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# A Multi-Level Study of Clearance: The Role of Gender

Jenna Dole

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**A Multi-Level Study of Clearance: The Role of Gender**

By

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B.A., Sociology, Psychology, Western Kentucky University, 2015

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Masters of Arts  
Sociology**

**The University of New Mexico  
Albuquerque, New Mexico**

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# A MULTI-LEVEL STUDY OF CLEARANCE: THE ROLE OF GENDER

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## ABSTRACT

*Objective.* To examine the role that gender plays in the clearance of a reported criminal incident, and whether it varies across places. *Methods.* Using multi-level logistic regressions, data from the 2014 National Incident-Based Reporting System (NIBRS), 2010 Census data, 2013 Law Enforcement Management Statistics, and the 2010 *Municipal Yearbook* are used to examine the effects of a victim's sex on crime clearance. *Results.* Women are initially advantaged in clearance before controlling for any evidentiary factors. However, most of the relationship is explained away when controlling for the relationship between the victim and the offender. Women are more likely to be victims of crimes where the offender is known, which is positively related to clearance and could explain why women are more likely to have their crimes cleared initially. Crime incidents taking place in the South have lower odds of being cleared, and those taking place in areas with larger police organizations have higher odds of being cleared. Gendered-contextual factors appear to play no significant role in clearance. *Conclusion.* The results indicate the need for further research on the relationship between gender and clearance. The cases that men and women are involved in seem to influence clearance patterns, and further research could explore how this varies by criminal offense type, specifically by whether the criminal offense is typical for male or female victims.

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## Introduction

The clearance process, which refers to the arrest made when a crime is known to the police, provides a window for understanding the extent to which police are responsive to victims. Clearance research has examined police responsiveness towards victims, and whether it varies by social status. Often these studies focus on the race/ethnicity of the victim and find evidence that there is variation. For example, Hispanic victims have a lower likelihood of clearance by arrest than incidents with non-Hispanic victims, net of case level characteristics (Roberts & Lyons 2011). To make sense of this finding, scholars draw on Black's theory of law (1976), which posits that victims of a lower social status are devalued by police, and therefore police allocate fewer resources to solve their case.

Surprisingly, clearance work has devoted less attention to the extent to which women versus men fare in clearance, despite a voluminous body of research on gender and crime. The little work that does exist is limited given its focus largely on domestic violence or sexual assault cases. Findings are also mixed such that some studies find that female victims are more likely to have their crimes cleared than males (Taylor et al. 2009; Briggs & Opsal 2012) and others finding the opposite (Litwin & Xu 2007; Roberts and Lyons 2009).

This project will unpack how gender<sup>1</sup> is related to crime clearance using data from the National Incident Based Reporting System (NIBRS 2014), which is the key

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<sup>1</sup> I use sex and gender interchangeably in this manuscript. My measure of gender is based on biological sex however.

dataset to explore the etiology of clearance. I expect that much of the relationship will be explained by the types of crimes that involve women compared to men. Certain case characteristics drive clearance, such as the victim-offender relationship, with incidents involving strangers being less likely to be cleared than those involving family or friends (Roberts 2007). Given that women are more likely to be victimized by someone they know, then it could be that their cases are more likely to be cleared not because they are women per se, but because of the nature of their victimization. Yet, case characteristics may not tell the whole story of gender effects on clearance, and thus a gender effect remains: positive or negative. It may be that women are more likely to have their crimes cleared due to the chivalry hypothesis. That is, women are perceived as fragile or in need of protection within the criminal justice system (Pollack 1950; Farnworth & Teske 1995), and therefore victims that are women may receive more attention from the police. Yet, if women face lower odds of clearance compared to men then it suggests a victim-devaluing perspective which posits that police devote fewer resources to victims of a lower social status (Black 1976). An additional factor that can likely shape how gender matters for clearance is the context in which the person is victimized. Considering the larger gendered context in which these reported incidents occurred could shed light on why processes may play out in an inconsistent way across places, with women being advantaged in some places and disadvantaged in other depending on whether the context is favorable to women.

I will address the lack of emphasis on gender in the literature on disparities in crime clearance by assessing whether incidents with female victims versus male incidents experience increased odds ratio for crime clearance. Men and women vary on a host of



criminal justice related outcomes, and it is important to consider all of the ways in which this is true, especially given that clearance is one way in which to assess how police respond to victims. In an attempt to elucidate the mixed findings regarding the sex of the victim and odds of crime clearance for both lethal and non-lethal personal crimes, this relationship will first be considered prior to the addition of controls. I will subsequently add in relevant evidentiary factors on their own to see if any factor in particular is driving the potential mediation of gender and crime clearance. Finally, I will test whether the context in which reported incidents occurred moderates the effect of gender on clearance. Research on gender and crime has often focused on offending and sentencing, but a lesser focus has been placed on how gender impacts the clearance process for victims. In doing this exploration, this project contributes to the broader literature on gender and crime by focusing specifically on the impact of the victim's gender on crime clearance.

### **Crime Clearance and Gender**

Crimes are considered cleared when an individual deemed responsible is arrested, charged with the offense, and then turned over to the court for prosecution (Walfield 2015). Police have a fair amount of control when it comes to determining whether a crime receives priority during the investigation process, which inherently leads to police discretion in crime clearance. In 2015, just 46% of violent crimes were cleared by arrest or exceptional means, leaving more than half of violent crimes uncleared (FBI). Scholars have attempted to unpack this process and understand the determinants of crime clearance, generally finding that evidence-based factors related to the incident have the greatest impact on clearance but that police discretion based on race/ethnicity plays a role as well (Addington 2007; Roberts & Lyons 2011).

How gender matters is less clear. When looking at the impact of victim's sex on crime clearance results have been mixed with some studies finding that crime incidents involving female victims are less likely to be cleared (Litwin & Xu 2007; Roberts & Lyons 2011), while others find that these incidents are more likely to be cleared (Taylor et al. 2009; Briggs & Opsal 2012). Police discretion or significant differences in evidence-based factors could be driving these divergent findings. Drawing on various bodies of work, I expect that case characteristics will go a long way to understand the relationship between gender and clearance.

The relationship between gender and clearance could be largely explained by evidentiary factors that are present in crime incidents that are reported by women compared to men. A major source of crime clearance has been shown to be the legal, or evidence-based, characteristics of the crime incident itself (Roberts 2008; Lyons & Roberts 2014). These factors are unrelated to police discretion, and have more to do with whether there is enough evidence to go forward with the investigative process and potentially an arrest. For instance, legal factors such as whether a firearm was used, victim-offender relationship, and concomitant offenses are all related to clearance by arrest (Addington 2006; Roberts 2007; Roberts & Lyons 2009). Each of these factors provide police with information that can be used to identify a suspect and make an arrest. In addition, as the seriousness of the offense increases so do the odds that the incident will be cleared by police (Lyons & Roberts 2014). Seriousness is measured by the type of criminal offense, whether there were multiple victims and offenders, and victim injury. Overall, these factors aid police in their investigation and make it more or less likely that the crime incident will be cleared by arrest. Considering that men and women are often

victims of different types of crimes, the gender effect will most likely be explained predominantly by these evidentiary-factors. For example, females tend to be victimized by someone they know, which research has shown is related to increased chances of clearance (Addington & Rennison 2008; Roberts 2008; Taylor et al. 2008). Furthermore, men overwhelmingly tend to be the victims of serious, violent offenses such as homicide (Fox & Fridel 2017), while women are more often than men the victims of sexual assaults (RAINN 2016), which results in different types of evidentiary-factors related to crime clearance.

Yet evidentiary factors may not be the whole story. If after controlling for these evidentiary factors females receive an advantage compared to males this would provide support for the chivalry hypothesis. A consistent finding within criminological research is that women are often treated more leniently by the criminal justice system. A large portion of this research has focused on the differential treatment of males and females during sentencing (Steffensmeier & Demuth 2006; Spohn 2002; Doerner & Demuth 2012). One theoretical argument used to explain this phenomenon is the chivalry thesis, which argues that women receive preferential treatment from predominantly male judges, police officers, and prosecutors because women are perceived as needing protection or minimization of potential pain (Pollak 1950; Farnworth & Teske 1995). Due to the conception of women as fragile and in need of protection, female offenders tend to receive lighter sentences than their male counterparts for the same criminal offense. In their study of the gender gap in sentencing, Doerner and Demuth found that even when controlling for legal and other extralegal factors in federal criminal cases females received more lenient sentencing outcomes than their male counterparts (2012).

Applying this thesis to clearance, I expect that female victims are more likely to have their crime cleared than men because of how police actors desire to protect women by arresting the person responsible for their victimization.

Alternatively, if after controlling for evidentiary factors females are disadvantaged compared to males then there is evidence for the victim-devaluing perspective. The victim-devaluing perspective, drawn from Black's theory of law, argues that police may allocate fewer resources to crimes involving victims of lower status (Black 1976). Although Black (1976) focuses on wealth as a measure of status, he describes women, minority racial/ethnic groups, and children as having less wealth and therefore less law. Using these groups as a marker of social status, scholars have tested the victim-devaluing perspective mostly by studying the impact of the victim's race/ethnicity on crime clearance. More specifically, these scholars have focused on the impact of the victim's race/ethnicity on homicide clearance. For example, studies show that Hispanic victims are less likely to have their crimes cleared than white victims, even when controlling for case characteristics related to clearance (Roberts & Lyons 2011; Briggs & Opsal 2012). These studies almost always control for the sex of the victim, but very few, if any, focus solely on whether the status of being a woman is devaluing in terms of police clearing the crime incident. This perspective would suggest a penalty for female victims versus males when it comes to having their crime cleared.

### **Contextual Factors**

I draw on literature that examines the influence of context on clearance to explore how context shapes whether how police respond favors or penalizes women. Prior research has considered how the social conditions of the community (Roberts 2008), police

organizational factors (Eitle et al. 2005), and other city-level factors influence clearance in those places. For example, in her study of non-lethal violent offenses Roberts (2008) found that higher unemployment at the city-level decreased the likelihood of crime clearance for robbery and aggravated assault. Another city-level control that is often included in multi-level studies of clearance is region. Research typically shows that crime incidents occurring in the South have a lower likelihood of being cleared compared to other regions in the United States (Eitle et al. 2005), which could stem from a tolerance for violent behavior by Southerners that influences the discretionary decision-making of officers in violent crime incidents (Wolfgang & Ferracuti 1982; Eitle et al. 2005). Since this project is focused on differences in clearance based off the gender of the victim, I will consider gender-based contextual factors that could foster discretion as well. Whether women are advantaged or disadvantaged could depend on whether the context in which the crime incident occurred is favorable to women. Gendered contextual factors are outlined below.

***Female Political Incorporation.*** A major aspect of political incorporation is the extent to which a constituent group has elected allies or its own members. For the election of constituent group members, mayors are thought to be the key elected official as this position represents the greatest level of local political incorporation (Velez, Lyons, & Santoro 2015). Previous research has shown that when women hold positions of power within government, they influence policy decisions in ways that benefit women (Berkman & O'Connor 1993; Kittilson 2008; Smith 2014). For example, in her study on female political incorporation and the allocation of funds, Smith (2014) found that female versus male mayors allocated a larger percentage of their cities' Community

Development Block Grant (CDBG) funding to women's issues. This evidence suggests that when women hold elected positions of power, they have more influence and control over policy decisions, and in return cities may become more responsive to the wants and needs of the women living there. I therefore expect that in places with a female mayor, women as victims will be less likely to be devalued and therefore odds of clearance will be about the same or greater for women compared to men.

***Female Bureaucratic Incorporation.*** Bureaucratic incorporation is important as it can lead to the adoption of policies and practices that can benefit members of the represented group (Lyons, Velez, & Santoro 2013). Considering this study is focused on clearance, the female representation on the police force is of particular interest. The bureaucratic incorporation of women into the police force has been shown to provide women with substantive benefits (Mosher 1982; Pitkin 1967; Meier & Nicholson-Crotty 2006). Through their active representation, female police officers can take actions, for example using discretion or influencing policy implications that affect females in the general public. In their study on representative bureaucracy and sexual assault, Meir and Nicholson-Crotty (2006) found that when there were more female police officers employed as street-level bureaucrats, that both the sexual assault reporting rate and the number of arrests for sexual assault were higher. Female officers may be more likely to take action via making an arrest, or in other words clearing a crime (Meir & Nicholson-Crotty 2006; Walfield 2015), in cases where there is typically a female victim, such as incidents of rape/sexual assault. I therefore expect that places where there is a higher rate of female incorporation into the police department will be more responsive to women, and therefore devaluation of female victims will be less likely.

A related idea is that with more women working outside the home in the workforce, that there is a shift in gender relations that can result in policy changes that favor women (McCammon, Campbell, Granberg, & Mowery 2001; Soule & Olzak 2004). Rather than solely bureaucratic incorporation, this concept extends to incorporation of women in the workforce more broadly. Places with more women in the labor force would be expected to have more substantive benefits, such as policies that favor women. Furthermore, female labor force participation has been conceptualized as an indicator of the status of women in society (Richards & Gelleny 2007; Mammen & Paxson 2000; Dugan, Nagin, & Rosenfeld 1999), which would suggest that places with more women in the workforce would be more progressive in general. I expect that when there are more women participating in the labor force, that places will be more responsive to the claims of women, and thus evidence of devaluation would be less likely.

***Female Income-Education Index.*** Women's education and income are further measures of women's status, that could improve the accessibility of economic and social resources for women and could also spur social changes and public policies that benefit women (Xie, Heimer, & Lauritsen 2012). In their study of female victimization, Xie et al. (2012) found that increases in the absolute level of female income and education were related to a lower risk of intimate partner violence for women. Increases in these measures of women's status lead places to be more responsive to women, and in return the devaluation of female victims may be less likely.

## **Data and Method**

### **Data**

The data on incident characteristics and clearance outcomes for this paper were drawn from the 2014 National Incident-Based Reporting System (NIBRS). NIBRS is an incident-based reporting system to which law enforcement agencies in 36 states and the District of Columbia report to as of the year 2010, making it the largest, incident-level crime dataset in the United States. Participating law enforcement agencies submit individual records for each crime incident, which include information such as, victim and offender demographics, victim-offender relationship, clearance, type and number of offenses involved, weapon use, victims' injuries, place where the incident occurred, and the city, county, and state of the jurisdiction (Roberts 2008). Unlike the Uniform Crime Report, which is another voluntary reporting program that is limited to eight Index Crimes, NIBRS collects incident and arrest information for 22 categories of offenses along with arrest information for ten additional offenses. Furthermore, unlike the UCR, which follows the hierarchy rule in which only information for the most serious offense is provided, NIBRS provides information on all offenses within a crime incident.

Since NIBRS data provide information on city, county, and state of the jurisdiction, I was able to link NIBRS data to Census (2010) data and the *Municipal Yearbook* (2010) to get measures at the place-level. Furthermore, since the Originating Agency Identifier (ORI) is provided, NIBRS data was also linked to LEMAS data. The unit of analysis is the individual-level incident.

### **Sample Size**

Using the incident based file for the year 2014, the analytic sample was arrived through several steps. First, the sample was limited to incidents that had a person reported as the



first victim, which means that the analysis was limited to personal crimes and does not include property crime incidents. Criminal offenses included in the sample were: homicide, kidnapping, robbery, aggravated assault, simple assault, sexual assault, and intimidation. Second, when incidents had multiple victims and/or offenders, analysis focused on the first listed victim's and/or offender's characteristics. This method has been used in previous clearance research (Jarvis & Regoeczi 2009; Roberts 2007; Snyder 1999). However, I did control for whether there were multiple victims, multiple offenders, or concomitant offenses. In the current sample, over 80% of the total incidents include only one victim, one offender, and/or one offense. Those incidents that did not have information for the first victim were dropped from the sample.

There were also limitations made based on places. First, the sample was limited to places with a population, as reported in the NIBRS data, of 50,000 or more to focus on medium sized cities.<sup>2</sup> After this population based limitation, places in 31 states were left in the sample. Second, places that posed problems for merging were dropped from the sample. To merge the Census data with NIBRS the place needed to have a matching Census FIPS code; considering that townships did not have this matching unique identifier they were not included in the analytic sample. After this step, places that did not report information regarding key contextual variables were dropped from the sample. Places that did not report to LEMAS were dropped since several contextual variables were collected from this data. Furthermore, there were 16 places missing Census data on their black, non-Hispanic population, which were ultimately dropped from the sample as well. The final

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<sup>2</sup> One of the places, Joplin, MO, had a population less than 50,000. However, it was left in the sample since it was characterized as part of this population group by the NIBRS codebook.

analytic sample consisted of 278,275 incidents across 130 places and 28 states. For now, all missing data were dropped using list-wise deletion. In the future, supplemental analyses using multiple imputation may be conducted.

### **Dependent Variable**

*Clearance.* Incident-level NIBRS data includes a variable called “type of arrest,” which was recoded as a dichotomous variable: 0=*not cleared by arrest*, 1=*cleared by arrest*. For the purposes of this paper, clearance was limited to “cleared by arrest;” incidents in which the offender died, prosecution was declined, or extradition was denied, otherwise known as exceptional clearances, were excluded from the analysis.

### **Incident-Level**

*Sex.* The main independent variable for this analysis is victim’s sex, which comes from incidents reported by the police to NIBRS.

*Controls.* I controlled for both situational factors of crime incidents and demographic characteristics of victims that are related to clearance (Addington & Rennison 2008; Eitle 2005; Walfield 2015). Situational factors include victim-offender relationship, weapon type, concomitant offense, and seriousness of an incident. Following the NIBRS categorization, victim-offender relationship was categorized as family, friend/acquaintance, stranger, and unknown. The reference category was stranger. Weapon type was categorized as firearm, non-firearm, no weapon, and unknown, with no weapon serving as the reference category. A concomitant offense was coded as a dichotomous variable: 0=*no other offense*, 1=*multiple offenses*. I also controlled for whether there were multiple victims and/or offenders (0=*no*, 1=*yes*), and victim injury categorized as no injury, minor injury, or major injury (no injury=reference category).

Victim demographic characteristics included age and race/ethnicity. Age was a continuous variable ranging from under 24 hours to over 98 years old. I controlled for victim's race/ethnicity by first creating a Hispanic variable coded 1=*Hispanic*, 0=*non-Hispanic*. I then used this variable to construct a race variable that accounts for Hispanic ethnicity: 1=*non-Hispanic White (White)*, 2=*non-Hispanic Black (Black)*, 3=*Hispanic*, and 4=*non-Hispanic other (Other)*. The reference category was White. Categorical variables that were not already dichotomous were transformed into dummy variables for the analysis.

### **Contextual Variables**

*Gendered Contextual Factors.* To capture female political incorporation, I gathered data on female elected representation from 2010 data in the *Municipal Yearbook*. From this data, I measured the presence of a female mayor (1=*yes*, 0=*no*). Places that did not have a mayor listed were coded as missing and subsequently dropped. Following previously used measures (Lyons et al. 2013), I measured the extent of female bureaucratic incorporation into the police force by constructing a ratio of the percentage of the police force (full-time, sworn officers) that was female to the percentage of the city population that was female. Values that are below one indicate that there is an underrepresentation of females in the police force relative to their representation in the city. Data for female bureaucratic incorporation into the police force came from Law Enforcement Management and Administrative Statistics (LEMAS 2013).

I measured the economic status of women with two measures. The first was the degree of female incorporation into the labor force by constructing a ratio of the percentage of the labor force that was female to the percentage of the city population that was female and 16 years old and older. Values that are below one indicate the

underrepresentation of females in the labor force relative to their representation in the city. Data for female incorporation into the labor force were derived from 3-year estimates of the 2010 American Community Survey (ACS 2010). The second measure of economic status was an index of female income-educational attainment. Following Xie et al. (2011), I constructed this index from the average of standardized scores (x10) on female median income in inflation adjusted dollars and the percent of females aged 25 and older who completed four or more years of college. Data for this measure were obtained from 3-year estimates of the ACS (2010).

*Controls.* I also controlled for contextual factors that have been considered in prior studies of clearance: population size, police organizational size, percent black, poverty, and unemployment (Eitle et al. 2005; Roberts 2008; Walfield 2016). I captured population size by creating a log of the place population variable using the place population found in NIBRS (2014). Police organizational size was measured as the number of employees divided by the total working age population (16 and older) of the city. Data for this measure came from LEMAS (2013) and the ACS (2010). Whether the Census place was in the South was coded as 1 if yes and 0 if otherwise. Using ACS (2010) data, percent black was measured as the percent of the total place population that was non-Hispanic black, poverty was measured as the percent of the place population living below the poverty level, and unemployment was measured as the percent of the working aged population (16 years and older) that were unemployed.

### **Analytic Strategy**

Due to the multilevel nature of the data, I estimated a series of hierarchical generalized linear models that account for the non-independence of observations, with

278, 275 incidents (level-one units) clustered across 130 places (level-two units). All of the continuous variables were grand-mean centered for analysis. Since the dependent variable is dichotomous, I used logistic regressions for the analyses. In order to aid with the convergence process, I used the qr decomposition instead of the typical maximum likelihood; other than a different search process, there are no differences in these types of models (StataCorp. 2013). I explore whether the association between victim's sex and crime clearance varied significantly across census places by testing for random variation in the slope of female victim for all incidents included in the sample.

I first show baseline models predicting the odds of clearance for women compared to men before controlling for evidentiary factors (Table 2). Models 2 through 5 in Table 2 step in evidentiary factors to see how gender is mediated. Evidentiary factors that are used to explore this mediation are: race/ethnicity, age, criminal offense, and victim-offender relationship. Model 6 shows the full model. Table 3 presents the results after adding contextual factors. Model 1 shows the results after controlling for contextual level factors that have previously been tied to clearance, while Models 2 through 5 incorporate the gendered-contextual factors to see if they help further explain any evidence of discretion. Slopes for the sex of the victim are allowed to vary randomly throughout all of the models in both tables. Table 1 provides means and standard deviations for all city- and incident-level variables.

Table 1. Descriptive Statistics by Gender

	Overall		Females ( <i>N</i> =166,059)		Males ( <i>N</i> =112,216)	
	M	SD	M	SD	M	SD
Incident Level ( <i>N</i> =278,275)						
Cleared	.38	.49	.40	.49	.35	.48
Victim Gender						
Female	.60	.49	---	---	---	---
Male (reference)	.40	.49	---	---	---	---
Victim Race/Ethnicity						
White (reference)	.42	.49	.40	.49	.45	.50
Black	.45	.50	.47	.50	.41	.49
Hispanic	.11	.31	.11	.31	.12	.32
Other	.02	.13	.02	.13	.02	.13
Offense type						
Homicide	.00	.06	.00	.03	.01	.09
Kidnapping	.01	.10	.01	.11	.01	.07
Sexual offense	.04	.20	.06	.24	.01	.12
Robbery	.09	.28	.04	.20	.15	.36
Aggravated assault	.15	.36	.11	.32	.21	.41
Simple assault	.53	.50	.57	.49	.45	.50
Intimidation (reference)	.18	.38	.19	.39	.16	.36
Weapon type						
Firearm	.08	.27	.04	.20	.14	.34
Other weapon	.64	.48	.66	.48	.61	.49
No weapon (reference)	.28	.45	.30	.46	.25	.43
Victim-offender relationship						
Family	.21	.41	.25	.43	.16	.37
Friend	.50	.50	.57	.50	.40	.49
Stranger (reference)	.12	.32	.07	.26	.19	.39
Unknown	.16	.37	.11	.32	.24	.43
Concomitant Offense	.10	.30	.10	.30	.10	.30
Multiple Victims	.16	.37	.14	.35	.19	.39
Multiple Offenders	.15	.36	.11	.32	.22	.41
Victim injury						
No injury (reference)	.56	.50	.56	.50	.56	.50
Minor injury	.38	.49	.39	.49	.37	.48
Major injury/death	.06	.24	.03	.18	.10	.30
Victim Age	32.22	14.17	31.38	13.25	33.47	15.34
City Level ( <i>N</i> =130)						
Female mayor	.14	.35	.09	.29	.09	.29
Female income-education	-.28	7.26	-2.58	5.00	-2.13	5.20
Female police incorporation	.21	.09	.24	.10	.24	.10
Female labor force incorp.	.62	.05	.62	.04	.62	.04
Police organization size	.00	.00	.00	.00	.00	.00
Population	155460.70	155051.90	341113.70	253903.30	338877.90	252697.50
Southern city	.37	.48	.44	.50	.42	.49
Percent black	.16	.17	.29	.21	.27	.21
Poverty	16.69	6.87	20.81	6.63	20.43	6.52
Unemployment	.06	.02	.06	.02	.06	.02

Note: All of the differences between the sexes were significant at  $p < .05$ , except for concomitant offenses and female police incorporation.

## Results

### Descriptives

Before discussing the multivariate findings, I first descriptively consider the differences in crime clearance processes for males and females. Table 1 provides means and standard deviation values for all city- and incident-level variables for both females and males. Using bivariate analyses between the sex of the victim and each of the independent variables, I did find that there were descriptive differences between males and females in regards to processes related to clearance and clearance itself. To test the statistical significance of sex differences in variables related to clearance, I used Pearson's Chi-Square for dichotomous variables and t-tests for continuous variables. As expected, these tests indicated that there were statistically significant sex differences in all of the incident-level processes related to clearance ( $p < .001$ ), except for concomitant offenses. There were also significant differences found for all the contextual factors ( $p < .05$ ), except for the bureaucratic incorporation of women into the police force. I elaborate on these differences below.

Incidents involving female victims had a higher average clearance percentage (40%) compared to incidents involving male victims (35%). When comparing incidents involving female victims to male victims, incidents involving females had a higher percentage of: black victims, sexual offenses, simple assaults, intimidations, uses of a weapon other than a firearm, no weapons, family members and friends as the offenders, and minor injuries. Incidents involving males had a higher percentage of: white and Hispanic victims, homicides, robberies, aggravated assaults, use of firearms, stranger or unknown offenders, multiple victims, multiple offenders, and major injuries. The

average age was also higher for incidents with a male victim than those with a female. These results provided preliminary evidence for which types of evidentiary factors to consider as significant mediators based on how different males and females were from one another.

When looking at the city-level context in which the incidents occur, more females than males reported victimization in the South, in places with a higher percentage of non-Hispanic black residents, in places with a higher percentage of people living below the poverty line, in places where there is a higher percentage of people unemployed, and in places with a higher population. Compared to females, males reported victimization more often in places with a higher female income-educational index. The means were similar between the two groups when considering the size of the police force, whether there was a female mayor, the percentage of the labor force that was female, and the percentage of the police force that was female. For those that were similar, their slight differences were statistically significant, however this was likely due to the large sample sizes and not substantive differences.

### **Multi-Variate Findings**

When analyzing the relationship between victim's sex and clearance, I found that the association between victim's sex and crime clearance varied significantly across census places as evidenced through the large standard deviation for females (.061). The estimated association between females and clearance ranges above and below zero for 95 percent of cities in the sample (calculated by  $.237 \pm [2*.494]$ ). This finding suggests that the relationship between the sex of the victim and crime clearance varies depending on the place where the crime occurred, justifying the use of my analytic strategy.



Table 2 shows the effects of victim's gender on clearance in six models. Model 1 does not include any controls, and shows that female victims have significantly higher odds of having their crime cleared compared to males ( $p < .001$ ). Model 2 controls for the victim's race/ethnicity. Female victims still have higher odds of having their crime cleared ( $p < .001$ ), thus the race/ethnicity does not seem to mediate the relationship between gender and clearance. Hispanic and 'other' racially identified victims have significantly lower odds of having their crime cleared ( $p < .01$  and  $p < .05$  respectively). Model 3 controls for the victim's age. Females still have significantly higher odds of having their crime incident cleared compared to males, and victim's age has no significant effect on clearance. Model 4 controls for the criminal offense, ranging from intimidation to homicide. Females still have significantly higher odds of having their incident cleared ( $p < .001$ ), and the coefficient is larger than it was in Models 1 through 3. All the criminal offenses have significant effects on clearance ( $p < .001$ ), with homicide, kidnapping, aggravated assault, and simple assault having positive effects and sexual offenses and robberies having negative effects compared to the criminal offense of intimidation. Model 5 controls for the victim-offender relationship. This evidentiary factor category seems to be driving the mediation of gender and clearance, for after its inclusion in the model the female coefficient is no longer significant. Incidents involving a family member or friend have significantly higher odds of being cleared compared to those involving strangers ( $p < .001$ ), and incidents involving unknown offenders have significantly lower odds of being cleared compared to strangers ( $p < .001$ ). This supports the aforementioned argument that certain case characteristics drive the relationship between gender and clearance. Finally, Model 6 includes all evidentiary factor controls.

Table 2. Mediating Effects of Evidentiary Factors on Gender

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Victim's Sex												
Female	.237***	.026	.238***	.026	.237***	.026	.259***	.026	-.044	.026	.051	.028
Victim's Race/Ethnicity												
Non-Hispanic Black			-.014	.010							-.150***	.011
Hispanic			-.041**	.015							-.105***	.016
Other			-.065*	.033							-.069	.036
Victim's Age					1.779	1.141					3.26*	1.59
Offense Type												
Homicide							1.527***	.067			1.93***	.080
Kidnapping							1.128***	.043			.607***	.052
Sexual Offense							-.213***	.027			-.395***	.032
Robbery							-.115***	.022			.294***	.031
Aggravated Assault							1.128***	.017			.893***	.027
Simple Assault							1.173***	.014			.657***	.023
V-O Relationship												
Family									1.113***	.016	.972***	.018
Friend									.564***	.015	.472***	.016
Unknown									-1.262***	.020	-1.30***	.021
Weapon												
Firearm											-.115***	.028
Other Weapon											.218***	.020
Victim's Injury												
Minor Injury											.373***	.011
Major Injury											.208***	.023
Multiple Victims											.293***	.014
Multiple Offenders											-.192***	.014
Concomitant Offense											.670***	.021
Intercept	-.300***	.061	-.289***	.061	56.56	36.46	-1.189***	.061	-.485***	.070	102.77*	50.69
Variance Components (SD)												
Intercept		.677*		.677*		.674*		.663*		.767*		.727*
Female		.247*		.247*		.249*		.253*		.247*		.266*

\*p&lt;.05; \*\*p&lt;.01; \*\*\*p&lt;.001

The female coefficient remains insignificant, and all of the additional controls are working in the expected directions, except robbery is no longer negative. Considering that the victim-offender relationship mediates the once significant effect of gender on clearance, there is not currently evidence of discretion in the form of chivalry or devaluing. Rather the differences are more related to the different types of crimes that women compared to men are involved in. Although the gender effect is mediated, the slope for female significantly varies across places. The impact of contextual factors on crime clearance and the relationship between gender and clearance are therefore examined in Table 3.

Model 1 of Table 3 adds contextual controls to Model 6 of Table 2. The female coefficient remains insignificant, while all of the evidentiary factors continue to work in the expected directions, which suggests that gender is not moderated by these contextual factors. Of the place-level controls, police organization size and the South were the only ones that had a significant effect on clearance ( $p < .05$  and  $p < .01$  respectively). As the police organization size increases, the odds of clearance also increase, while the incident taking place in the South compared to other regions decreases the odds of clearance. Models 2 through 5 incorporate each of the gendered-contextual factors. In Model 2, which adds female mayor, police organization size and the South ( $p < .01$ ) are still significant, while female mayor has no significant effect on clearance. Models 3 through 5 include female income-education index, female police incorporation, and female labor force participation, respectively. In all three models, police organization size has a positive and significant effect ( $p < .05$ ) on clearance, while population size and being in the South have negative effects on clearance ( $p < .05$  and  $p < .01$  respectively). None of the

Table 3. Multi-Level Logistic Regressions of Clearance with Contextual Factors

	Model 1		Model 2		Model 3		Model 4		Model 5	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Incident Level Variables ( <i>N</i> =278,275)										
Victim's Sex										
Female	.050	.028	.050	.028	.050	.028	.050	.028	.050	.028
Victim's Race/Ethnicity										
Non-Hispanic Black	-.149***	.011	-.149***	.011	-.149***	.011	-.149***	.011	-.149***	.011
Hispanic	-.105***	.016	-.105***	.016	-.105***	.016	-.105***	.016	-.105***	.016
Other	-.070	.036	-.070	.036	-.070	.036	-.070	.036	-.070	.036
Victim's Age	.415	1.866	.536	1.83	-2.35	3.66	.178	1.72	.389	2.23
Offense Type										
Homicide	1.935***	.080	1.93***	.080	1.93***	.080	1.93***	.080	1.93***	.080
Kidnapping	.607***	.052	.607***	.052	.607***	.052	.607***	.052	.607***	.052
Sexual Offense	-.395***	.032	-.395***	.032	-.395***	.032	-.395***	.032	-.395***	.032
Robbery	.294***	.031	.294***	.031	.294***	.031	.294***	.031	.294***	.031
Aggravated Assault	.893***	.027	.893***	.027	.893***	.027	.893***	.027	.893***	.027
Simple Assault	.656***	.023	.657***	.023	.657***	.023	.656***	.023	.657***	.023
V-O Relationship										
Family	.972***	.018	.971***	.018	.972***	.018	.972***	.018	.972***	.018
Friend	.472***	.016	.472***	.016	.472***	.016	.472***	.016	.472***	.016
Unknown	-1.303***	.021	-1.30***	.021	-1.30***	.021	-1.30***	.021	-1.30***	.021
Weapon										
Firearm	-.115***	.028	-.114***	.028	-.114***	.028	-.115***	.028	-.115***	.028
Other Weapon	.218***	.020	.218***	.020	.218***	.020	.218***	.020	.218***	.020
Victim's Injury										
Minor Injury	.373***	.011	.373***	.011	.373***	.011	.373***	.011	.373***	.011
Major Injury	.208***	.023	.208***	.023	.208***	.023	.208***	.023	.208***	.023
Multiple Victims	.293***	.014	.293***	.014	.293***	.014	.293***	.014	.293***	.014
Multiple Offenders	-.192***	.014	-.192***	.014	-.192***	.014	-.192***	.014	-.192***	.014
Concomitant Offense	.670***	.021	.670***	.021	.670***	.021	.670***	.021	.670***	.021
City Level Variables ( <i>N</i> =130)										
Police Organization Size	230.419*	97.586	266.23**	97.87	225.47*	97.41	241.06*	97.85	229.08*	97.89
Population	-.180	.093	-.178	.092	-.194*	.095	-.214*	.100	-.190*	.097
Southern City	-.562**	.162	-.530**	.161	-.536**	.164	-.530**	.166	-.545**	.168
Percent Black	-.298	.595	-.522	.598	-.263	.594	-.568	.665	-.330	.605
Poverty	-.025	.013	-.025	.013	-.018	.015	-.026	.013	-.023	.014
Unemployment	-10.452	6.519	-9.29	6.43	-10.69	6.46	-8.99	6.63	-9.89	6.84

Table 3. (cont.)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Female Mayor			.328	.174						
Female Income-Education					.021	.024				
Female Police Incorp.							.765	.857		
Female Labor Force									.662	1.59
Intercept	14.158	59.775	17.95	58.63	-74.00	116.76	6.98	55.05	13.45	71.52
Variance Components (SD)										
Intercept	.640*		.629*		.639*		.638*		.640*	
Female	.268*		.268*		.266*		.268*		.268*	

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

gendered-contextual factors had significant effects on the odds of clearance. Although it seemed as though the context could be moderating the effect of gender on clearance, it appears that at least when considering these four gendered factors that is not the case.

### **Conclusion**

Scholars view clearance as a strategy to understand the conditions under which police respond to victims. While clearance research has focused on whether police responsiveness varies based on the race/ethnicity of the victim (Taylor et al. 2009; Roberts & Lyons 2011), there has been relatively less attention devoted to the extent to which the gender of the victim impacts crime clearance. To address this omission, my thesis attempts to elucidate the role of gender in clearance by examining the mediating effects of the gender of the victim on crime clearance. Furthermore, I explore the extent to which contextual factors moderate the effect of gender on clearance across places.

Overall, the results suggest that the relationship between the gender of the victim and clearance is more about the case characteristics than about police discretion one way or another. Women initially receive an advantage compared to men before controlling for evidentiary factors, but once the victim-offender relationship is added to the model, women no longer experience this advantage. Incidents involving an offender that is known to the victim are more likely to be cleared than those involving strangers, and women more often than men are victimized by someone they know. These gendered differences in the types of incidents men and women are involved in seem to be explaining most of the relationship between gender and clearance.

Results indicate that embedding clearance risk within a place is fruitful. Overall, the size of the police force appears to increase the odds of clearance, while being in the South significantly decreases the odds of clearance. Population size also had a negative impact on clearance when controlling for several of the gendered-contextual factors. The results suggest that the gendered-context does not have a moderating effect on clearance, and that it is more about the case-level characteristics. The female slope did vary across places though, suggesting that there is something contextually driving clearance as well. In the future, I will further explore the interaction effects between gender and the gendered-contextual factors on crime clearance.

Understanding the processes that lead to clearance is helpful for alleviating negative consequences of crime victimization. For example, victims of rape, who are overwhelmingly female, might not report to the police if they believe that the police are biased (Fisher et al. 2010; Sampson 2002) and/or if they have a lack of trust in the criminal justice system to offer an official response (Sampson 2002). Therefore, the perceived or real inability of the police to clear a crime incident, such as a rape or sexual assault, can also pose future problems related to crimes going unreported. If a crime incident is not reported to law enforcement there is the potential that the same offender will commit future crimes leading to more victims (Fisher et al. 2010; Thompson et al. 2007), and victims may also miss out on legal and medical assistance from police agencies and/or other agencies that provide support (Fisher et al. 2010). By illuminating the processes of crime clearance, it may help to alleviate some of the negative consequences that result from a distrust in the police to provide an official response to the reported incident. The results of this thesis are a step towards illuminating these

processes, and suggest that there are differences in the cases in which men and women are involved in that drive the odds of having the incident cleared. Future research could focus on specific types of crimes, such as sexual offenses, and see how the evidentiary factors vary for men and women for the same criminal offense. This could also shed light on whether male and female victims are treated differentially based on whether it is a more typical type of crime for their gender.

Although NIBRS provides a wealth of information related to crime incidents, there are a few limitations that come with using this dataset. First, participation amongst law enforcement agencies in regards to reporting incidents to NIBRS is voluntary. Due to the incomplete agency coverage, NIBRS agencies do not represent a random sample of American police agencies, and subsequently the NIBRS incidents do not represent a random sample of U.S. crime incidents (Roberts 2008). Agencies that do participate are often located in cities with small to medium populations. Overall, this indicates that NIBRS data do not provide nationally representative results. However, it should be noted that NIBRS participation is growing and thus is becoming more nationally representative each year (Roberts 2008). Second, NIBRS data lacks key pieces of information at the incident-level that could be related to crime clearance. NIBRS does not provide information such as the number of detectives assigned to an incident, the experience levels of those who are assigned, or the occupation or education of the victim (Roberts 2008). Third, the NIBRS data only includes those incidents which are reported to the police.

This project has a few other limitations unrelated to NIBRS itself. First, this project is cross-sectional and therefore does not observe changes over time. This project provides a snapshot in time, but it would be interesting to look at how the relationship



between the gender of the victim and crime clearance fluctuates with the changing status of women throughout history. Especially of interest would be to see how the gender of the victim impacts sexual offenses throughout time, particularly with the change in definition of rape that occurred in 2013. Another limitation of this project is the lack of intersectionality. Recent sociological and criminological research have demonstrated the need for taking an intersectional approach towards conducting one's own research (Steffensmeier, Ulmer, and Kramer 1998; Cho, Crenshaw, and McCall 2013). Future research could take a more intersectional approach towards unpacking the clearance process by considering the intersections of a victim's race/ethnicity, age, and sex rather than focusing solely on male versus female.

Overall, this project demonstrates that there is much to be gained by bringing in gender to clearance research. The results show that the types of incidents women are involved in compared to men give them an advantage when it comes to clearance. Future research should continue to unpack how the types of incidents men and women are involved in impact their odds of clearance, and whether it depends on if it is a typical crime based on one's gender. For example, considering that women are more likely to be victims of sexual assault than men, how men are treated when they are victims of this crime could be different from how women are treated. Finally, this project provides evidence for the continued consideration of how the place in which crime incidents are embedded influences the likelihood of clearance, especially for women.

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