54%. Female suspects with male victims have a higher probability of arrest at 60%, which is the same probability of arrest of male suspects with female victims. For aggravated assault, male and female suspects who offend against a same sex victim have a probability of arrest of 47%, whereas male and female suspects who offend against an opposite sex victim have a probability of arrest of 54%.

Table 16. Female and Male Predicted Probabilities of Arrest by Victim Sex						
	Robbery		Aggravated Assault		Simple Assault	
Victim Sex	Female	Male	Female	Male	Female	Male
Female	0.47	0.34	0.53	0.60	0.47	0.54
Male	0.43	0.32	0.60	0.54	0.54	0.47
N	384017	34268	1117361	346992	4714456	1758285

Victim Race

Descriptive Analysis

The victim's race was included as a control variable because previous research found victim's race to be a stronger predictor of arrest than suspect's

race (Black, 1970). Whites represented 54% of robbery victims, 61% of aggravated assault victims, and 69% of simple assault victims.

Multivariate Analysis

Table 3c. Logistic regression results: Odds ratios of arrest for all suspects 1996-2010			
	Robbery	Aggravated Assault	Simple Assault
Victim Race (Omitted: Black)			
White	1.18(.01)***	1.21(.01)***	1.14(.00)***
Other	1.19(.05)***	1.18(.03)***	1.17(.01)***
N	418285	1463613	6472741

This research found similar results to previous research in that suspects who perpetrate crimes against white victims have a higher likelihood of arrest. Table 3c shows that the odds of arrest are 18% higher for robbery suspects who offend against whites compared to blacks and are 19% higher for other race victims compared to black victims when controlling for all other variables in the model. For aggravated assault, the odds of arrest for suspects are 21% greater if the victim is white and 18% greater for other race victims. The odds of arrest for suspects of simple assault are 14% higher for white victims and 17% higher for other race victims compared to black victims.

Table 5f. Logistic regression results: Odds ratios of arrest for offenders with sex disaggregated models						
	Robbery		Aggravated Assault		Simple Assault	
	Male	Female	Male	Female	Male	Female
Victim Race (Omitted: Black)						
White	1.17(.02)***	1.16(.04)***	1.23(.01)***	1.16(.02)***	1.18(.00)***	1.04(.01)***
Other	1.19(.05)***	1.20(.13)	1.21(.03)***	1.10(.06)***	1.25(.01)***	1.01(.02)
N	384017	34268	1117361	346992	4714456	1758285

The impact of the victim's race on the odds of arrest varies further when comparing male and female suspects. For robbery, where the results have consistently shown females to have higher predicted probabilities of arrest, the impact of the victim's race is consistent for both males and females. Table 5f shows that the odds of arrest for male suspects of robbery against white victims compared to black victims is 17% higher and 16% higher for female suspects of robbery against white victims. The odds of arrest for male suspects of robbery against other race victims is 19% higher than black victims and 20% higher for female suspects.

The impact of victims' race on the relationship between sex and arrest likelihood of arrest is greater for assault. For assault, the impact of victim race is stronger for males than for females. The odds of arrest for male suspects of aggravated assault with white victims compared to black victims is 23% higher, but only 16% higher for female suspects. The odds of arrest for male suspects of aggravated assault with other race victims is 21% higher compared to 10% higher for female suspects. The odds of arrest for simple assault of male suspects with white victims compared to black victims is 18% higher and 4% higher for female suspects with white victims. The odds for male suspects of simple assault with other race victims is 25% higher compared to 1% higher for female suspects.

Table 17: Female and Male Predicted Probabilities of Arrest by Race of the Victim						
	Robbery		Aggravated Assault		Simple Assault	
Victim Race	Female	Male	Female	Male	Female	Male
White	0.48	0.36	0.62	0.60	0.53	0.54
Black	0.38	0.27	0.51	0.49	0.41	0.44
Other	0.46	0.35	0.64	0.62	0.59	0.60

These differences are clearly seen in looking at the probability of arrest for females and males based on victim race in Table 17. Table 17 shows that once again the probability of arrest for females and males is quite similar for both aggravated and simple assault, but that females continue to have a higher probability of arrest for robbery across the victim's racial group. Females have a probability of arrest 10-11% higher than males no matter what the race of the victim is. Table 17 also indicates that for both sexes across offenses, suspects who offend against a black victim have a lower predicted probability of arrest compared to suspects who offend against non-black victims.

Suspect and Victim Age

Neither suspect age or victim age seem to have an impact on the likelihood of arrest. In all models the odds ratio for each only range from .99 to 1.01.

Conclusion

One of the most notable findings in this section is the relationship between race and arrest. Whereas many studies find that blacks are more likely to be arrested than whites (Alexander, 2012; Kochel et al., 2011) this study found that blacks were actually less likely to be arrested than whites. Kochel et al. (2011) conducted a meta-analysis based on 27 independent data sets, and concluded

that the chances of a minority suspect being arrested were found to be 30 percent greater than a white suspect.

However, this study's findings are in line with the findings of D'Alessio and Stolzenberg (2003) who also relied on NIBRS. Their study found that whites had higher rates of arrest for robbery, aggravated assault and simple assault, but offenders' race had no impact on the probability of arrest for forcible rape. This may indicate something particular about this data set or the jurisdictions that use NIBRS rather than UCR. It may be that jurisdictions who use NIBRS have more or less racial segregation impacting the likelihood of arrest based on race. It may also be that reporting of suspects shows a racial bias that then is not present in arrests made. This will be discussed further in Chapter 7.

Yet, there are other studies which have shown conflicting evidence as well. DeLisi and Regoli (1999) also examined data from the UCR, National Youth Survey, and National Crime Victimization Survey and found little evidence of discriminatory practices and, in fact, found whites were more likely to be arrested for DUIs. They also note however that blacks were more likely to be stopped and questioned by the police. Based on the continued conflicting results it would seem that further investigation with additional controls are needed to further flesh out the relationship between race and arrest likelihood.

Important for the focus of this study is the impact of race on the relationship between sex and arrest likelihood. The clear finding here is that regardless of the suspect's race, females had a higher probability of arrest than

males for robbery, but little to no sex differences in the probability of arrest for assault.

The victim's sex also impacted the probability of arrest. Females continued to have a higher probability of arrest than males for robbery whether the victim was male or female. However, for assault, females' odds of arrest are lower when the victim is female rather than a male. Perhaps assaults against other females are less likely to be seen as straying from gender norms and perhaps plays into the idea of "girl fights." Therefore females who commit these acts may be benefitting from chivalry resulting in a lower probability of arrest. Concomitantly, if the victim is a male, which is quite against gender expectations, then the probability of arrest is higher. However, as the predicted probabilities showed it may also simply have to do with offending against a victim who is either the same or opposite sex as the suspect. Males and females probability of arrests were equal when comparing same sex assaults (male-male, female-female) and opposite sex assaults (male-female, female-male).

Lastly, this chapter has findings on the influence of the victim's race that are wholly consistent with past studies. As noted previously, as far back as 1970 (Black) when an offense is committed against a white victim the probability of arrest increases. This study also found that the probability of arrest increased when the victim was white or other race compared to blacks for robbery, aggravated assault, and simple assault. It also showed that no matter what the victim's race, females continued to have a higher probability of arrest for robbery than males.

Chapter 6: The influence of solo versus co-offending status on the likelihood of arrest

The fifth hypothesis states that the likelihood of arrest will vary based on offender status, with female co-offenders having a higher likelihood of arrest than female solo offenders. This chapter will provide simple descriptive statistics on the prevalence of co-offending and then further analyze the impact of co-offending on the relationship between sex and arrest likelihood using multivariate analyses to control for other possible correlates and spuriousness.

<u>Descriptive Analysis</u>

Table 18 shows that percentage of suspects who offend alone rather than with others varies depending on the offense. Robbery suspects are most likely to offend with others at 47%; while some 42% of robbery suspects were solo offenders. (Not surprisingly, robbery has the largest percentage of an unknown number of suspects at 11%.) Aggravated assault has 21% of suspects with reported co-offenders, 74% solo offenders, and 5% unknown. Simple assault has the smallest percentage of co-offenders with 16% and the smallest proportion of an unknown number of offenders at 3%, thus leaving 81% of offenders committing simple assault alone.

Table 18. Percent of Solo and Co-Offenders for Robbery, Aggravated Assault, and Simple Assault						
	Robbery		Aggravated Assault		Simple Assault	
	N	%	N	%	N	%
Solo Offenders	466,985	42	1,552,921	74	5,951,228	81
Co-offenders	528,240	47	444,308	21	1,151,412	16
Unknown	118,670	11	104,111	5	211,400	3

As discussed in chapter one, most past studies limited their research to cases with only one offender. This means that 47% of robbery offenders, 21% of aggravated assault offenders, and 16% of simple assault offenders would not have been included in past studies. The fact that so many offenders were not included may be one reason behind the finding that females have a higher probability of arrest for robbery than males was not found in previous research.

Multivariate Analysis

Table 3d. Logistic regression results: Odds ratios of arrest for all suspects 1996-2010			
	Robbery	Aggravated Assault	Simple Assault
Number of suspects	1.26(.01)***	1.07(.00)***	1.07(.00)***
N	418285	1463613	6472741

The excerpt of the full regression model shown in Table 3d above shows that the likelihood of arrest increases as the number of suspects increases for each offense. For every additional offender the odds of arrest are multiplied by 1.26, the odds for aggravated assault and simple assault both multiplied by 1.07. However, Table 19, which shows regression models disaggregated by solo and co-offending status, indicates that the impact of co-offending on arrest likelihood varies by sex. Whereas female solo robbery offenders are 11% more likely to be arrested than male solo robbery offenders, female robbers with co-offenders are 2% less likely to be arrested than male robbers with co-offenders. Across all other factors examined, female suspects for robbery have consistently had a higher odds of arrest. Yet, female co-offenders in robbery have a lower chance of arrest compared to their male counterparts.

For aggravated assault, female solo offenders and female co-offenders have similar probabilities of arrest compared to male solo offenders and male co-offenders. Simple assault also has similar probabilities of arrest for males and females. Female solo offenders have a similar, but slightly lower odds of arrest than male solo offenders by 4%, and female and male co-offenders have an equal likelihood of arrest.

The fifth hypothesis, sex by co-offending status, stated that female co-offenders would receive less chivalry than female solo offenders. Yet, for robbery female co-offenders actually have a lower probability of arrest than solo offenders. The only minor support for this hypothesis is in simple assault, where female co-offenders may be accorded less chivalry, with female offenders having a 4% lower likelihood of arrest than males as solo offenders compared to female co-offenders having an equal likelihood of arrest as male co-offenders. The overall trend though is very similar probabilities of arrest for males and females as both solo and co-offenders. The only substantive difference in likelihood of arrest is with a higher probability of arrest for female solo robbery offenders compared to male solo robbery offenders.

	Robbery		Aggravated Assault		Simple Assault	
	Solo	Co-offender	Solo	Co-offender	Solo	Co-offender

<table>

Table 19. Logistic regression results: Odds ratios of arrest for suspects with solo vs. co-offenders disaggregated models

	Robbery Solo	Robbery Co-offender	Aggravated Assault Solo	Aggravated Assault Co-offender	Simple Assault Solo	Simple Assault Co-offender
Year	1.03(.00)***	1.02(.00)***	.99(.00)*	.99(.00)**	1.02(.00)***	.99(.00)***
Number of Suspects	N/A	1.24(.01)***	N/A	1.05(.01)**	N/A	1.05(.00)***
Female	1.11(.03)***	.98(.01)***	1.02(.00)***	1.00 (.01)*	.96(.00)***	1.00(.01)***
Suspect Demographics						
Suspect Age	1.01(.00)***	.98(.00)***	1.00(.00)***	1.00(.00)	.99(.00)***	1.00(.00)***
Suspect Race (Omitted: Black)						
White	1.38(.02)***	1.04(.02)*	1.12(.01)***	1.04(.03)	1.16(.00)***	1.47(.02)***
Other	1.49(.12)***	1.07(.08)	1.22(.03)***	1.11(.07)	1.47(.01)***	2.15(.06)***
Victim One Characteristics						
Victim Age	1.00(.00)	1.00(.00)***	1.01(.00)***	1.01(.02)***	1.01(.00)***	1.01(.00)***
Victim Race (Omitted: Black)						
White	1.07(.02)***	1.16(.02)***	1.24(.01)***	1.17(.02)***	1.17(.00)***	1.01(.01)
Other	1.06(.05)	1.20(.06)***	1.19(.03)***	1.20(.07)**	1.21(.01)***	1.08(.03)*
Victim Female	1.03(.01)*	1.28(.02)***	.98(.00)***	.96(.01)***	.99(.00)***	.99(.01)
Victim-Suspect Relationship (Omitted: Acquaintance)						
Family /Intimate	1.29(.03)***	1.09(.07)	1.69(.01)***	1.52(.02)***	2.13(.00)***	1.78(.01)***
Stranger	.68(.01)***	.56(.01)***	1.03(.01)	.81(.01)***	1.26(.00)***	1.00(.01)
Serious Injury	1.08(.03)***	1.09(.03)**	1.21(.01)***	1.27(.02)***	.96(.04)	1.09(.16)
Population	1.00(.00)***	1.00(.00)***	1.00(.00)**	1.00(.00)***	1.00(.00)***	1.00(.00)***
Region Characteristics (Omitted: South)						
North-east	1.96(.05)***	2.03(.07)***	1.26(.01)***	1.10(.02)***	1.52(.01)***	1.74(.02)***
North-central	.91(.01)***	1.00(.01)	.91(.00)***	.90(.01)***	.77(.00)***	.79(.00)***
West	.99(.01)	.96(.01)***	1.11(.00)***	1.06(.01)***	1.84(.01)***	1.66(.02)***
Weapon (Omitted: Other)						
Gun	.70(.02)***	1.00(.02)	.98(.01)***	1.07(.02)***	N/A	N/A
Knife	1.06(.03)*	.94(.03)	1.41(.01)***	1.33(.02)***	N/A	N/A
Personal	.98(.02)	.84(.02)***	1.09(.01)***	1.04(.01)**	N/A	N/A
None	.94(.03)*	.86(.03)***	.70(.01)***	.74(.03)***	N/A	N/A
Location (Omitted: home/residence)						
School/college	1.98(.12)***	1.65(.11)***	1.13(.02)***	1.16(.04)***	1.50(.01)***	1.91(.02)***
Bar	1.13(.06)*	1.15(..08)*	.82(.01)***	1.00(.03)	.82(.00)***	.99(.02)
Street/parking	.97(.02)	.94(.02)**	.85(.00)***	.93(.01)***	.90(.00)***	.96(.01)***
Bank	1.63(.08)***	1.91(.16)***	.92(.08)	.95(.20)	.77(.03)***	.81(.09)
Other	1.31(.02)***	1.16(.02)***	.87(.01)***	1.0(.02)	.89(.00)***	1.02(.01)**
Group Sex Composition (omitted: mixed-sex)						
All male	N/A	.65(.01)***	N/A	.84(.01)***	N/A	.88(.01)***
All female	N/A	.74(.04)***	N/A	.83(.01)***	N/A	.89(.01)***
Group RaceComposition (omitted: mixed-race)						

</table>

All White	N/A	.99(.03)	N/A	.92(.03)*	N/A	1.11(.02)***
All Black	N/A	.71(.02)***	N/A	.76(.03)***	N/A	1.45(.02)***
Constant	.43(.02)***	1.17(.07)*	.56(.00)***	1.05(.05)	.47(.00)***	.54(.01)***
N	137442	279515	1171616	289810	5455477	1012038
Wald Chi	12471.85***	8197.41***	75672.4***	4690.4***	364285.7***	36863.0***
Log Pseudo-likelihood	-77139.3	-166705.3	-758306.5	-195294.7	-3563731.7	-669219.6
Pseudo R2	.0857	.0838	.0533	.0223	.0571	.0447
* p < 0.05 ** p < 0.01 *** p < 0.001						

When looking at the regression model disaggregated by solo and co-offender status in Table 19, the composition of the group was also included. Table 19 shows that if a suspect co-offends, as the size of the group increases so does the chance of arrest as indicated by an odds ratio of 1.24 for robbery and 1.05 for aggravated and simple assault. Yet, if a suspect does offend in a group the chance of arrest is lowest if offending with others who are similar. Both males and females offending in same-sex groups have a lower probability of arrest than those who offend in mixed sex groups for each offense. Also, individuals who offend in an all white or all black groups have a lower likelihood of arrest than those who offend in mixed-race groups for robbery and aggravated assault.

The odds of arrest for robbery is 35% lower for suspects in an all male group compared to a mixed-sex group and is 26% lower for suspects in an all female group compared to a mixed-sex group. The odds of arrest for aggravated assault are 16% lower for suspects in an all male group and 17% lower for suspects in an all female group compared to a mixed sex group. Individuals who

offend in all male group have 12% lower odds of arrest and individuals who

offend in an all female group have 11% lower odds of arrest than a mixed-sex

group for simple assault. It is interesting that for both aggravated and simple

assault the difference in odds of arrest for same-sex groups compared to mixed-

sex groups is within 1%, but all male groups for robbery are 9% lower than all

female groups compared to mixed sex groups. This provides further evidence

that females committing robbery may be treated harsher as the evil woman

theory proposes.

Table 20 shows the predicted probabilities of arrest for male and female

suspects based on their co-offending status, predicted from the full regression

model shown in Table 3. It clearly shows that for aggravated assault and simple

assault both males and females have a slightly lower probability of arrest when

they co-offend, but a higher probability of arrest when they co-offend for robbery.

For simple assault and aggravated assault, females and males have similar

probabilities of arrest as both solo offenders and co-offenders; whereas female

suspects for robbery continue to have a higher probability of arrest by 10-11%

whether they offend solo or with others.

Table 20. Female and Male Predicted Probabilities of Arrest by Co-offending Status						
	Robbery		Aggravated Assault		Simple Assault	
Co-offending Status	Female	Male	Female	Male	Female	Male
Solo	0.40	0.30	0.57	0.57	0.50	0.52
Co-offender	0.46	0.35	0.55	0.55	0.48	0.48

These predicted probabilities, however, seemed to conflict with the odds

ratios found in the solo and co-offending disaggregated models shown in Table 19, where female co-offenders odds of arrest were 2% lower than male co-offenders. After further testing, it was discovered that only when controlling for the group composition (all male, all female, all white, all black), did the odds ratio for female co-offenders for robbery drop below 1.0. Therefore, predicted probabilities, still using the full base model of Table 3 for consistency, were run for female and male suspects co-offending in same sex and mixed sex groups. The results are shown below in Table 21. Here we see that female robbery suspects co-offending in a mixed sex group have a lower probability of arrest than male robbery suspects co-offending in a mixed sex group. This is the first time in this study that a female suspect's probability of arrest has been lower than their male counterparts for robbery. Furthermore, female simple assault suspects co-offending in a mixed sex group have a higher probability of arrest than male simple assault suspects co-offending in a mixed sex group. This is the first time that a female suspect's probability of arrest has been higher than their male counterparts for simple assault.

Table 21. Female and Male Predicted Probabilities of Arrest by Co-offending Group Status						
	Robbery		Aggravated Assault		Simple Assault	
Co-offending Status	Female	Male	Female	Male	Female	Male
Same sex	0.42	0.33	0.49	0.53	0.44	0.45
Mixed sex	0.48	0.50	0.58	0.58	0.52	0.50

Conclusion

This chapter examined the fifth hypothesis, which states that the likelihood

of arrest will vary based on offender status, with female co-offenders having a higher likelihood of arrest than female solo offenders. This chapter found little support for this hypothesis as female co-offenders had a lower probability of arrest than solo offenders with the exception of robbery.

Co-offending status was found to reduce the probability of arrest for both males and females for aggravated and simple assault, but increase the probability of arrest for robbery. A striking finding from this chapter was the fact that females who co-offend in a mixed sex group for robbery have a lower probability of arrest than males who co-offend in a mixed sex group, which is the only time females have shown a lower probability of arrest than males for robbery. This may lend support to the evil woman hypothesis as women offending with men may be seen as less culpable or less in violation of expected gender roles as they are not working alone to commit such a masculine crime resulting in this lower probability of arrest. It may also be due to the fact that women in crime groups are more likely to actually be relegated to marginal roles, and therefore there is less evidence or culpability that leads to their arrest.

Conversely, female suspects for simple assault in a mixed sex group have a higher probability of arrest compared to male suspects for simple assault in a mixed sex group. This may be because these females are now seen as violating a gender role in a way other performances of simple assault did not, which would further support the evil woman hypothesis. The ability to determine the cause of these differences is beyond the scope of this study, but again suggests an interesting foci for future research.

Chapter 7: Discussion and Conclusion

This study sought to further examine the long-debated relationship between sex and arrest likelihood. Unlike many past studies, which were cross-sectional in nature, this study used longitudinal data from 1996-2010, a 15 year span, to examine the nature of this relationship over time. Furthermore, using the newer data available from the National Incident Based Reporting System, this research looked more closely at the influence of other correlates such as race, co-offending status, and contextual factors (weapon, injury, victim-offender relationship) and their varying impact on arrest probability combined with the sex of the offender.

The primary hypothesis evaluated was the chivalry hypothesis and its antithesis, the evil woman hypothesis. Research findings from this study offered little to no support for the chivalry hypothesis. Female suspects for simple and aggravated assault had no substantive differences in odds of arrest compared to male suspects. Female suspects for simple assault had only slightly lower odds of arrest compared to males with a six percent difference in the bivariate analysis and it dropped to only four percent when contextual variables were added to the model. For aggravated assault females' odds of arrest were actually 9% higher without any controls in the model, but there was no difference when contextual variables were controlled for.

Women who committed robbery, however, a more violent offense, actually had a higher likelihood of arrest than men who committed robbery. The odds of arrest for women committing robbery was 19% higher than men. This is similar to

what Stolzenberg and D'Alessio found when looking at NIBRS data from 2000, where females had a lower probability of arrest than males for violent offenses other than forcible rape and robbery, where they found no difference. This research differed from Stolzenberg and D'Alessio in that while they found no difference, this research found females to have a higher probability of arrest than male offenders. This suggests that the gender gap reported in arrest statistics is actually smaller than the true gender gap in offending. Hindelang (1979) had also found that females, for the offenses aggravated assault and robbery, were over represented in the UCR compared to NCVS data, suggesting that females were actually more likely to be arrested than males.

Because Hindelang's research studied data from the years 1972-1976 and this research focusing on 1996-2010 found similar results, it should not be surprising that there was no support found for the second hypothesis of decreasing chivalry. The year of the incident seemed to have no impact on the likelihood of arrest over the time period included in this study. This has some minor, but not unimportant, implications for the academic discussions regarding the decreasing gender gap for simple assault, aggravated assault, and to a smaller degree robbery.

As the "net-widening" perspective stresses that the decreasing gender gap is influenced by changes in policies, police practices, and decreased societal tolerance, this research suggests that police practices during the time period 1996-2010 seem to have had little impact on any changes in the gender gap. This does not account for changes in policies or the societal tolerance though.

Also, the gender gap began shrinking in the 1980s, and this research only includes the years 1996-2010, so it may be that changes in policing did have more of an impact in the early years of the declining gap in the 1980s.

It is noteworthy perhaps, despite the lack of influence of the variable year over this time period, that it is the offense with some minor level of chivalry evident (simple assault) where the decrease in the gender gap has been the greatest. It is the offense with the least change in the gender gap, robbery, where rather than chivalry, we see support for the evil woman hypothesis.

The second hypothesis stated that chivalry would diminish over time. There was little chivalry to diminish and all the analyses showed little to no change over time in the likelihood of arrest, giving no support to this hypothesis.

The third hypothesis stated that gender differences in the likelihood of arrest would decrease when controlling for seriousness of the offense, such as gun/knife use and the injury inflicted. This hypothesis was supported primarily by the decrease in the gender difference for robbery with an odds ratio of 2.03 for female suspects compared to male suspects in the bivariate analysis that decreased to a 1.19 odds ratio for female to male suspects in the full regression model controlling for contextual variables. Simple assault shows a minor change as well moving from a 0.94 odds ratio for female suspects compared to male suspects to an odds ratio of 0.96 in the full model.

Contextual variables were shown to impact the likelihood of arrest for both males and females. For serious injury the impact is the same for both males and

females, with a higher probability of arrest for suspects inflicting serious injury. For weapon use the impact on sex and arrest likelihood varies for males and females. Male suspects who used a gun rather than a knife or personal weapon had a lower probability of arrest. However, females who used a gun or a knife were shown to have higher odds of arrest than females who used another type of weapon or no weapon.

Victim-suspect relationships also influenced the probability of arrest. The important differences for males and females is that females have a higher probability of arrest for offending against strangers, which past research has shown is much less common for females than males. This shows some support for the idea that females breaking gender norms will have a higher probability of arrest, thereby again offering support for the evil woman hypothesis.

There was evidence supporting hypothesis four (sex by race intersectionality) in terms of the fact that the likelihood of arrest varied across racial groups. But, since the hypothesis purported that racial minorities would receive less chivalry and there was only a small amount of chivalry noted for simple assault, the relationship was different than hypothesized. The data showed that whites had a higher likelihood of arrest compared to blacks, although this difference was much smaller for females. This is quite different than what other studies have shown, particularly in terms of discrimination for non-violent offenses such as drug offenses where there is a wealth of support for the conclusion that males of color receive worse treatment in the criminal justice system (Alexander, 2012). This research actually shows whites to have a higher

probability of arrest. D'Alessio and Stolzenberg (2003) had similar findings with the odds of arrest for white suspects compared to black suspects being 22% higher for robbery, 13% higher for aggravated assault, and 9% higher for simple assault.

The nature of quantitative research, such as this study, is such that while it provides a large amount of data, it is not possible to ascertain the causes of the findings. It is only possible to theorize and flesh out the reasons in further research. One possible explanation for the finding of higher arrest likelihood for white suspects than black suspects is that black suspects may be more likely to be reported to the police with less evidence. Consider the idea that there is a variety of research showing that there are discriminatory practices with racial minorities being more likely to be subjected to stop-and-frisk practices (NYCLU, 2014; Alexander, 2012) or searches during traffic stops (Lovrich et. al., 2005), but when a white person is subjected to the same there is likely a higher level of suspicion and probability of guilt. Therefore, it may be that blacks experience bias, as would be expected, that is reflected in their disproportion as suspects resulting in a subsequent lower arrest rate. Thus, what appears to be preferential treatment toward blacks is really just a reflection of the facts balancing the scales a bit based on their not aligning with earlier discriminatory practices. This has been seen in gender studies as well, as the narrowing gender gap is seen more so at the arrest stage and then later corrected as judges filter out inappropriate female cases (Schwartz et al., 2009).

The fifth hypothesis purported that female co-offenders would have a lower likelihood of arrest than male co-offenders. There was no evidence of this for assault with females and males having similar probability of arrest as both solo and co-offenders. However, the fifth hypothesis was supported for robbery. Female robbery suspects had a higher probability of arrest than males as both solo and co-offenders, except for when they co-offend in a mixed sex group. This may suggest that females who co-offend with men are accorded some amount of chivalry or they may no longer be seen as evil women breaking gender norms. Yet, other factors cannot be ruled out. Past research (Maher & Daly, 1996; Steffensmeier & Ulmer, 2005) has shown that women tend to hold marginal roles in crime groups, which may also result in the lower probability of arrest than male co-offenders. For the offense of simple assault, where some support for chivalry was indicated, female solo offenders have lower probability of arrest compared to males, but a higher probability of arrest when they co-offend in a mixed sex group. Differences across offenses show mixed support for the fifth hypothesis that female co-offenders have a lower likelihood of arrest than male co-offenders.

Limitations

All studies, including this one, have limitations. The use of official statistics, either UCR or NIBRS, is limited in that it only includes information reported or known to the police. Therefore, it fails to capture all the crime that falls into the "dark figure" of crime. Perhaps chivalry would be more or less likely for crimes that are never reported to the police or this may be why crimes committed against intimates and family members had a higher arrest rate. The

intimate and family members who would be non-cooperative and discourage law enforcement from arresting the suspect, may also be the crimes that are less likely to come to police awareness to begin with.

Additionally, NIBRS is a relatively new reporting system and has not been adopted by all jurisdictions and consequently is not fully representative of all crimes reported to law enforcement. Due to the large amounts of data collected, cities with high amounts of crime have been slower to adopt NIBRS. It also has the limitation of having an increasing number of jurisdictions reporting each year during the time period included in this study. Gender differences in police enforcement may vary in different jurisdictions influencing the finding of chivalry. The large amount of work to report crime using NIBRS may also result in coding errors or an increase in missing data. This is one reason that although there are earlier years of data, this study does not use any information from NIBRS prior to 1996. The fact that the variable year had little impact does help alleviate this concern. If the variable year had a strong relationship with arrest probability, it would be difficult to ascertain what impact additional jurisdictions reporting in NIBRS may have had on such a result. Yet, because year does not have a large impact on arrest likelihood, as indicated by an odds ratio of 1.00 to 1.02, suggesting that the adoption of additional jurisdictions may not be an influencing factor. Also, the fact that the number of jurisdictions continues to increase improves the data each year, at least in terms of the representativeness of the data. Yet, the adoption is slow. At this time there is relatively low incentive for jurisdictions to take on the work of NIBRS, which may be seen as more beneficial

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to researchers than law enforcement (Mosher et al., 2011). As was the case with the UCR during the first 40 years of it's inception, until more incentives are provided few additional jurisdictions will likely adopt NIBRS, particularly in large cities.

There were also many factors that past research has shown to influence arrest greatly, such as conspicuousness of the crime, the offender's powerlessness, and demeanor – including respect to the police (Lundman, 1974). Many of these could not be controlled for in this study, nor could other variables that may be theorized to influence results particularly around differential treatment based on sex of the offender (for instance the sex of the law enforcement officer or level of attractiveness of offender or victim, and the victim's wishes to prosecute). The model is clearly missing important additional variables as indicated by relatively low pseudo r-squared results. Additionally, due to complications in statistical analyses and interpretation as well as limited gains, the regression model only controls for the demographics of the first victim. If there were additional victims of different sex, race, or age, these variables were not controlled for in the model.

While this study has improved on a cross-sectional approach by having a longitudinal approach, it was still only 15 years and a longer time frame would be helpful. This is particularly true in trying to understand the changing gender gap in the UCR, which began to occur prior to the implementation of NIBRS.

One of the last major limitations to the study is a lack of control for the difficulty in locating a stranger. The results showed offenders who committed violent offenses against intimates/families have a higher likelihood of arrest than when offending against strangers. There is not a control for the victim being able to clearly identify or name the offender, but the higher odds ratio suggests that this is a likely possibility. Another option that seemed plausible was that the higher odds of arrest when offending against a family/intimate may be due to the decision to exclude cases that are cleared exceptionally. These cases include those where the offender dies, the prosecution declined, extradition was denied, or the victim refused to cooperate, all of which seem more likely for those with a victim-suspect relationship with a family or intimate. For robbery, only 7% of cases were cleared exceptionally; 4% were cases where victims refused to cooperate. For aggravated assault the percent of cases cleared exceptionally was 13%, with 7% being due to victim refusal to cooperate. The largest percentage of cleared exceptionally cases are for simple assault at 20%, with 10% being due to uncooperative victims. It seems that perhaps arrest is more likely when there is a family member willing to report an offense to the police and cooperate. However, the regression model showed little decrease in the odds ratio for family and intimates compared to stranger when cases cleared exceptionally were included in the model as well.

Finally, while the data may help inform on possible police practices. It is only possible to theorize. For instance, the major finding of this research is that female suspects have a higher probability of arrest for robbery than male

suspects. Yet, the conclusion that it is police bias due to the evil woman phenomenon is only one possibility. It may simply be that females are less skilled due to less experience and therefore easier to arrest. In other words, females just may not be as good at committing robbery. Females may also be easier to identify. Society pays more attention to how women look and dress, perhaps witnesses give better (more detailed) information making it easier to arrest females. These alternate reasons cannot be ruled out and therefore further research to decipher what is occurring to create this arrest discrepancy is needed.

Future research would ideally include a larger number of offenses. It should also examine a longer time period to more thoroughly track changes or trends over time. The variation in bias at each level of the justice system deserves further examination. While this research found female robbery suspects to have a higher probability of arrest than male robbery suspects, recent research at the sentencing level showed evidence of chivalry toward women sex offenders (Embry and Lyons, 2012). This should be tested at each level of interaction with the justice system for all offenses.

Arguably most important, based on the major finding of this study that female suspects have a higher probability of arrest for robbery than male suspects, is the need for future research to flesh out the reasons why so as to better inform policy. Further research is needed to identify if the reason for this gender difference is reporting of female suspects varying from males, the criminal ability of the suspect, or police bias.

This research sought to further the understanding of the influence of sex on the likelihood of arrest by examining the offenses of robbery, aggravated assault, and simple assault. It also aimed to provide insight into the potential changes in arrest likelihood over time for female suspects, which may play a role in the narrowing gender gap in arrests for minor violence. The results showed that for aggravated assault and simple assault the likelihood of arrest was similar for males and females. However, a strong and resilient finding was that female robbery suspects had a higher probability of arrest than male robbery suspects. This held true across racial groups of the offender and victim, weapon use, seriousness of injury inflicted, and victim-suspect relationship. These trends did not change over time, showing little support for the idea that policing enforcement has changed during the 15 year time period included in this study.

[1]This paper uses the terms gender and sex. While these are different concepts, and the preferred term would be gender based on the literature and understanding of these terms, NIBRS uses sex and so the default when discussing the data is sex.

[2]Simple assault is defined by NIBRS as an unlawful physical attack by one person upon another where neither the offender displays a weapon, nor the victim suffers obvious severe or aggravated bodily injury.

[3]Aggravated assault is defined by NIBRS as an unlawful attack by one person upon another wherein the offender uses a weapon or displays it in a threatening manner, or the victim suffers obvious severe or aggravated bodily injury.

[4] Robbery is defined by NIBRS as the taking, or attempting to take, anything of value under confrontational circumstances from the control, custody, or care of another person by force or threat of force or violence and/or by putting the victim in fear of immediate harm.

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