



Doing Time for Cyber crime: An Examination of the Correlates of Sentence Length in the United States

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Abstract

The purpose of the present study is to provide an understanding of the correlates of the length of sentence for a cyber crime. Using data from the Internet Crime Complaint Center, this study revealed several unique results. The results show that three measures increase the sentence length (i.e., a conviction of identity theft, fraud, and destruction of property). These results are not present in the empirical literature. We discuss the implications of these results.

Keywords: Sentencing, Cyber crime, Identity Theft.

Introduction

As usage of the Internet has grown to approximately 657 million users worldwide (Osugwu, Ogiemien, & Okide, 2010), criminality online has become more prevalent and a pressing issue in our criminal justice system. Cyber crime can occur in several different forms, including, but not limited to: digital piracy, wiretapping, copyright infringement, Nigerian bank schemes, and sexual exploitation of children. Although serious forms of criminal activity, often with significant financial losses or harm resulting, it is notable that many victims, including most victimized businesses, do not report such offenses to law enforcement (Bureau of Justice Statistics, 2008). Multiple pieces of legislation have been passed with the intention of toughening punishments for the various forms of cyber crime offenders. However, there has yet to be an examination of how punishments are administered to cyber criminals, as well as whether there are disparities (especially

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regarding gender) in sentencing for cyber crime offenders. This study seeks to address this gap in the literature through an examination of sentencing patterns for cyber crime offenses in three states with a special focus on identifying whether there is a gender disparity in such sentences. The first section will discuss the current statutory punishments for cyber crime offenders and the limited data available on criminal sentences for cyber criminals. Second, as there is only limited data available on sentencing of cyber criminals, and no studies of the influence of gender on such sentences, we will review the literature on gender disparities in sentencing in general. Subsequently, the methodology used in the current study, the findings from the analysis, and discussion of the results will be presented.

Punishment of Cyber Crime Offenders

Although many instances of cyber crime are never reported to law enforcement, such offenses still constitute an important and significant component of criminal court cases. According to the National Survey of Prosecutors (Perry, 2006), at least two-thirds of all prosecutors offices litigated some form of cyber crime case in 2005. The most frequently prosecuted offenses include credit card fraud (80%), identify theft (69%) and transmission of child pornography (67%). Not surprisingly, prosecutors' offices in large urban jurisdictions (with populations of 1 million +) are the most likely to report prosecuting all forms of cyber crime. Additionally, between 2006 and 2010, an average of 193 federal cases for cyber crimes was prosecuted by the U.S. Department of Justice (United States Department of Justice, 2010). In summary, we can assert that a growing rash of cyber crimes on the state and federal level have pushed for the need of legislation to address punishing these offenders.

There has been a multitude of legislation passed by the federal government to punish cyber crime offenders. Current legislation, especially on the federal level, targets certain types of cyber crimes. The Computer Fraud and Abuse Act recently amended by the Identity Theft Enforcement and Restitution Act of 2008, addressed issues of fraud and accessing information illegally. Furthermore, the Copyright Felony Act passed in 1992 to amend the Copyright Act of 1976, broadened the scope of the law to protect all copyright holders, and not just those that had recorded sound, movies, or software. If the offender of copyright offenses is to be charged with a felony under this act, he or she needs to have reproduced or distributed at least ten pieces of unauthorized copies or phonographic records within 180 days; additionally, the pieces need to have a retail value of \$2500.00. If these thresholds are not met the behavior is deemed a misdemeanor. As punishment for a first felony offense, Copyright Felony Act allows for a prison sentence up to five years. This only applies for a first offense.

Legislation aimed at the prosecution and punishment of offenders who exploit children has gone through multiple amendments to ensure offenders' First Amendment rights are not violated. Statutes such as the Child Pornography Protection Act of 1996, the Child Internet Protection Act of 2000, and the Adam Walsh Protection and Safety Act of 2006 are all aimed at protecting the vulnerable population of minors from Internet predators ("Fact Sheet: The Adam Walsh Protection and Safety Act of 2006," 2006; Federal Communications Commission, 2006, Henderson, 2005). States have also made legislative efforts toward the prosecution of child pornography offenders. Florida requires that persons who suspect abuse of children, including child pornography, are required to report it to law enforcement. Furthermore, states such as Arkansas, Michigan and North

Carolina, require Internet service providers and IT professionals to report child pornography encountered in their work (Ray, Kimonis, & Donoghue, 2010).

The United States Department of Justice advises punishment of computer crime offenders by federal court judges in the same manner as is advisement for all other federal crimes: the United States Sentencing Guidelines (USSG). The USSG is a detailed sentencing guideline, with the ranges of sentencing calculated with current offense and past criminal history, which acts as a uniform sentencing policy for federal court. Enhancements for network crimes (i.e., property damage, theft and fraud) are determined by considering the following factors:

1. Approximate financial loss of the victim;
2. Number of victims;
3. Extraterritorial conduct;
4. Evaluation of the sophistication of means;
5. Trafficking in access devices (i.e., passwords, bank account information, social security numbers, other personal information);
6. Risk of death or injury;
7. Intentional damage; and
8. Access to critical infrastructures (i.e., national defense or security, public health or safety, and/or economic security) (United States Department of Justice, 2011).

Violators of the CAN-SPAM Act (18 U.S.C. § 1037), which criminalizes obtaining email addresses through improper means, can receive a two-level increase for their sentence. There are also level increases for violators of the Wiretap Act.

While we as a criminal justice system have often seen the push for knee-jerk legislation to address a growing form of criminality, such as violent and drug crimes, it is easier to compare the development of cyber crime legislation by examining a similar form of criminality: white collar crime. White collar criminality is comparable to cyber crime as it often requires a high level of intelligence and deception, compared to violent crimes that involve impulsive and aggressive behavior. With the rash of white collar criminality occurring within the past decade (i.e., the collapse of Enron and other major American corporations), legislatures hurried to pass effective legislation to address this growing problem and punish these offenders (Harvard Law Review, 2009). Congress enacted the Sarbanes-Oxley Act in 2002, which included the White-Collar Crime Penalty Enhancement Act of 2002 (WCCPA), with the intention of sharply increasing penalties for white collar offenders. However, these penalties have not been shown to be effective deterrents as sentencing is not consistent and the higher penalties are rarely imposed. The hope with cyber crime legislation is that unlike Sarbanes-Oxley and WCCPA, the above-mentioned legislation will become an effective deterrent based on the harsh and swift penalties.

The information above describes the possible and recommended punishment of cyber crime offenders should they be convicted for their crimes. While guidelines are available there is little information specifying what sentences convicted cyber crime offenders in fact do receive. Data from the United States Department of Justice (2010) does show that for the five year period of 2006 – 2010 a total of 1,177 individuals were convicted and sentenced for cyber crimes. Of these, only 51.7% (n=608) received a sentence including any prison time. For those who were sentenced to incarceration, sentences were typically fairly short. Of those receiving a sentence of incarceration more than one-third (34.9%)

were sentenced to 12 months or less, 27.3% received a sentence of 13 – 24 months in prison, 11.5% a sentence of 25 – 36 months, 12.3% 37 – 60 months and only 6.7% were sentenced to more than 60 months of incarceration (U.S. Department of Justice, 2010). The purpose of this study is to provide answers of how these offenders are being sentenced and to what extent.

Differences in Sentencing

As stated previously, there is a gap in the literature regarding the sentencing patterns of cyber crime offenders. For this particular study, we will be specifically examining the effect of sex on cyber crime sentencing decisions. However, there is literature available comparing in sentencing patterns for multiple other crimes that can be used as a reference point. This section will examine sentencing disparities as a result of various factors attributed to the individual.

At the core of the investigation of whether there are disparities in sentencing of men and women for similar types of offenses is the chivalry/paternalism hypothesis (Bishop & Frazier, 1984). This is the contention that women are likely to receive more lenient sentences than men as a patriarchal legal system looks to protect women, views women as less responsible for their criminal offenses, and views women as in need of help and protections. Numerous studies have demonstrated a chivalrous approach to sentencing, for a variety of types of offenses. Empirical research on the issue has been relatively consistent, showing that women are not only more likely to be released prior to trial, but at the time of sentencing are also less likely to be incarcerated, more likely to benefit from downward departures from sentencing guidelines and more likely to receive a more lenient sentencing if sentenced to incarceration. (Albonetti, 1992; Engen, et al., 2003; Jeffries, Fletcher & Newbold, 2003; Kruttschnitt, 1984, Martin & Stimpson, 1997, 1998; Nagel & Johnson, 1994). In a major review of cases using data from the United States Sentencing Commission Sarnikar, Sorensen and Oaxaca (2007) show that even when controlling for guilty pleas, offense severity and criminal history women, on average, receive prison sentences 2 years shorter than men. The authors suggest that judges may be considering family circumstances of defendants, yet another aspect of a chivalrous approach to sentencing. Similar results – shorter sentences for women than men and considerations of women’s family ties -- have been shown by Logue (2011) and Freiburger (2010). Additionally, when mandatory minimum sentences are legislated for drug or “three strikes” convictions, prosecutors more frequently circumvent applying mandatory minimum sentences for women than for men (Ullmer, Kurlychec & Kramer, 2007). Similarly, in Pennsylvania the presence of sentencing guidelines did not preclude women from receiving shorter sentences than similarly situated men (Blackwell, Holleran & Finn, 2008).

Studies of sentencing for specific types of offenses have also shown a gender disparity. Franklin and Fearn (2008) show that for homicide women do receive shorter sentence than men, especially men who kill women. Fernando and Lee (2006) show that for drug and property offenses, females are less likely to be sentenced prison and more likely to receive shorter sentences if sentenced to prison compared to males. However, females are no less likely than males to receive prison time for violent offenses.

Findings of sex disparity in sentencing are not solely attributed to the United States criminal justice system, but in fact appear to hold across cultures. Deering and Mellor (2009) found in a sample of offenders convicted of child sex abuse crimes in Australia,

women were more likely than men to receive less jail time for their crimes, as well as lower non-parole periods due to their backgrounds. Furthermore, Hartley et al. (2011) found that female drug offenders in South Korea were less likely to receive harsh sentences compared to male drug offenders.

Race is also a factor that has been clearly shown to contribute to sentencing disparities as well. For instance, utilizing a sample of juveniles convicted of a felony in adult court, Jordan and Freiburger (2010) found that race and ethnicity does impact sentencing. In regards to crimes committed by adults, Doerner and Demuth (2010) examined the joint effects of race, gender and age on sentencing decisions in United States federal court. They determined that defendants who were Hispanic or black, male and young were more likely to receive harsher sentences compared to defendants who were female, white and older. When the factors were examined in combination, young Hispanic males were most likely to be incarcerated and young black males were most likely to receive the longest sentences. Conversely, some studies have found that age has no effect on sentence length. Jawjeong and Spohn (2009) discovered through a meta-analysis that age of an offender has no effect on the length of a prison term. Bushway and Piehl (2007) also assert that research on the age and sentencing relationship is incomplete and that sentencing laws are based on a defendant's criminal history. Therefore, age is incorrectly assumed to be a meaningful variable in sentencing when the true cause is that older offenders generally have a lengthier criminal history, and are therefore sentenced to longer prison terms.

What the literature on sentencing shows overall, then, is that there are important demographic disparities, especially in regards to gender and race, in sentences applied to criminal defendants. To date, the research suggests that these disparities hold across offenses, although not all types of criminal offenses have been examined individually. One area in which gender differences in criminal sentencing has yet to be examined is in regards to offenses that are dependent on specific (and often sophisticate) technological knowledge and skills – cyber crimes.

The Present Study

The purpose of the present study is to provide an understanding of the correlates of the length of sentence for a cyber crime. As stated multiple times, there is a lack of empirical literature available that explores and examines the current sentencing status of cyber crime offenders in the United States. This study is guided by two research questions. First, are there sex differences in the length of sentences for a cyber crime? Second, does the type of cyber crime have an impact on the length of sentences for a cyber crime? This study is significant because it provides unique information to two literatures: sentencing and cyber crime.

Methods

Procedure and Sampling

According to the Internet Crime Complaint Center, cyber crimes are more likely to occur in the West (NWC3, Inc., 2010). In their 2009 report, California, Washington, and Nevada were in the top 10 list for states containing individual perpetrators. Moreover, Nevada, Washington, Montana, and Utah were all in the top 5 for states containing the most perpetrators per capita. This was supported by Marcum, Higgins, Ricketts, and Freiburger (2011), who found that that law enforcement agencies in the Midwest and

Eastern areas of the United States are less likely to investigate cyber crime, including production of child pornography cases, compared to the West.

Based on the above information, researchers requested information from the Department of Corrections of three states in the Western region of the United States. The director of research for each state's Department of Corrections was contacted and asked to send the following information on all cyber crime offenders sentenced in that particular state and who were currently under some form of correctional supervision (i.e., incarceration, probation or parole):

- Demographic information (i.e., race, age, sex, marital status, children);
- Religious and gang affiliation;
- Past conviction history;
- Current cyber crime conviction;
- Type of sentence received and length of sentence; and
- Prison security level (if incarcerated).

No identifying information was requested. Once the data was received, it was cleaned, coded and prepared for analysis.

Measures

In this study, we used a number of measures. First, we used the sentence length in years. Preliminary analysis showed that this measure was non-normally distributed, so we used the natural log of the sentence length. Second, we used a measure of biological sex (0) female and (1) male. Third, we used a measure of race and it was coded as (0) non-white and (1) white. Fourth, current age was an open-ended measure. Fifth, conviction of identity theft was coded as (0) no and (1) for yes. Sixth, conviction of cyber fraud was coded as (0) no and (1) for yes. Seventh, destruction of property was coded as (0) no and (1) for yes. Eighth, cyber lott was coded as (0) no and (1) yes.

Analysis Plan

The analysis for this study takes place in a series of steps. The first step in the analysis is a presentation of descriptive statistics. The second step in the analysis a presentation of the bivariate correlations. The bivariate correlations show the amount of variation that is shared between the measures. In addition, the bivariate correlations provide some indication of multicollinearity. The third step is a regression analysis. In this analysis, we used ordinary least squares (OLS) regression. In OLS, the tolerance measure is used to determine multicollinearity. Freund and Wilson (1998) argued that tolerance levels at or below 0.20 were an indication of multicollinearity.

Results

Step 1

The first step is a presentation of the descriptive statistics. Table 1 show that the natural log length of sentence is 2.90. The sample is comprised of 62 percent males, 86 percent white, and the average age is 35.85. Those that are in prison are there for several types of cyber crime offenses: sexually oriented cyber crime (13%), identity theft (83%), and fraud (4%). Two other cyber crime offenses--destruction of the property and lott--were included in the study but they did not make up a percentage point of the types of cyber crimes committed.

Table 1. Descriptive Statistics

Measure	Mean	Standard Deviation
1. Length of Prison Sentence	2.90	0.70
2. Male	0.62	---
2. White	0.86	---
3. Age	35.85	10.41
4. Identity Theft	0.83	---
6. Fraud	0.04	---
7. Destroy	0.00	---
8. Lott	0.00	---

Step 2

Table 2 presents the bivariate correlations. The correlations show that only a few measure share variance with sentence length--male ($r=-0.19$) and destruction of the property ($r=0.06$). This suggests that few measures in this study share variance with the natural log of sentence length; however, further analysis is necessary to gain a better understanding of the links between the measures and the natural log of sentence length. Before this can take place, we note that the correlation between fraud and destruction of property ($r=-0.42$) is high and could potentially indicate multicollinearity. However, leave a more thorough analysis of multicollinearity for the regression analysis.⁴

Step 3

Table 3 presents the ordinary least squares regression. In this analysis, several measures were significant. To address the first research question, males are less likely than females ($b=-0.16$, $Beta=-0.13$) to have longer sentences for cyber crime. Further, older individuals are more likely to have longer sentences for cyber crime ($b=0.00$, $Beta=0.05$). To address the second research question, individuals that are convicted for identity theft have longer sentences for cyber crime than those not convicted for identity theft ($b=0.47$, $Beta=0.26$). Those that are convicted for cyber fraud have longer sentences than those not convicted of cyber fraud ($b=0.53$, $Beta=0.16$). Individuals that are convicted of destruction of property have longer sentences than those not convicted of destruction of property ($b=1.72$, $Beta=0.09$). Table 3 also shows that the tolerances for each of these measures do not reach 0.20 suggesting that multicollinearity is not a problem in this study.

⁴ We removed sexually oriented cyber crimes for the rest of the analysis because they were multicollinear with identity theft.

Table 2. Bivariate Correlations

Measures	1	2	3	4	5	6	7	8
1. Sentence Length	1.00							
2. Male	-0.19*	1.00						
3. White	0.02	-0.08*	1.00					
4. Age	0.02	0.06*	0.07*	1.00				
5. Identity Theft	-0.00	-0.20*	0.00	-0.15*	1.00			
6. Fraud	0.02	-0.04	-0.03	-0.01	-0.42*	1.00		
7. Destroy	0.06*	-0.01	0.01	0.00	-0.07*	-0.01	1.00	
8. Lott	-0.00	-0.03	0.01	-0.00	-0.05*	-0.01	-0.00	1.00

*p=0.05

Table 3. Ordinary Least Squares Regression.

Measure	b	SE	Beta	Tolerance
1. Male	-0.16*	0.03	-0.13	0.92
2. White	0.06	0.04	0.03	0.99
3. Age	0.00*	0.00	0.05	0.97
4. Identity Theft	0.47*	0.05	0.26	0.68
5. Fraud	0.53*	0.08	0.16	0.99
6. Destroy	1.72*	0.43	0.09	1.00
7. Lott	0.12	0.61	0.01	0.99

F= 22.98*

R-square=0.09

*p=0.05

Discussion and Conclusion

In regard to the first research question, we found the female cyber crime offenders are more likely to receive longer sentences for their crimes compared to males. This is interesting as females generally receive shorter sentences for crimes in the physical realm (Blackwell, Holleran, & Finn, 2008; Deering & Mellor, 2009; Freiburger, 2010; Logue, 2010). For example, Fernando and Lee (2006) compared the sex-sentencing relationship of violent and nonviolent offenders. In their study, drug and property offenses, females are less likely to be sentenced prison and more likely to receive shorter sentences if sentenced to prison compared to males. Results from the present study also indicated that older cyber crime offenders were more likely to receive longer sentences. This finding is actually contrary to other some other literature that determined that younger offender actually receive longer sentences (Doerner & Demuth, 2010; Jawjeong & Spohn, 2009). However, the argument is also present that age is incorrectly assumed to be a significant predictor of sentencing, when truly it is criminal history (Bushway & Piehl), as older offenders tend to have lengthier criminal histories.

The second research question addressed the effect of type of cyber crime on sentence length. Results indicated that offenders who committed identity theft, cyber fraud, or destruction of property were more likely to get lengthier sentences compared to other cyber crime offenders. These findings indicate that sentencing practices in these Western states place strong emphasis on punishment of cyber crime offenders whose crimes involve violation of privacy and serious financial loss. For example, the unauthorized theft of someone's personal information (e.g., SSN, credit card number) or presenting false pretenses of identity (e.g., Nigerian bank schemes) received harsher sentences compared to other cyber crimes. While property crimes occurring in the physical realm can result in financial loss, it is not unreasonable to assume that cyber crimes involving financial theft can involve more extensive and devastating losses due to the far-reaching arms of the Internet. An offender can access records internationally with the click of a mouse, while the theft of someone's credit cards in the physical realm is limited to far less victims.

As mentioned before, there is a serious gap in the literature so there is little to no related research to compare these findings. However, these findings are extremely important as they have opened the door to exploring the sentencing of cyber crime offenders. We can see from these results that cyber crime offenders who are committing offenses that potentially effect multiple victims in very damaging ways (i.e., use of personal information to falsely obtain money and property, destruction of credit history) are being sentenced harshly. Whether this type of sentencing is a deterrent to current and future offenders is yet to be seen and worth future research; however, it is a start in the right direction.

Past research in related fields has found that sexes are treated differently when it comes to criminal sentencing, and these findings were supported by the current study. It would be worth testing the previously mentioned chivalry/paternalism hypothesis (Bishop & Frazier, 1984) on cyber crime offenders. Furthermore, while past research has indicated that more cyber criminality occurs in Western states (Marcum et al., 2011; NWC3, Inc., 2010), it would be beneficial for future research to compare these findings to cyber crime sentencing of sexes and offense types in other regions of the country.

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