The Location of Registered Sex Offenders and Their Impact on Neighborhood Crime and Informal Social Control

Heidi Irene Thielmann

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Reading Committee:

Robert Crutchfield, Chair

Jerald R. Herting

Stewart Tolnay

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Abstract

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Heidi Irene Thielmann

Chair of the Supervisory Committee:
Professor Robert Crutchfield
Department of Sociology

Several high profile sex offense cases led to the development of sex offender registration and community notification laws. Community notification laws were intended to decrease victimization by and reduce the recidivism of registered sex offenders (RSOs) by involving the public in the informal social control of RSOs. From the lenses of both traditional and contemporary social disorganization theory, I examine the characteristics of communities where RSOs reside. Drawing upon two theoretical perspectives, I also examine the relationship between RSOs and both crime and two types of informal social control: protective behaviors and neighboring activities. I combine unique longitudinal data on RSOs from the Washington State Attorney General's office with two surveys of Seattle residents, crime data from the Seattle Police Department, data on all returning offenders from the Washington State Department of

Corrections, and contextual data from the U.S. Census. My results suggest that RSOs live in disadvantaged neighborhoods with low levels of collective efficacy. My results also suggest a positive association between RSOs and levels of violent crime, rape, and property crime, but no association between RSOs and changes in each crime type over time. Despite both the intent of community notification laws to increase informal social control and concerns by researchers that RSOs have a detrimental impact on informal social control, my results suggest no association between the growth or level of RSOs and either levels of both protective behaviors and neighboring activities or changes in either protective behaviors or neighboring activities over time.

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DEDICATION

To vlookup

Chapter 1. INTRODUCTION

Earl K. Shriner had a long history of kidnapping, sexual assault, and murder. Shortly after serving a ten year sentence for assaulting and kidnapping two teenage girls, he raped and strangled a seven year old boy, cut off the boy's penis, and left him to die in the woods in Tacoma, Washington (Lieb, 1996). Gene Raymond Kane served a 13 year sentence for attacking two women and was subsequently placed on work release. While on work release, Kane kidnapped and murdered a young woman in Seattle, Washington (Lieb, 1996). In the wake of the public outcry over these two violent sexual assault cases and the public's desire to strengthen sex offender laws, Washington State's governor created the Task Force on Community Protection. During Task Force deliberations, Wesley Alan Dodd was apprehended for attempting to abduct a young boy from a movie theatre and later confessed to killing three young boys. After considering numerous ways to strengthen sex offender laws, Washington legislature passed the 1990 Community Protection Act, becoming the first state in the U.S. to enact laws requiring sex offenders to register with local law enforcement and law enforcement to notify the community when violent sex offenders are released into the community (Lieb, 1996; Phillips, 1998; Satterberg, 2010) in a process known as community notification. The Community Protection Act also authorized post-prison civil commitment for sexually violent predators[1] (Lieb, 1996) to keep them removed from society until deemed fit to reenter.

These and several other high profile child abduction murder cases – Adam Walsh, Jacob Wetterling, Polly Klass, Megan Kanka, Jessica Lundsford, and Sarah Lunde – propelled the development of other state and federal sex offender registration and community notification laws

[1] A "sexually violent predator" is a sex offender "who has been convicted of at least one crime of sexual violence and suffers from a mental abnormality or personality disorder that makes the person likely to engage in future predatory acts of sexual offense if not confined in a security facility" (Lieb, 1996, pp. 20).

(Meloy, Saleh, and Wolff, 2007) that are aimed at decreasing victimization and reducing recidivism of sex offenders through community awareness, surveillance (Mack and Grubesic, 2010), and reintegration of sex offenders (Mack and Grubesic, 2010; Zevitz, 2006). By involving the public in an "informal network of neighborhood surveillance" (Zevitz, 2006: 195), policy makers hoped that sex offenders would be deterred from reoffending because they would be monitored more closely than they would be if they were living in the community anonymously (Vasquez, Madden, and Walker, 2007; Zevitz, 2006). However, due to widespread fear of sexual predators (Meloy, Miller, and Curtis, 2008) and the public's perception that sex offenders are highly dangerous (Petrunik and Deutschmann, 2007), notification of their impending presence may evoke fear, anxiety (Beck and Travis, 2004a; Caputo and Brodsky, 2004; Kernsmith, Craun, and Foster, 2009; Zevitz, 2003; Zevitz, 2004), and despair (Hughes and Kadleck, 2008) from community members.

These emotions, along with perceptions of decreased neighborhood safety (Zevitz, 2003), may propel residents to withdraw from neighborhood events (Hughes and Kadleck, 2008) and social activities (Hughes and Kadleck, 2008; Zevitz, 2003), potentially undermining social integration, social cohesion, (Zevitz, 2004), and neighborhood ties that may lead to a breakdown of informal social control and an increase in social disorganization (Hipp, Turner, and Jannetta, 2010; Hughes and Kadleck, 2008). These neighborhood changes, as well as the ability of residents in more affluent neighborhoods to mobilize against or shun them (Hughes and Kadleck, 2008; Mustaine, Tewksbury, and Stengel, 2006), may lead to the clustering of registered sex offenders (RSOs) in socially disorganized neighborhoods (Hipp, Turner, and Jannetta, 2010; Hughes and Kadleck, 2008). Decreased informal social control, increased social disorganization, and clustering of RSOs in socially disorganized neighborhoods may lead to more crime in

general (Hipp, Turner, and Jannetta, 2010) and more sex offenses, specifically (Tewksbury, Mustaine, and Covington, 2010).

Numerous studies have examined the characteristics of neighborhoods in which RSOs reside (e.g., Craun, 2008; Hipp, Turner, and Jannetta, 2010; Hughes and Burchfield, 2008; Hughes and Kadleck, 2008; Mack and Grubesic, 2010; Mustaine and Tewksbury, 2011; Mustaine, Tewksbury, and Stengel, 2006; Socia and Stamatel, 2012; Tewksbury and Mustaine, 2006); however, very little is known about the impact RSOs have on these communities. One study examines the impact of RSOs on sexual assaults (e.g., Tewksbury, Mustaine, and Covington, 2010). A few studies examine the impact of community notification on protective behaviors (e.g., Anderson, Evans and Sample, 2009; Anderson and Sample, 2008; Bandy, 2011; Beck et al., 2004; Beck and Travis, 2004b; Caputo and Brodsky, 2004). Another study examines the impact of one RSO on social integration (e.g., Zevitz, 2004). Further examination of the impact of RSOs on neighborhood-level crime and informal social control is important for understanding the relationship between RSOs, neighborhood structure, informal social control, and crime. I contribute to the literature on the examination of the impact of RSOs on neighborhoods by answering three general questions. First, in what types of neighborhoods do RSOs live? Second, is there a relationship between RSOs and neighborhood-level crime? Third, is there a relationship between RSOs and neighborhood-level informal social control?

I answer these questions using counts of RSOs in Seattle from the Attorney General's office, two surveys of Seattle residents, crimes known to the police from the Seattle Police Department, counts of all returning offenders from the Department of Justice, and ecological data from the U.S. Census. Seattle provides a unique setting within which to answer these questions. First, Seattle does not impose residence restrictions on RSOs so they may choose to

live anywhere. Second, I obtained a rich dataset containing historical address data on RSOs from the Washington Attorney General's office. Third, the two surveys were collected at different time points and contain measures of informal social control allowing me to take prior levels of informal social control into account.

1.1 WHY EXAMINE THE DISTRIBUTION OF REGISTERED SEX OFFENDERS AND THEIR IMPACT ON NEIGHBORHOOD-LEVEL CRIME AND INFORMAL SOCIAL CONTROL?

Examining the distribution of RSOs and their impact on neighborhood-level crime and informal social control is important for several reasons. There is a lack of understanding of how community notification or the presence of RSOs impact neighborhood-level crime and informal social control. Policy makers hope that community notification will increase the informal social control efforts by the residents in neighborhoods where RSO reside (Mack and Grubesic, 2010). On the other hand, some researchers (e.g., Hughes and Kadleck, 2008; Zevitz, 2003; Zevitz, 2004) are concerned that the presence of RSOs may lead to a breakdown of social networking forms of informal social control as residents in those communities withdraw due to fear. However, there is no empirical evidence to support either perspective so we know neither if the intention of community notification is being fulfilled nor if the concerns of researchers are warranted. Although a few studies examine the impact of RSOs on protective behaviors such as locking doors, installing lighting, or keeping a weapon in the home (e.g., Anderson and Sample, 2006; Beck and Travis, 2004b), there are no research studies that examine the impact of RSOs on social-networking forms of informal social control. In addition, these laws are based on a misconception of RSOs as offending specialists who continue to commit a multitude of sex offenses against strangers once released from prison. Rather, very few RSOs are arrested for

another sex offense while almost half are arrested for non-sex offenses and the vast majority of sex offenses are committed against victims known to the offender. Application of these laws also have unintended negative consequences to RSOs, such as loss of employment and difficulty finding housing, making their transition back into free society more difficult than the average returning offender.

1.2 DATA, MEASURES, AND METHODS

In Chapter 2, I first describe the six sources of data I use to examine the distribution of RSOs and their impact on communities. Next, I briefly describe the key measures I use in each chapter. I provide details of the measures in their relevant empirical chapters. Then, I describe the methods I use to create my RSO dataset, construct my key variables, and combine all sources of data into one dataset. Next, I discuss the types of statistical models I employ and the applicability of taking spatial factors into account.

1.3 CHARACTERISTICS OF NEIGHBORHOODS IN WHICH REGISTERED SEX OFFENDERS RESIDE

In Chapter 3, I examine the characteristics of neighborhoods in which RSOs reside. Research indicates that RSOs live in economically disadvantaged or disorganized neighborhoods (Craun, 2008; Hipp, Turner, and Jannetta, 2010; Hughes and Burchfield, 2008; Hughes and Kadleck, 2008; Mack and Grubesic, 2010; Mustaine and Tewksbury, 2011; Mustaine, Tewksbury, and Stengel, 2006; Tewksbury and Mustaine, 2006) and in neighborhoods with less collective efficacy (Socia and Stamatel, 2012). These studies use a variety of measures for disadvantage or disorganization and most of the analyses are descriptive in nature. These studies also examine RSOs as a homogenous group and generally use cross-sectional information about RSOs that is

publically available on websites. I expand upon the studies in several ways. First, I examine the distribution of RSOs from the perspective of both traditional and contemporary social disorganization theory by using more nuanced measures of traditional social disorganization and by examining the role of collective efficacy in their distribution. Second, I use three-year average counts of RSOs to account for any yearly anomalies. Third, I control for prior counts of RSOs. Fourth, I consider spatial factors because neighborhoods with similar characteristics tend to cluster together (Browning, Feinberg, and Dietz, 2004) and the count of RSOs in one neighborhood may be related to the count of RSOs in adjacent neighborhoods. Fifth, because RSOs differ in their crimes committed and their potential level of risk to reoffend (Sample and Bray, 2006), I examine the relationship between collective efficacy and the distribution of RSOs by examining both all RSOs and two subsets of RSOs: those convicted of non-rape offenses (Non-rape RSOs) and those convicted of rape (Rape RSOs). My findings provide support for previous research that RSOs as a whole live in neighborhoods characterized by more concentrated disadvantage. In addition, my research provides support that RSOs reside in neighborhoods with less collective efficacy. Sixth, I examine whether or not more Rape RSOs live in neighborhoods with less collective efficacy compared to Non-Rape RSOs. Contrary to expectations, my results suggest that both Non-rape RSOs and Rape RSOs live in neighborhoods with less collective efficacy.

1.4 REGISTERED SEX OFFENDERS AND NEIGHBORHOOD-LEVEL CRIME

Given the concern about the effect of RSOs on crime, surprisingly little research exists on this topic. In Chapter 4, I examine whether or not RSOs have an effect on neighborhood-level crime. Tewksbury and colleagues' (2010) examination of the relationship between RSOs, indicators of social disorganization, and neighborhood-level sexual assault found a positive association

between the count of RSOs in July 2005 and sexual assaults in 2005. However, less than 5% of RSOs are arrested for another sex offense while about 43% are arrested for non-sex offenses (Langan, Schmitt, and Durose, 2003). Accordingly, I expand upon prior research in numerous ways. Because RSOs commit a wide variety of post-release offenses (Harris et al., 2010; Langan, Schmitt, and Durose, 2003; Miethe, Olson, and Mitchell, 2006; Sample and Bray, 2006), I examine the relationship between RSOs and three crime types: violent crime, rape, and property crime. I include broader literature about all returning offenders and their impact on neighborhood structure, social processes, and crime. Following Drakulich, et al., (2012), I integrate social disorganization theory and the labor stratification perspective to examine the effect of RSOs on neighborhood-level crime. In addition, I replicate Drakulich and colleagues' (2012) neighborhood-level analysis of all returning offenders on violent crime for RSOs using thee year counts of crime to account for any yearly anomalies and replicate these models to examine rape and property crime. Given that RSOs comprise only about 5% of the returning offender population (Barnoski, 2005) and are less likely to recidivate than their non-sex offending counterparts (Durose, Cooper, Snyder, 2014; Langan and Levin, 2002), I take into account the presence of all returning offenders because all returning offenders could be the driving force of the levels of crime. In addition, I use five-year average counts of RSOs to smooth out any yearly fluctuations and examine the impact of RSOs, Non-Rape RSOs, and Rape RSOs on each of these crime types. I also control for prior rates of crime. Given the interdependency of neighborhoods (Morenoff, Sampson and Raudenbush, 2001) and the propensity for similarly structured neighborhoods to be near each other (Browning, Feinberg, and Dietz, 2004), I take spatial factors into account. My findings indicate a positive association between RSOs, Non-rape RSOs, and

Rape RSOs on levels of each crime type, but no association between RSOs, Non-rape RSOs, or Rape RSOs on changes in each crime type over time.

1.5 Registered sex offenders and neighborhood-level informal social control

In Chapter 5, I answer one of the most important questions about the impact of RSOs on communities: how do RSOs affect informal social control? Specifically, do RSOs undermine neighborhood-level protective behaviors and neighboring activities? A few studies examine the impact of community notification on protective behaviors with mixed results (e.g., Anderson, Evans and Sample, 2009; Anderson and Sample, 2008; Bandy, 2011; Beck et al., 2004; Beck and Travis, 2004b; Caputo and Brodsky, 2004) and one study found that the presence of one RSO negatively impacted social cohesion (e.g., Zevitz, 2004). However, with the exception of Bandy (2011), the analyses in these studies are primarily descriptive and do not take neighborhood factors into account. Although some researchers express concern that RSOs may have a detrimental impact on the social networking aspect of informal social control (e.g., Tewksbury, Mustaine, and Stengal, 2006; Zevitz, 2004), no research has examined this assertion. I expand upon prior research in several ways. First, I conduct the first examination of the effect of RSOs on neighboring activities. As with Chapter 4, I incorporate a broader literature about all returning offenders and their impact on neighborhood-level informal social control. In addition, I integrate social disorganization theory and the labor stratification perspective to examine the effect of RSOs on neighborhood-level protective behaviors and neighboring activities, as well as consider other factors that may affect these behaviors or activities, such as the presence of all returning offenders, perceived risk and violent crime. I also control for prior levels of these behaviors and activities. In addition, I use a dynamic measure of RSOs by capturing the rate of RSO growth per

census tract per year from 1994 to 2002, and control for the level of RSOs in 2002. Contrary to expectations, my findings indicate that RSOs have no impact on either neighborhood-level protective behaviors or neighboring activities.

1.6 Discussion and conclusions

In Chapter 6, I summarize and situate my key findings for each empirical chapter in reference to existing literature and highlight key contributions to the literature. Next, I discuss policy implications, misconceptions of RSOs, and collateral consequences to RSOs. Then, I discuss the limitations of the data and study. Finally, I describe directions for future research.

Chapter 2. DATA, MEASURES, AND METHODS

I use several data sets to examine the relationship between the residential locations of registered sex offenders (RSOs), neighborhood structure, neighborhood processes, crime, and informal social control: residential locations of RSOs in Seattle from the Homicide Investigation Tracking System; survey data from Testing Theories of Criminality and Victimization in Seattle; survey data from Seattle Neighborhoods and Crime Survey; data from the decennial censuses from the Census Bureau; counts of crimes reported to the police from the Seattle Police Department; and prisoner reentries from the Washington State Department of Corrections.

2.1 DATA

2.1.1 *Homicide Investigation Tracking System (HITS)*

The HITS database is used to collect and analyze information on homicide and sexual assault (Weis and Keppel, 2010) voluntarily contributed by police and sheriffs' departments in Washington and Oregon and uploaded by the Department of Corrections and the Washington State Patrol, including subjects under obligation to register as sex offenders. The data is housed in the Washington State Attorney General's Office and includes sex offender identification numbers, conviction dates, offenses, sex, race, dates of birth, residential addresses, address identification numbers, and the date the addresses were entered into the database. From this, I created a dataset containing four variables pertinent to my research: RSO identification numbers, offenses, census tracts, and years lived in said census tracts.

2.1.2 *Testing Theories of Criminality and Victimization in Seattle 1960 – 1990 (CVS)*

Data I use from the CVS comes from a survey of Seattle residents that examines crime in Seattle from a stratified sample of 600 city blocks from a random sample of 100 of the then 121 census tracts (Rountree, Land, and Miethe, 1994). After they selected census tracts, researchers identified three pairs of city blocks per census tract. A burglary was reported in 1989 on one of each of the block pairs. Next, researchers identified 18 households per block using a reverse telephone directory. Of the eligible households, 5,302 interviews were completed for a response rate of 74.1%. There was an average of 53 respondents per census tract. Surveys were administered in 1990 via telephone and detailed field observations of the housing units were conducted. Information about victimization, physical and social disorder, social networks, fear of crime, informal social control, community involvement, defensive behavior, and target hardening are included in the survey.

2.1.3 *Seattle Neighborhood and Crime Survey (SNCS)*

The SNCS is a survey of nearly 5,000 Seattle households conducted in 2002 and early-2003 in 123 census tracts. Written surveys were mailed to residents with unlisted or no telephone numbers or to those who requested it. Surveys were also hand delivered to households if they could not be reached by phone or did not return the mailed survey. The survey was collected in three stages. First, eight households from two block groups from each census tract were randomly selected from a stratified cluster sample. Second, two households with the highest proportion of minorities were randomly selected from those two block groups. Third, a replication sample of two households in each of the 100 census tracts selected in the CVS was

randomly selected.[2] The final dataset contains 5,812 respondents in 123 census tracts[3] for a response rate of about 50%. There was an average of 47 respondents per census tract. Items in the survey include indicators of victimization, physical and social disorder, social capital, and informal social control.

2.1.4 *United States Census Bureau SF3*

Census Summary File 3 (SF3) is publically available on the U.S. Census Bureau's website and contains data on neighborhood context from a sample of people and housing units in all 50 states, Puerto Rico, and the District of Columbia. I use data from the SF3 collected in 2000 to create measures of both neighborhood demographics and structure for census tracts in Seattle.

2.1.5 *Seattle Police Department Crime Statistics (SPD)*

Crime statistics from the Seattle Police Department (SPD) are available publically on the police department's website. I use counts of aggravated assault, robbery, homicide, rape, burglary, theft, and vehicle theft to create counts and rates of violent crime, rape, and property crime. Violent crime includes aggravated assault, robbery, and homicide. Property crime includes burglary, theft, and vehicle theft.

2.1.6 *Washington State Department of Corrections (DOC)*

Data from the Washington State Department of Corrections includes the total number of prisoners released in Seattle per census tract from 1998 to 2002. I obtained this data from the first author of Drakulich and colleagues (2012).

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[2] The SNCS targeted the same street segments that were targeted in the CVS, but in many cases extended the block to obtain the required number of completed surveys (Drakulich et al., 2012).

[3] I removed one census tract entirely composed of the University of Washington campus from the analysis. This tract was not included in the survey because census data are unreliable due to yearly population turnover and crime data are incomplete because campus police responds to most of the crime (Drakulich et al., 2012).

2.2 MEASURES

In each research chapter, I provide detailed information about each of the measures I use in those chapters along with descriptive statistics of those measures. Below, I provide a brief description of the dependent variables, independent variables, and control variables I use in each chapter.

In Chapter 3, my dependent variables are three-year average counts of RSOs, Non-rape RSOs, and Rape RSOs. The measure for RSOs captures offenders convicted of any sex offense who were required to register as sex offenders. Non-rape RSOs captures the subset of RSOs who were convicted of the following non-rape sex offenses: indecent liberties, child pornography, nonviolent child sex, other sex crimes, or other violent child sex. Rape RSOs captures the subset of RSOs who were convicted of the following rape offenses: rape in the first degree, rape in the second degree, rape of child, or other rape. RSOs usually have multiple convictions; thus, the subsets of Non-rape RSOs and Rape RSOs are not mutually exclusive because RSOs could be in one or both subsets. My independent variables are concentrated disadvantage, immigrant concentration, residential instability, and collective efficacy. I control for population size; downtown/SoDo (part of Seattle's industrial district); prior three-year average counts of RSOs, Non-rape RSOs, and Rape RSOs; and spatial factors.

In Chapter 4, my dependent variables are the three-year counts of violent crime, rape, and property crime. My independent variables are five-year average counts of RSOs, Non-rape RSOs, and Rape RSOs. I control for several factors: population size, the proportion of African American residents, the proportion of Latino residents, the proportion of Asian and foreign born residents, the presence of young males, all returning offenders, labor market and housing instability, concentrated affluence, female-headed households, criminogenic situations, collective efficacy, prior rates of crime, and spatial factors.

In Chapter 5, my dependent variables are the neighborhood-level average of both protective behaviors and neighboring activities. My independent variable is the rate of growth of RSOs. I control for several factors: population size, the proportion of African American residents, the proportion of Latino residents, the proportion of Asian and foreign born residents, the presence of young males, level of RSOs, all returning offenders, labor market and housing instability, concentrated affluence, female-headed households, prior levels of protective behaviors or neighboring activities, perceived risk, and prior rate of violent crime.

2.3 METHODS

My analyses proceeded in a series of steps. First, I cleaned and organized the HITS data. The original dataset contained information on 3,778 RSOs who were registered as living in Seattle from February 1990 through June 2009 and contained 663,364 rows of address information. RSOs had multiple convictions and the address information repeated for each offense, so I created a separate dataset containing only one set of addresses for each offender. Due to a limitation in the data that prevented me from identifying in what year offenders lived at particular addresses from February 1990 to December 31, 1993, the number of RSOs was reduced to 3,423 with 14,552 addresses. I used ArcGIS 10.0 and the North American Geocoding Service address locator to geocode these addresses. For 2,388 of these addresses, I used the Census Bureau's American Fact Finder 2 to manually search for addresses and identify the corresponding census tracts. In the HITS dataset, all addresses were listed as "Seattle" but some were located outside Seattle, e.g., Burien, Seatac, Shoreline. Of the 14,552 addresses, I matched 12,747 (87.6%) to census tracts in general and 10,651 (73.2%) of them were in Seattle census tracts. I coded Seattle addresses with their Seattle census tracts, non-Seattle addresses with their non-Seattle census tracts, and all other addresses (homeless, transient, in custody, incomplete,

invalid, etc.) with a faux census tract for use in my next step: generating a count of RSOs per census tract per year.

For many RSOs, there were gaps in address information between years. For example, a hypothetical RSO had entries for Address 1 on 1/5/1998, Address 2 on 7/12/1998, Addresses 2 on 5/15/2000, Address 3 in 9/19/2001, and Address 3 in 10/31/2005, so address information for dates in 1999, 2002, 2003, and 2004 were missing. To fill in address information for years that did not contain address information, a coding specialist created a special program in R to substitute the previous years' census tracts into the gap years, e.g., Address 2 for 1999 and Address 3 for 2002, 2003, and 2004 so the data would contain a census tract for each year from which I could then create a measure of the number of RSOs per census tract per year. I assumed that RSOs remained at an address unless otherwise updated; however, it is possible that RSOs did not update their addresses each time they moved, that RSOs provided inaccurate information, or that the information was data entered incorrectly. I had no information on when each of these RSOs were relieved of their legal obligation to provide address updates to the registry, so I used the last date and address of each offender as their last entry even though they could have lived at the same address in subsequent years.

The total count of RSOs in the HITS database decreased over time despite the average yearly number of RSOs in the registry of about 850-900. Specifically, the count of RSOs decreased in the HITS database from 903 in 2005 to 444 in 2006 to 288 in 2007 and to 88 in 2008. I obtained the data in July 2009, so I attribute this decline to either budget cuts that prevented personnel at the Attorney General's Office from collecting this information, lack of address updates, or both. Accordingly, I used only data from RSOs who were registered as living in Seattle from January 1, 1994, through December 31, 2005. My final dataset includes 2,722

RSOs. Approximately 98% (2,647) are male and 2% (48) are female. The majority of RSOs are white (69%), followed by African American (21%), American Indian/Alaskan Native (3.5%), Asian (3%), and Hispanic (1.7%) while 1.8% are of an unknown race or ethnicity. These 2,722 RSOs were convicted of 10,974 offenses. The most common offenses were rape (23.2%), nonviolent child sex crimes (13.4%), indecent liberties (6.6%), assault (4.6%), other sex crimes (3.3%), other violent child sex crimes (3.3%), and burglary (3.2%).

Using ArcGIS, I joined the RSO data to the attribute table of a shape file of Seattle census tracts using census tract boundaries for 2000. Data from the CVS is based on 1980 census tracts, data from the SPD is based on 1990 census tracts, data from both the SNCS and DOJ are based on 2000 census tracts, and the HITS data is based on either 2000 or 2010 census tracts. To create a dataset based on census tract boundaries for 2000, I used census tract crosswalks for 1980, 1990, 2000, and 2010 to identify tracts that changed. From 1990 to 2000, some census tracts either split or joined. For example, census tracts 25.00 and 37.00 combined into tract 25.00 while census tract 4.00 split into tracts 4.01 and 4.02. From 2000 to 2010, a few census tracts split. For census tracts that split, I used the same value for both tracts. For example, if the value of the proportion of foreign born residents was 0.01 for tract 4.00, and that tract split into 4.01 and 4.02, I used the value of 0.01 for both census tracts 4.01 and 4.02. For census tracts that merged, I used the average value of the two tracts in the merged tract. For example, if the value of the proportion of African American was 0.02 for census tract 25.00 and 0.04 for census tract 37.00, and tracts 25.00 and 37.00 merged into tract 25.00, then I used the average value of the proportion of African American residents (0.03) for tract 25.00. After all datasets were based on 2000 census tracts, I joined all the data to the attribute table in ArcGIS so I could import the

shape file with all relevant data into GeoDa to test for spatial dependency in each of the outcomes.

I used Cronbach's alpha to measure the internal consistency of items in scale variables, i.e., concentrated disadvantage, immigrant concentration, residential instability, collective efficacy, labor market and housing instability, concentrated affluence, criminogenic situations, protective behaviors, neighboring activities, and perceived risk. Relevant Cronbach's alpha statistics are reported in the appendices of each research chapter.

2.3.1 *Negative binomial and ordinary least squares (OLS) models*

Six outcomes – counts of RSOs, Non-rape RSOs, Rape RSOs, violent crime, rape, and property crime – are nonnegative counts. Event data usually approximates a Poisson distribution where there are large counts of zeros with a positively-skewed tail. Poisson distributions assume the data has an equal mean and variance (equidispersion) and that the events are independent. As shown in Table 2.1, the variances of each outcome are larger than their means so these outcomes are overdispersed. Accordingly, I use negative binomial regression models which have an additional parameter to account for overdispersion created by nonindependent events. Negative binomial models are appropriate for count data because they overcome some of the problems of using log transformed outcomes in OLS, such as small population sizes violating the assumption of homogeneity of error variance and the non-normality of error distributions with small outcome counts leading to biased regression coefficients (Osgood, 2000). Two outcomes – protective behaviors and neighboring activities – are continuous so I use OLS models for them. I conduct my analyses in R.

2.3.2 *Spatial dependency*

Neighborhoods are interdependent (Morenoff, Sampson, and Raudenbush, 2001) and ones with similar characteristics tend to cluster together (Browning, Feinberg, and Dietz, 2004), indicating the potential for spatial dependencies. Spatial lag models are appropriate when the values of one variable in one geographic unit are influenced by the value of that variable in its neighbor(s). It is possible that the count of RSOs, incidents of crime, or levels of informal social control in one neighborhood are related to the count of RSOs, incidents of crime, or levels of informal social control in surrounding neighborhoods, either due to spatial spill-over effects or a disjuncture between administratively defined geographic boundaries and the boundaries within which residents actually live. Failure to control for spatial autocorrelation may bias parameter estimates for key independent variables (Anselin, 1988). Accordingly, I tested for spatial autocorrelation in each dependent variable by using spatial lag variables created in GeoDa for counts of RSOs, Non-rape RSOs, Rape RSOs, violent crime, rape, and property crime and levels of both protective behaviors and neighboring activities. Because analysis in GeoDa is limited to OLS regressions, I conduct tests for spatial autocorrelation using OLS models on the logged outcomes for counts of both RSOs and crime, and use OLS models on the continuous outcomes of both protective behaviors and neighboring activities. Spatial autocorrelation is diagnosed in GeoDa with the Lagrange multiplier test that uses the OLS residuals to test for spatial autocorrelation in the presence of spatially lagged dependent variables (Anselin et al., 1996). The spatial lags represent the average count of RSOs or crimes, or average levels of protective behaviors and neighboring activities, in contiguous neighborhoods with a first order "queen contiguity" spatial weights matrix that identifies neighborhoods that share common boundaries or a common corner. The tests for spatial autocorrelation for counts of RSOs, violent crime, rape,

and property crime were significant; however, they were not significant for protective behaviors and neighboring activities. I exported the relevant spatial lag variables and joined them to the dataset for use in my analyses.

Table 2-1. Descriptive Statistics of RSOs and Crimes

	Mean	SD	Variance
Three-year averages of RSOs (2001-2003)			
Count of RSOs	8.12	7.79	60.73
Count of Non-rape RSOs	5.44	5.56	30.92
Count of Rape RSOs	5.40	5.43	29.49
Three-year sums of crimes (2003-2005)			
Violent crime	98.43	112.60	12,680.11
Rape	3.58	3.81	14.55
Property crime	1,101.00	845.54	714,935.10

Chapter 3. COLLECTIVE EFFICACY AND THE LOCATION OF REGISTERED SEX OFFENDERS

Sex offenses are among the most feared crimes in the United States (Craun and Theriot, 2009) and offenders who commit sex crimes against children are the most feared sex offenders (Kernsmith, Craun, and Foster, 2009). Public concern about several high profile child abduction sexual assault cases propelled the development of sex offender laws (Meloy, Saleh, and Wolff, 2007). At the legislative forefront of these issues, Washington paved the way for state and federal sex offender registration and community notification (Satterberg, 2010). Sex offender registration was intended to restrict access to vulnerable populations and improve the ability of law enforcement to identify convicted offenders by requiring released sex offenders to register with local law enforcement agencies (Lieb and Nunlist, 2008; Revised Code of Washington 9A.44.130). Community notification is intended to protect the public and counteract the danger posed by offenders by notifying the public when dangerous sex offenders enter their community (Lieb and Nunlist, 2008; Revised Code of Washington 4.24.550). Both of these laws are intended to reduce recidivism through informal social control (Vasquez, Madden, and Walker, 2007; Zevitz, 2006) via community awareness, surveillance, and facilitation of reintegration (Levenson et al., 2007; Mack and Grubesic, 2010; Zevitz, 2006). At least 30 states impose residence restrictions on registered sex offenders (RSOs) to protect vulnerable populations and reduce sex offender recidivism by limiting access to potential child victims (Hughes and Burchfield, 2008; Meloy, Miller, and Curtis, 2008). Reformers think that creating sex offender free zones will protect children by prohibiting RSOs from living within a certain distance from schools, day care centers, parks, bus stops, and other places children congregate (Hughes and Burchfield, 2008; Meloy, Miller, and Curtis, 2008).

Given the legal restrictions on where RSOs cannot live, important questions are where can they live and where do they live? In many states, they typically cannot live within 1,000 to 1,500 feet[4] from places frequented by children (Meloy, Miller, and Curtis, 2008) making it nearly impossible for RSOs to live in urban areas (Zandbergen and Hart, 2006) and relegating them to economically disadvantaged or disorganized areas (Mustaine, Tewksbury, and Stengel, 2006). Washington State does not impose statewide residence restrictions.[5] RSOs are free to live anywhere they choose unless court ordered to the contrary (Meloy, Miller, and Curtis, 2008; Revised Code of Washington 9.94A.8445). Even so, community notification is associated with more defensive behavior among residents (Beck and Travis, 2004b; Beck and Travis, 2006). Thus, RSOs subject to community notification may have less residential freedom than those subject only to registration because community notification allows residents to mobilize their resources to keep RSOs out of their neighborhoods (Hughes and Kadleck, 2008). For example, in cities with residence restrictions that preclude RSOs from living within a certain distance from parks or day care centers, community members could come together to build small parks or open day care businesses in their homes (Strain, 2015) to prevent RSOs from living there. Residents could also organize protests or contact legislators (Strain, 2015) in an attempt to prevent RSOs from moving into or force them to move from their neighborhoods. The question of where RSOs actually live then is a negotiation between offenders, criminal justice agents,[6] and residents of the community where offenders move. However, communities are not created equal in their capacity to represent their interests in these negotiations. Some neighborhoods are more capable than others at getting institutions, including those of the criminal justice system, to help them achieve

[4] Proximity restrictions range from 500 to 3,000 feet (Mack and Grubesic, 2010).
[5] Residence restrictions in Washington only apply to RSOs under supervision of the Department of Corrections and are tailored to each offender. There are no statewide residence restrictions.
[6] Unless there are court orders to the contrary, criminal justice agents do not have a say where RSOs in Seattle live per se; however, they approve the addresses where RSOs say they will move.

their goals (Bursik and Grasmick, 1993). If residents choose, some neighborhoods may be more capable of organizing themselves to exclude outsiders – RSOs in this case – from their community (Grattet, 2009; Lyons, 2007; Mustaine, Tewksbury, and Stengel, 2006) or limit their numbers. Similarly, some neighborhoods may have more capacity to dictate who lives among them (Bursik, 1993; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997) and also keep a watchful eye (Sampson, Raudenbush, and Earls, 1997) on RSOs who successfully relocate there.

Social disorganization theory helps explain this variation in neighborhood-level informal social control. It posits that neighborhoods with greater economic disadvantage, residential instability, and racial/ethnic heterogeneity are more likely to experience physical disorder, social disorder (Steenbeck and Hipp, 2011), and crime (Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997) due to their inability to realize common values and maintain effective social control (Sampson and Groves, 1989; Steenbeck and Hipp, 2011). In contemporary social disorganization theory, collective efficacy is one mechanism by which residents organize themselves to achieve common goals and participate in informal social control (Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997). Assuming a common goal is to keep RSOs out of their neighborhoods, it follows that residents in neighborhoods with higher levels of collective efficacy are better able to mobilize against RSOs – especially those subject to community notification – to keep them out of their neighborhoods than neighborhoods with lower levels of collective efficacy.

In this chapter, I examine the characteristics of communities where RSOs live and how the distribution of RSOs across Seattle neighborhoods varies by levels of concentrated disadvantage,

residential instability, racial/ethnic heterogeneity, and collective efficacy. First, I describe the neighborhoods where RSOs live from traditional and contemporary social disorganization perspectives, focusing on variations in collective efficacy and the count of RSOs. Understanding the relationship between collective efficacy and the location of RSOs is important because communities with high levels of collective efficacy are able to use their resources to mobilize against perceived threats despite community levels of economic disadvantage, immigrant concentration, and residential instability examined in traditional social disorganization research. In addition, if RSOs are concentrated in neighborhoods with low levels of collective efficacy, these neighborhoods have less capacity to provide the informal social control policy makers intended. Second, I describe the same information for two subsets of RSOs: those convicted of non-rape sex offenses (Non-rape RSOs) and those convicted of rape (Rape RSOs). Prior research examines RSOs as a homogenous group. However, since they differ in the crimes committed, the self-reported fear their presence induces (Kernsmith, Craun, and Foster, 2009), and their level of risk to reoffend (Lieb and Aos, 1998), I examine them separately to see if there is difference in their distribution among neighborhoods. Third, rather than use cross-sectional information about RSOs available on websites as has previous research, I use a unique dataset of RSOs in Seattle from 1994 to 2005 that allows me to examine three-year average counts of RSOs to smooth out year-to-year fluctuations. If you are highly confident in your mastery of Microsoft Word, feel free to use your own ways of numbering and positioning manuscript elements. Otherwise, by reusing examples of figures, tables, equations, and headings, you will save a lot of time and trouble writing and formatting manuscripts.

3.1 SOCIAL DISORGANIZATION THEORY

Criminologists recognized soon after the field's inception that more disorder and crime occurs in

certain neighborhoods than others. Social disorganization theory is a cornerstone of ecological research used to explain these variations (Hipp, Turner, and Jannetta, 2011). Traditional social disorganization theory asserts that neighborhoods with more concentrated disadvantage, residential instability, and racial/ethnic heterogeneity have more social disorder and thus higher crime rates (Hipp, Turner, and Jannetta, 2011; Shaw and McKay, 1942; Steenbeck and Hipp, 2011). Institutions in economically disadvantaged communities lack the financial resources and knowledge to effectively perform their functions (Kornhauser, 1978). Neighborhoods with more renters and residents who have lived in the community for less than five years lack attachment to the community and have high population turnover, making it difficult to develop informal social control networks and community cohesion/organization, thereby reducing their ability to achieve common goals such as crime control (Bursik and Grasmik, 1993). Areas with more foreign born residents lack social and cultural consensus or have differing norms, again making it difficult to achieve common goals and participate in informal social control. Taken together, residents in socially disorganized communities are unable or unwilling to reduce or organize against disorder, crime and victimization. Numerous research studies provide support that neighborhoods with higher levels of concentrated disadvantage, residential instability, and immigrant concentration have higher crime rates (e.g., Morenoff, Sampson, and Raudenbush, 2001; Sampson and Groves, 1989; Sampson, Raudenbush, and Earls, 1997). Because residents in socially disorganized neighborhoods are less able to organize themselves against threats (Steenbeek and Hipp, 2011) or achieve common goals (Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997), it follows that these communities are more likely to have RSOs living in them because they lack the resources or capacity to keep them out.

Prior research on the relationship between neighborhood context and RSOs shows a positive relationship between the count of RSOs and disadvantage and social disorganization. RSOs in Seminole County, Florida live in neighborhoods with physical disorder, an indicator of social disorganization (Tewksbury and Mustaine, 2006). When Mustaine, Tewksbury, and Stengel (2006) expanded the research of Tewksbury and Mustaine (2006) to include Jefferson and Fayette counties in Kentucky and Seminole and Duval counties in Florida, they found that high concentrations of RSOs live in socially disorganized areas. Interestingly, and contrary to expectations of social disorganization theory, these areas have fewer female-headed households and more residential stability than areas with lower concentrations of RSOs. RSOs also live in socially disorganized neighborhoods in two major counties in Nebraska, two major counties in Oklahoma (Hughes and Kadleck, 2008), Chicago (Hughes and Burchfield, 2008; Socia and Stamatel, 2012), a southeastern U.S. urban county (Craun, 2008), Hamilton County, Ohio (Mack and Grubesic, 2010), California (Hipp, Turner, and Jannetta, 2010), and Orange Country, Florida (Mustaine and Tewksbury, 2011). After release from prison, sex offenders move into neighborhoods with higher levels of disorganization compared to other types of offenders, and relocate into even more disorganized neighborhoods upon subsequent moves (Hipp, Turner, and Jannetta, 2010). Despite the various ways researchers measure and analyze disadvantage and disorganization, these studies provide support that RSOs live in economically disadvantaged or socially disorganized neighborhoods. This leads to my first set of hypotheses:

Hypothesis 1a: The number of RSOs will be positively related to concentrated disadvantage

Hypothesis 1b: The number of RSOs will be positively related to residential instability

Hypothesis 1c: The number of RSOs will be positively related to immigrant concentration

Going beyond traditional social disorganization theory, contemporary social disorganization theory clarifies that these neighborhood structural characteristics – economic disadvantage, residential instability, and racial/ethnic heterogeneity – affect social disorder and crime through their effect on neighborhood-levels of social interaction (Bursik, 1998; Sampson and Groves, 1989) and the ability of residents to form social relationships essential to foster the solidarity and mutual trust needed to develop collective efficacy (Kingston, Huizinga, and Elliott, 2009; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997). If community members have different expectations and mistrust each other, they are unlikely to intervene for the good of the public (Sampson, Raudenbush, and Earls, 1997) or achieve common goals (Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997). As community cohesion decreases, collective efficacy decreases. Community members become unable or unwilling to achieve the common goal of reducing disorder, crime, and victimization through informal social control. Several studies provide evidence of collective efficacy's negative relationship to violent and property crime (Browning, 2002; Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997; Sampson and Groves, 1989) and positive relationship to bias or hate crimes (Lyons, 2007).

In a recent study of RSOs in Chicago, higher concentrations of RSOs lived in neighborhoods with lower levels of collective efficacy (Socia and Stamatel, 2012). Mustaine and Tewksbury (2011) use racial/ethnic heterogeneity as a proxy for collective efficacy when examining the residential locations of RSOs in Orange County, Florida; however, racial/ethnic heterogeneity may not fully capture the process of collective efficacy as it is one of several factors that contribute to a community's capacity to develop informal social control. Since

neighborhoods with higher levels of collective efficacy are better able to respond to neighborhood problems and threats (Lyons, 2007; Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997), it follows that neighborhoods with lower levels of collective efficacy are less able to keep RSOs out of their community or minimize their numbers. This may lead to a clustering of RSOs in socially disorganized neighborhoods. This leads to my next hypothesis:

Hypothesis 1d: The number of RSOs will be negatively related to collective efficacy

Because RSOs are a heterogeneous group, I test these hypotheses for two subsets of RSOs: Non-rape RSOs and Rape RSOs. I categorize Non-rape RSOs as those convicted of non-violent child sex, indecent liberties, other sex crimes, other violent child sex, and child pornography. I categorize Rape RSOs as those convicted of first degree rape, second degree rape, rape of child, and other rape. Given that RSOs who commit more serious offenses may be subject to community notification, and community notification may activate the defensive mechanisms of the community, it follows that neighborhoods with lower levels of collective efficacy will have more RSOs who commit more serious crimes than neighborhoods with higher levels of collective efficacy. This brings me to my last hypothesis:

Hypothesis 2: Rape-RSOs are more likely to live in neighborhoods with less collective efficacy than Non-rape RSOs

3.2 DATA, MEASURES, AND METHODS

3.2.1 *Data*

To test these hypotheses, I combine data from the Homicide Investigation Tracking System (HITS), Census Bureau, and Seattle Neighborhoods and Crime Survey (SNCS). I create measures of the counts of RSOs, Non-rape RSOs, and Rape RSOs using HITS data. From the Census Bureau, I create measures of neighborhood structure and demographics from the 2000 census. The SNCS contains variables that tap into informal social control; I use these to create a measure of collective efficacy. I describe these sources of data in detail in Chapter 2.

3.2.2 *Measures*

Dependent Variables

My dependent variables are the three-year (2001-2003) average counts of *RSOs*, *Non-rape RSOs*, and *Rape RSOs*. I use a three-year average rather than a three-year sum because RSOs may live in the same census tract for several years; using a three-year sum could potentially inflate the number of RSOs living in census tracts during this time. Because RSOs are relatively rare, I use the three-year average counts of RSOs rather than rates. Using a rate may violate the assumption of constant error variance because neighborhoods with smaller populations could have larger errors (Osgood, 2000). RSOs may have multiple convictions that include both non-rape sex offenses, e.g., indecent liberties and child pornography, and rape offenses. Accordingly, *Non-rape RSOs* and *Rape RSOs* are not mutually exclusive categories.

Independent Variables

Following a long tradition of research on social disorganization (e.g., Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and

Earls, 1997; Shaw and McKay, 1942), I use scale measures of concentrated disadvantage, residential instability, and immigrant concentration created from census data. I use Cronbach's alpha to measure the reliability of each scale and report the alpha statistics in Table 3.1. *Concentrated disadvantage* is captured by the neighborhood average of the proportion unemployed, the proportion living at or below poverty, the proportion African American,[7] the proportion of the population under 18, the proportion on public assistance, and the proportion of female-headed households. *Residential instability* is measured with the neighborhood average of the proportion of renters and the proportion that lived in a different residence five years prior. Following Drakulich and colleagues (2012), I measure *immigrant concentration* with the neighborhood average of the proportion of the population who is Asian and those who are foreign born because Asians are the largest immigrant group in Seattle and the two items are highly correlated (0.94).

Following research on contemporary social disorganization (e.g., Sampson and Raudenbush, 1999; Sampson, Raudenbush and Earls, 1997), I measure *collective efficacy* with two indices – informal social control and social cohesion and trust – combined into one construct. *Social cohesion and trust* is measured with a two item Likert-type scale by asking residents how strongly they agreed or disagreed (strongly agree to strongly disagree) with the following statements: (1) "People in this neighborhood can be trusted" and (2) "People around here are willing to help their neighbors." *Informal social control* is measured with a four item Likert-type scale by asking residents how likely or unlikely (very likely to very unlikely) their neighbors would do something if: (1) "a group of neighborhood children were skipping school

[7] There is some debate about whether the proportion of African American residents should be included in a measure of concentrated disadvantage. However, the proportion of African American residents and the measure of concentrated disadvantage without the proportion of African American residents are highly correlated at 0.97. I include the proportion of African American residents in my measure of concentrated disadvantage.

and hanging out on a street corner," (2) "some children were spray-painting graffiti on a local building," (3) "a child was showing disrespect to an adult," and (4) "children were fighting out on the street corner." I aggregate collective efficacy to the neighborhood-level to capture the neighborhood-level average. I use Cronbach's alpha to measure the reliability of the items in the indices and report the alpha statistics in Table 3.1.

Control Variables

I account for differences in census tract population by controlling for *population size* with the natural log of the population. In addition, I control for *downtown/SoDo* (part of Seattle's industrial district that houses two sports stadiums located south of downtown) with a dummy variable to account for atypical people who live downtown – high income or poor and possibly homeless (Crutchfield, 1989) – and the presence of a half-way house for RSOs in SoDo. I use three-year (1994-1996) average counts of RSOs, Non-rape RSOs, and Rape RSOs to control for the *prior count of RSOs, prior count of Non-rape RSOs,* and *prior count of Rape RSOs*. Variation in prior counts of RSOs may be a byproduct of neighborhood structure and social processes, so I control for prior counts in an attempt to explain any change in the distribution of RSOs.

Neighborhoods are interdependent (Morenoff, Sampson, and Raudenbush, 2001) and those with similar characteristics tend to be clustered together (Browning, Feinberg, and Dietz, 2004), indicating the potential for spatial dependencies. It is possible that the count of RSOs in one neighborhood is related to the count of RSOs in surrounding neighborhoods, either due to spatial spill-over effects or a disjuncture between administratively defined geographic boundaries and the boundaries within which residents actually live. The test statistics for RSOs, Non-rape RSOs and Rape RSOs were significant for spatial lags, so I control for spatial autocorrelation

using *spatial lags* on each of the dependent variables (Anselin, 1988).[8] I describe spatial tests and models in more detail in Chapter 2.

Figures 3.1, 3.2, and 3.3 illustrate the distribution of RSOs, Non-rape RSOs, and Rape RSOs in Seattle along with varying levels of collective efficacy. In general, higher counts of RSOs live downtown, in SoDo, along the industrial corridor south of SoDo, and the Central District and First Hill (east of downtown). Fewer RSOs live in the more affluent areas in the northern part of Seattle or along the more affluent waterfront areas.

3.2.3 *Methods*

I expect that RSOs live in neighborhoods characterized by higher levels of concentrated disadvantage, residential instability, and immigrant concentration and lower levels of collective efficacy. I use negative binomial generalized linear models on three-year average counts of RSOs to model the variability of the count of RSOs between neighborhoods.

First, I examine traditional social disorganization theory by conducting negative binomial generalized linear model estimations of concentrated disadvantage, residential instability, and immigrant concentration controlling for population and downtown/SoDo on three-year average counts of RSOs. Second, I examine contemporary social disorganization theory by adding collective efficacy to the models. Third, I account for prior count of RSOs. Fourth, I control for spatial autocorrelation in the dependent variable by including a spatial lag term. Fifth, I continue to examine the relationship between social disorganization theory and RSOs by replicating these models for two subsets of RSOs: Non-rape RSOs and Rape RSOs. To facilitate interpretation of

[8] I initially controlled for rate of violent crime because it reduces levels of neighborhood trust (Garcia, Taylor, and Lawton, 2007) which could impact collective efficacy. In addition, Mustaine and Tewksbury (2009) use social disorganization and violent crime rates as predictors for RSOs. I present results without a control for violent crime because the results are similar without it, it is an outcome of social disorganization rather than an indicator of it, and I will use it as an outcome in the next chapter.

the magnitude of these variables' effect on variation of the counts of RSOs, I list exponentiated coefficients (rate ratios) of the log odds for the final models in the right hand column of the tables. For ease of interpretation, I convert the rate ratios into a percent change using the following formula: $[(e^b - 1)*100]$. In the results section below, I provide the predicted number of RSOs given neighborhood characteristics by exponentiating the sum of the intercept and log odds for the final models.

3.3 RESULTS

The goal of this chapter is to examine the characteristics of neighborhoods where RSOs live and to determine if they live in neighborhoods capable of carrying out the informal social control policy makers hoped. Social disorganization theory posits that social disorder and crime occur in neighborhoods characterized by concentrated disadvantage, residential instability, and immigrant concentration because the residents in these neighborhoods may not share common goals or, if they share common goals, may not have the ability or resources to organize themselves to achieve those goals, such as reducing crime and disorder. Collective efficacy is one mechanism by which residents can organize themselves to achieve goals. As discussed above, it follows that socially disorganized neighborhoods have more RSOs than more socially organized neighborhoods. Accordingly, I hypothesize that the number of RSOs will be positively related to concentrated disadvantage, residential instability, and immigrant concentration and negatively related to collective efficacy. Because sex offenders who commit more serious offenses are more likely subjected to community notification than those who commit less serious offenses, and community notification may activate a community's defense mechanisms, I hypothesize that Rape RSOs are more likely to live in neighborhoods with lower levels of collective efficacy than Non-rape RSOs. Although my primary interest is in contemporary social disorganization theory,

and specifically collective efficacy, I provide results from both traditional and contemporary theoretical perspectives.

In Table 3.1, I present descriptive information of the measures I use in this chapter. The dependent variables are the three-year (2001-2003) average counts of *RSOs*, *Non-rape RSOs*, and *Rape RSOs*. The three-year average count of RSOs is 8.12 with a standard deviation of 7.79. The three-year average count of Non-Rape RSOs is 5.44 with a standard deviation of 5.56. For Rape RSOs, the three-year average is 5.40 with a standard deviation of 5.43.

Table 3.2 presents the results of the role of social disorganization in neighborhood-level variation of counts of RSOs. Model 1 investigates whether RSOs live in neighborhoods with higher levels of concentrated disadvantage, residential instability, and immigrant concentration. As expected, neighborhoods with more concentrated disadvantage and residential instability have significantly more RSOs. Contrary to expectations, immigrant concentration does not significantly predict where RSOs live.

Model 2 adds neighborhood-levels of collective efficacy. As expected, more RSOs live in neighborhoods with less collective efficacy. Adding collective efficacy reduces the relationship between residential instability and RSOs to non-significance, while concentrated disadvantage maintains its significance and immigrant concentration remains non-significant.

Model 3 takes prior count of RSOs into consideration, which negates the significant relationship between concentrated disadvantage and number of RSOs. Residential instability and immigrant concentration remain non-significant, while collective efficacy maintains its significance. Prior count of RSOs in 1994-1996 has a positive association with RSOs counts in 2001-2003.

When spatial factors are taken into account in Model 4, collective efficacy and prior counts of RSOs retain their significant relationship with count of RSOs while concentrated disadvantage, residential instability and immigrant concentration remain non-significant. Spatial factors themselves are significant and have a positive association with RSOs; neighborhoods adjacent to other neighborhoods with high numbers of RSOs also have high numbers of RSOs.

Overall, more RSOs live in neighborhoods with less collective efficacy, higher prior counts of RSOs, and those located near other neighborhoods with high counts of RSOs. Not only do RSOs live in neighborhoods that are least able to engage in informal social control, neighborhoods with high counts of RSOs are clustered together indicating concentrations of neighborhoods with high counts of RSOs. The positive association between counts of RSOs in 2001-2003 and prior counts in 1994-1996 suggests the relative stability of RSO counts over time, given other factors. The change in RSO counts from 1994-1996 to 2001-2003 is associated with collective efficacy, prior count of RSOs, and spatial factors. Figure 3.1 illustrates the distribution of RSOs and collective efficacy.

Based on estimates from Model 4, in an average neighborhood, i.e., a neighborhood with all variables at their means, I would expect an average of 6.29[9] RSOs. Although there cannot be 6.29 RSOs, I include the fractions because there are so few RSOs that to round the numbers could mask any changes. A neighborhood with a one standard deviation decrease in collective efficacy would have an average of 8.52 RSOs, controlling for other factors. In a neighborhood with a similar increase in prior count of RSOs, I would anticipate an average of 10.71 RSOs. A

[9] I multiply each coefficient by their respective mean to get a predicted log odds for each variable. Then, I add the intercept to the sum of the log odds to get the predicted log odds of RSOs given all variables at their means. I then exponentiate the sum of intercept and log odds to get the predicted count of RSOs given neighborhood characteristics, i.e., for Model 4: [3.06 + (0.24*8.35) + (-0.27*0.11) + (-0.06*-0.01) + (0.04*-0.04) + (0.01*-0.01) + (-1.24*3.12) + (0.07*4.46) + (0.05*8.26)] = 1.84. Exp(1.84) = 6.29.

neighborhood with one standard deviation increase in spatial factors would have an average of 8.13 RSOs. In a neighborhood with a one standard deviation decrease in collective efficacy and one standard deviation increases in both prior count of RSOs and spatial factors, I would expect an average of 18.75 RSOs.

In a neighborhood with a one standard deviation increase in collective efficacy, I would anticipate an average of 4.64 RSOs, all else being equal. A neighborhood with a similar decrease in prior count of RSOs would have an average of 3.70 RSOs, all other variables at their means. In a neighborhood with a one standard deviation decrease in spatial dependency, I would expect an average of 4.87 RSOs, controlling for all other factors. In a neighborhood with a one standard deviation increase in collective efficacy and similar decreases in both prior count of RSOs and spatial factors, I would expect an average of 2.11 RSOs.

I continue my examination of the relationship between RSOs and social disorganization theory by testing whether or not more Non-rape RSOs live in neighborhoods with higher levels of concentrated disadvantage, residential instability, and immigrant concentration, and lower levels of collective efficacy. Table 3.3 shows the results of the relationship between social disorganization and neighborhood variation in Non-rape RSOs.

Model 5 examines the relationship between RSOs and social disorganization theory by investigating whether or not Non-rape RSOs live in neighborhoods with higher levels of concentrated disadvantage, residential instability, and immigrant concentration. As expected, neighborhoods with higher levels of residential instability and concentrated disadvantage have more Non-rape RSOs. Contrary to expectations, immigrant concentration is not a significant predictor. Non-rape RSOs are also significantly more likely to live in the downtown/SoDo area.

Model 6 investigates the role of collective efficacy. As expected, Non-rape RSOs live in neighborhoods with lower levels of collective efficacy. As with RSOs, accounting for collective efficacy eliminates the significant association between residential instability and Non-rape RSOs. In addition, collective efficacy negates the significance of concentrated disadvantage and downtown/SoDo, and immigrant concentration remains a non-significant predictor of Non-rape RSOs.

Controlling for the prior count of Non-rape RSOs (Model 7), collective efficacy remains significant while concentrated disadvantage, residential instability, and immigrant concentration remain non-significant. Prior count of Non-rape RSOs in 1994-1996 has a positive relationship to Non-rape RSOs counts in 2001-2003.

Accounting for spatial factors (Model 8), less collective efficacy remains significantly associated with more Non-rape RSOs. Concentrated disadvantage, residential instability, and immigrant concentration remain non-significant, while prior count of Non-rape RSOs remains significant. Unlike for RSOs, spatial factors do not significantly predict the location of Non-rape RSOs.

Similar to the results for RSOs, neighborhoods with lower levels of collective efficacy and higher counts of prior Non-rape RSOs have more Non-rape RSOs. The positive relationship between prior counts of Non-rape RSOs in 1994-1996 and counts of Non-rape RSOs in 2001-2003 suggests the relative stability of Non-rape RSO counts over time, controlling for other factors. The change in Non-rape RSO counts from 1994-1996 to 2001-2003 is associated with collective efficacy and prior counts of Non-rape RSOs. Figure 3.2 shows the distribution of collective efficacy and Non-rape RSOs.

Based on the estimates in Model 8, in an average neighborhood, I would expect an average of 4.30 Non-rape RSOs. In a neighborhood with a one standard deviation decrease in collective efficacy, I would anticipate an average of 6.01 Non-rape RSOs, all else being equal. In a neighborhood with a one standard deviation increase in prior counts of Non-rape RSOs, I would anticipate an average of 8.27 Non-rape RSOs, all other variables at their means. In a neighborhood with a one standard deviation decrease in collective efficacy and a similar increase in prior counts of Non-rape RSOs, I would expect an average of 11.55 Non-rape RSOs.

A neighborhood with a one standard deviation increase in collective efficacy would have an average of 3.08 Non-rape RSOs, controlling for other factors. In a neighborhood with a one standard deviation decrease in prior counts of Non-rape RSOs, I would anticipate an average of 2.24 Non-rape RSOs, all else being equal. In a neighborhood with a one standard deviation increase in collective efficacy and similar decrease in prior counts of Non-rape RSOs, I would expect an average of 1.60 Non-rape RSOs.

I continue my examination of the relationship between RSOs and social disorganization theory by testing whether or not more Rape RSOs live in neighborhoods with higher levels of concentrated disadvantage, residential instability, and immigrant concentration, and lower levels of collective efficacy. Table 3.4 presents the results of the role of social disorganization in neighborhood variation in the number of Rape RSOs.

Model 9 examines the relationship between Rape RSOs and social disorganization theory by investigating whether or not Rape RSOs live in neighborhoods with higher levels of concentrated disadvantage, residential instability, and immigrant concentration. As expected, more Rape RSOs live in neighborhoods with more concentrated disadvantage and residential

instability; however, contrary to expectations, immigrant concentration is not associated with the count of Rape RSOs. Similar to Non-rape RSOs, Rape RSOs are more likely to live in the downtown/SODO area.

Model 10 adds collective efficacy. As expected, more Rape RSOs live in neighborhoods with less collective efficacy. As with RSOs and Non-rape RSOs, the significant relationship between Rape RSOs and residential instability becomes non-significant when collective efficacy is included, as does the relationship between Rape RSOs and downtown/SODO. Similar to RSOs, concentrated disadvantage remains a significant predictor of Rape RSOs.

I consider prior counts of Rape RSOs in Model 11. As with RSOs and Non-rape RSOs, there is a positive association between prior counts of Rape RSOs in 1994-1996 and Rape RSO counts in 2001-2003. Collective efficacy remains a significant predictor of Rape RSOs. Similar to RSOs, the effect of concentrated disadvantage is no longer significant. Residential instability and immigrant concentration remain non-significant.

In Model 12, I take spatial factors into account. Like the previous models for RSOs and Non-rape RSOs, collective efficacy maintains its positive association with Rape RSOs, as do prior counts of Rape RSOs. Also similar to the results for RSOs and Non-rape RSOs, concentrated disadvantage, residential instability and immigrant concentration do not significantly predict the count of Rape RSOs. Like RSOs, spatial factors have a positive association with Rape RSOs; neighborhoods adjacent to other neighborhoods with high numbers of Rape RSOs also have high numbers of Rape RSOs.

Similar to the results for RSOs and Non-Rape RSOs, more Rape RSOs live in neighborhoods with less collective efficacy and higher prior counts of Rape RSOs. Similar to

RSOs, more Rape RSOs reside in neighborhoods adjacent to other neighborhoods with more Rape RSOs. As with RSOs and Non-rape RSOs, the positive association between prior counts of Rape RSOs in 1994-1996 and Rape RSO counts in 2001-2003 suggests the relative stability of Rape RSO counts over time, controlling for other factors. The change in Rape RSO counts from 1994-1996 to 2001-2003 is associated with collective efficacy, prior counts of Rape RSOs, and spatial factors. Figure 3.3 shows the distribution of collective efficacy and Rape RSOs.

Based on estimates from Model 12, a neighborhood with all variables at their means would have an average of 4.11 Rape RSOs. In a neighborhood with a one standard deviation decrease in collective efficacy, I would expect an average of 5.49 Rape RSOs, all else being equal. A neighborhood with a similar increase in prior counts of Rape RSOs would have an average of 9.69 Rape RSOs, holding all other variables at their means. In a neighborhood with a one standard deviation increase in spatial factors, I would expect an average of 5.93 Rape RSOs, controlling for other factors. In a neighborhood with one standard deviation decrease in collective efficacy, and one standard deviation increases in both prior counts of Rape RSOs and spatial factors, I would expect an average of 18.63 Rape RSOs.

In a neighborhood with a one standard deviation increase in collective efficacy, I anticipate an average of 3.08 Rape RSOs, all other variables at their means. A neighborhood with a similar decrease in prior count of Rape RSOs would expect a decrease of an average of 1.75 Rape RSOs, all else being equal. In a neighborhood with a one standard deviation decrease in spatial factors, I would expect an average of 2.86 Rape RSOs, controlling for all other factors. In a neighborhood with a one standard deviation increase in collective efficacy and similar decreases in both prior counts of Rape RSOs and spatial factors, I would expect an average of 0.91 Rape RSOs.

These results show little support for Hypothesis 1a that the count of RSOs has a positive association with concentrated disadvantage. Considering neighborhood structure (Model 1), more RSOs live in neighborhoods with more concentrated disadvantage and this significant relationship remains after taking collective efficacy into account (Model 2). However, once prior counts of RSOs are taken into account (Model 3), concentrated disadvantage is no longer significant and remains non-significant when spatial factors are also considered (Model 4). Upon examination of Non-rape RSOs and Rape RSOs, a similar pattern emerges: once all factors are taken into account, the count of RSOs or the change in count of RSOs from 1994-1994 to 2001-2003 are not significantly predicted by concentrated disadvantage. To investigate the relationship between neighborhood conditions and RSOs further, I run additional models not presented here that include either prior RSO counts or spatial factors in the models without collective efficacy (Models 1, 5, and 9). Both prior RSO counts and spatial factors negated the significant association between concentrated disadvantage and RSOs, Non-rape RSOs, and Rape RSOs. This provides some support that concentrated disadvantage is not a significant predictor of RSO counts.

There is also little support for Hypothesis 1b that residential instability and count of RSOs have a positive relationship. Taking only neighborhood structure into account (Model 1), neighborhoods with more residential instability do have significantly more RSOs; however, adding collective efficacy (Model 2) eliminates this significant association. Residential instability remains unrelated to counts of RSOs when prior counts of RSOs (Model 3) and spatial factors (Model 4) are considered. Examination of Non-rape RSOs and Rape RSOs show similar results: once collective efficacy is taken into account, residential instability is not significantly associated with RSO counts. In my further investigation of the relationship between

neighborhood structure and RSO counts, when I include either prior counts of RSOs or spatial factors in Models 1, 5, and 9, neither prior counts of RSOs nor spatial factors negate the significant association between residential instability and RSOs. The same pattern holds for Non-rape RSOs and Rape RSOs. This provides some additional support that collective efficacy reduced residential stability to non-significance.

No support is shown for Hypothesis 1c that RSOs and immigrant concentration are positively related. Whether considering neighborhood structure (Model 1), collective efficacy (Model 2), prior counts of RSOs (Model 3), or spatial factors (Model 4), immigrant concentration is not significantly related to variation in RSO counts. This pattern remains when examining Non-rape RSOs and Rape RSOs. When I include prior count of RSOs in Models 1, 5, and 9, immigrant concentration is significantly associated with RSOs and Non-rape RSOs, but not Rape RSOs. When collective efficacy and prior counts are both in the model (Models 3, 7, and 11), the significant relationship between immigrant concentration and RSOs and Non-rape RSOs disappears, suggesting that collective efficacy reduces the relationship of immigrant concentration to non-significance depending on whether prior counts of RSOs and Non-rape RSOs are included in the model.

Consistent support is shown for Hypothesis 1d that counts of RSOs have a negative association with collective efficacy. RSOs are significantly more likely to live in neighborhoods with less collective efficacy, given neighborhood structure (Model 2), prior counts of RSOs (Model 3), or spatial factors (Model 4). Overall, the results are the same for Non-rape RSOs and Rape RSOs. Collective efficacy is the most consistent predictor of both counts of RSOs, Non-rape RSOs, and Rape RSOs in 2001-2003 and changes in counts of RSOs and each subset of RSOs from 1994-1996 to 2001-2003.

As shown in Tables 3.3 and 3.4, collective efficacy significantly predicts the presence of both Non-rape RSOs and Rape RSOs (Models 6-8 and 10-12). Contrary to expectations, these results provide no support for Hypothesis 2 that Rape RSOs live in neighborhoods with lower levels of collective efficacy than Non-rape RSOs. Neighborhoods with less collective efficacy have more Non-rape and Rape RSOs, and RSOs in general.

3.4 Discussion and conclusions

Public concern about high profile sex offenses led to the development of sex offender registration, notification, (Meloy, Saleh, and Wolff, 2007) and residence restriction laws (Meloy, Miller, and Curtis, 2008). These laws were intended to reintegrate RSOs (Levenson et al., 2007; Mack and Grubesic, 2010; Zevitz, 2006) and reduce recidivism through informal social control (Vasquez, Madden, and Walker, 2007; Zevitz, 2006) as well as protect vulnerable populations by restricting access to potential child victims (Lieb and Nunlist, 2008; Revised Code of Washington 9A.44.130) by increasing protective behaviors (Anderson and Sample, 2008; Bandy, 2011; Beck et al., 2004; Beck and Travis, 2004b). These laws may be most useful if RSOs live in neighborhoods with more capacity to provide that informal social control. I examine characteristics of neighborhoods where RSOs live and assess whether or not the neighborhoods in which they reside have the capacity to provide the informal social control policy makers hoped.

Previous research suggests that RSOs live in disadvantaged or disorganized neighborhoods. From the perspective of traditional social disorganization theory, the current research provides additional support for previous work. When considering the impact of concentrated disadvantage, residential instability, and immigrant concentration on the average

count of RSOs, Non-rape RSOs, and Rape RSOS in Seattle neighborhoods, more RSOs, Non-rape RSOs, and Rape RSOs live in neighborhoods characterized by higher levels of disadvantage and instability.

There is some support for the role of traditional social disorganization theory in informing us about the neighborhood conditions where higher average counts of RSOs live; however, contemporary social disorganization theory deepens our understanding of the relationship between these neighborhood structures and RSOs by considering the role of collective efficacy. In contemporary social disorganization theory, social disorganization occurs when neighborhood structure prevents residents from realizing common values and maintaining effective informal social control (Sampson and Groves, 1989). When examining only concentrated disadvantage, residential instability, and immigrant concentration, concentrated disadvantage and residential instability are the main explanatory factors in higher average counts of RSOs. However, once collective efficacy is considered, residential instability is no longer associated with RSOs, Non-rape RSOs, and Rape RSOs. Although concentrated disadvantage remains significantly associated with counts of RSOs and Rape RSOs when accounting for collective efficacy, once the prior counts of RSOs are also considered the significant relationship between concentrated disadvantage and RSOs and Rape RSOs disappears. Once all other factors are considered, more RSOs, Non-rape RSOs, and Rape RSOs live in neighborhoods with less collective efficacy.

I also considered prior three-year (1994-1996) average counts of RSOs to explain change in the distribution of RSOs from 1994-1996 to 2001-2003. Prior counts of RSOs, Non-rape RSOs, and Rape RSOs in 1994-1996 were positively associated with their counts in 2001-2003. Prior counts of both RSOs and Rape RSOs negated the significant relationship between RSOs

and Rape RSOs and concentrated disadvantage. The change in counts of both RSOs and Rape RSOs is associated with their prior counts, collective efficacy, and spatial factors. The change in counts of Non-rape RSOs is associated with their prior counts and collective efficacy. Given the strong association between prior counts of RSOs, Non-rape RSOs, and Rape RSOs, it appears that number of RSOs in a neighborhood is relatively stable over time, given other factors. However, prior counts of RSOs may be a product of neighborhood structure and social processes.

In addition, I considered the effects of spatial dependency on RSOs counts. Spatial dependence had a positive association to counts of RSOs and Rape RSOs, but not Non-rape RSOs, suggesting that neighborhoods with higher concentrations of RSOs and Rape RSOs cluster together near other neighborhoods with higher concentrations of RSOs and Rape RSOs, as do neighborhoods with lower concentrations of RSOs and Rape RSOs.

Previous research examines RSOs as a homogenous group as does my research. However, my research also examines RSOs as heterogeneous groups to test the hypothesis that neighborhoods with more collective efficacy have fewer Rape RSOs given that they may be more likely subject to community notification and that notification might activate the defense mechanisms of the neighborhoods more so than for Non-rape RSOs. Contrary to expectations, collective efficacy has a negative association with both subsets of RSOs. It could be that my Non-Rape RSO and Rape RSO categories are not influential, given that almost 80% of RSOs have been subject to community notification since 1997 (Barnoski, 2005). It could also be that, regardless of offense type, RSOs return to disorganized neighborhoods with reduced capacity for informal social control as do offenders in general (Drakulich et al., 2012; Hipp, Turner, and Janetta, 2010). Examining RSOs as subsets does not appear to be as important as expected, at

least not when examining the relationship between collective efficacy and RSOs.

Given the importance of informal social control to the successful implementation of community notification laws, these findings raise some concerns about the usefulness of this policy. Community notification relies on the willingness and ability of residents to engage in informal social control to protect potential victims and monitor the behavior of RSOs. However, these results suggest that RSOs, Non-rape RSOs, and Rape RSOs live in neighborhoods that exhibit characteristics that make the development or implementation of informal social control such as collective efficacy less likely.

Although these results demonstrate the importance of examining factors beyond neighborhood structure, this is not to say that neighborhood structure is unrelated to the distribution of RSOs. Rather, neighborhood structure likely has an indirect effect on the location of RSOs. Social control may mediate the relationship between neighborhood structure and crime or disorder (Sampson and Groves, 1999; Sampson, Raudenbush, and Earls, 1997). In my analyses, adding collective efficacy to the models negated the significant relationship between residential instability and RSOs, Non-rape RSO, and Rape RSOs. Collective efficacy also negated the significant relationship between concentrated disadvantage and Non-rape RSOs, and reduced the coefficient of concentrated disadvantage for RSOs from 0.50 ($p<.001$) to 0.39 ($p<.01$), and for Rape RSOs from 0.58 ($p<.001$) to 0.44 ($p<.01$). While speculative, this may suggest a potential mediating relationship between neighborhood structure and the location of RSOs. Residential instability could have indirect effects on the distribution of RSOs because of its impact on collective efficacy, while collective efficacy has a direct impact on where RSOs live. Concentrated disadvantage could also have indirect effects on the distribution of RSOs because of its impact on collective efficacy and prior counts of RSOs and Rape RSOs, while

collective efficacy and prior counts of RSOs have direct impacts on where RSOs and Rape RSOs reside.

While neighborhood structure – concentrated disadvantage, residential instability, immigrant concentration – is an important component of the explanation of neighborhood variation in RSOs, these results demonstrate the importance of social processes such as collective efficacy. Neighborhood structure influences a community's capacity for informal social control, and collective efficacy helps us understand how residents monitor and defend their communities from threats. Receiving notification that a RSO will move into a neighborhood is akin to yelling "Fire!" in a movie theatre (Matson and Lieb, 1996). This perceived threat may activate the defensive mechanisms of residents in communities who mobilize available resources to keep out or minimize the number of RSOs in their communities. Specifically, neighborhoods with more collective efficacy have more resources and residents in these communities are better able or willing to keep RSOs out while neighborhoods with less collective efficacy are less able or willing keep RSOs out. This leads to a clustering of RSOs in the neighborhoods least able to provide the informal social control policy makers hoped. The relationship between neighborhood structure, social processes, and the location of RSOs is complex. Given that RSOs cluster together in neighborhoods with low collective efficacy, higher counts of RSOs in one neighborhood may lead to higher crime rates in that neighborhood or surrounding neighborhoods (Tewksbury, Mustaine, and Covington, 2010). What is still unclear is whether or not counts of RSOs are associated with higher levels of neighborhood-level crime. In the next chapter, I examine the impact of RSOs on neighborhood variation in crime.

Table 3-1. Descriptive Statistics of Measures

	Mean	SD
Registered sex offenders (2001-2003)		
Average count of RSOs	8.12	7.79
Average count of Non-rape RSOs	5.44	5.56
Average count of Rape RSOs	5.41	5.43
Registered sex offenders (2001-2003)		
Rate per 100 of RSOs	0.21	0.36
Rate per 100 of Non-rape RSOs	0.15	0.26
Rate per 100 of Rape RSOs	0.14	0.27
Concentrated disadvantage (alpha = .78)		
Average of z-scores	0.00	0.69
Proportion unemployed	0.05	0.04
Proportion in poverty	0.12	0.10
Proportion African American	0.08	0.10
Proportion of population under 18	0.15	0.07
Proportion on public assistance	0.03	0.03
Proportion of female-headed households	0.44	0.09
Residential instability (alpha = .94)		
Average of z-scores	0.00	0.98
Proportion renters	0.50	0.23
Proportion in different residence 5 years ago	0.56	0.13
Immigrant concentration (alpha = .97)		
Average of z-scores	0.00	0.99
Proportion Asian	0.12	0.12
Proportion foreign born	0.16	0.11
Collective efficacy (alpha = .80)		
Average of non-missing responses	3.12	0.24
Neighbors would respond: kids hanging out	2.60	0.90
Neighbors would respond: kids graffiti	3.35	0.74
Neighbors would respond: kids disrespecting adults	2.49	0.83
Neighbors would respond: kids fighting	3.09	0.81
In this neighborhood: people willing to help neighbors	3.17	0.57
In this neighborhood: people can be trusted	3.14	0.63
Registered sex offenders (1994-1996)		
Average count of RSOs	4.46	5.13
Average count of Non-rape RSOs	3.10	3.85
Average count of Rape RSOs	3.04	3.48
Registered sex offenders (1994-1996)		
Rate per 100 of RSOs	0.11	0.15
Rate per 100 of Non-rape RSOs	0.08	0.11
Rate per 100 of Rape RSOs	0.07	0.10

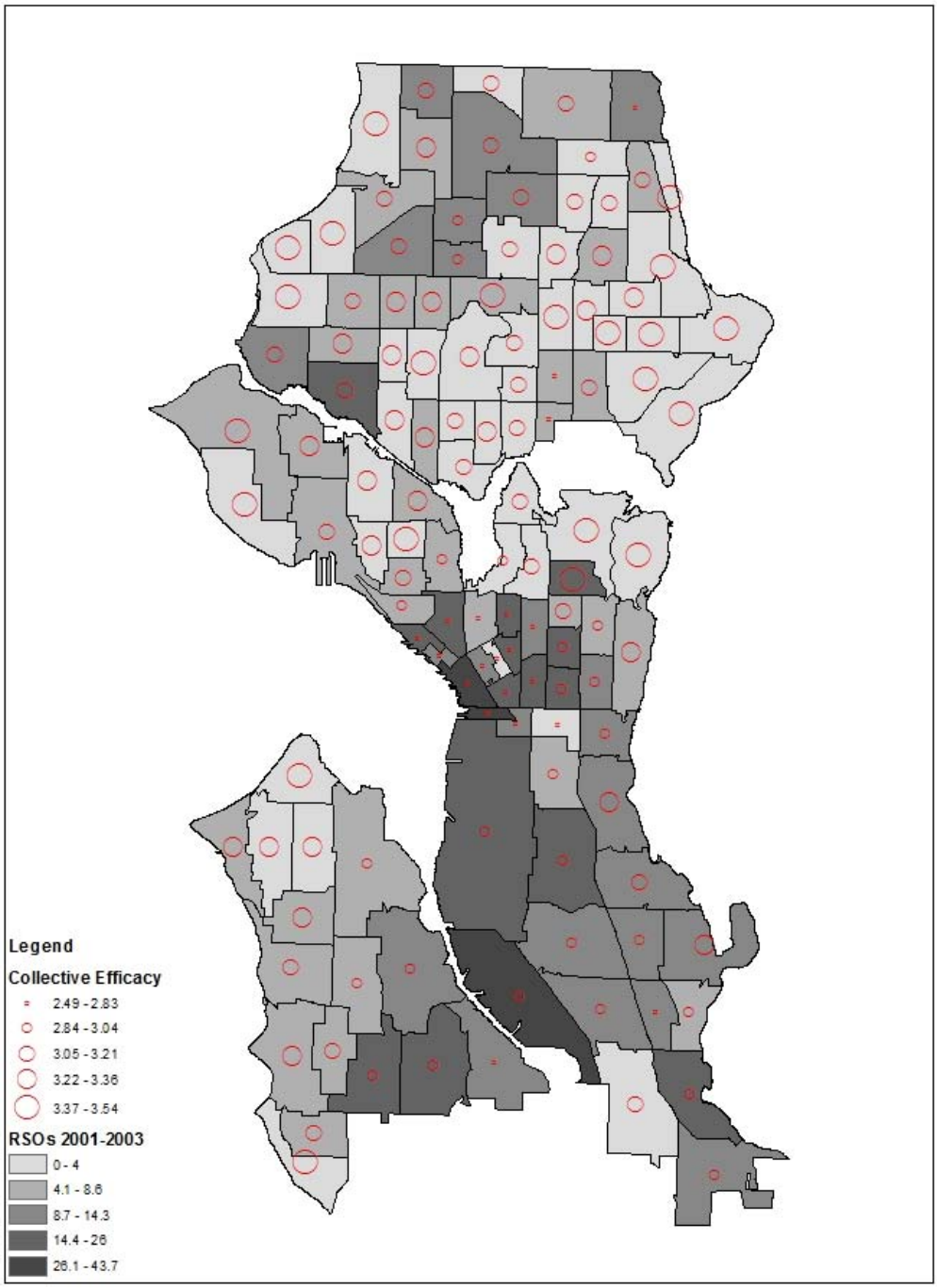

Figure 3-1 RSOs (2001-2003) and Collective Efficacy (2002-2003), Seattle

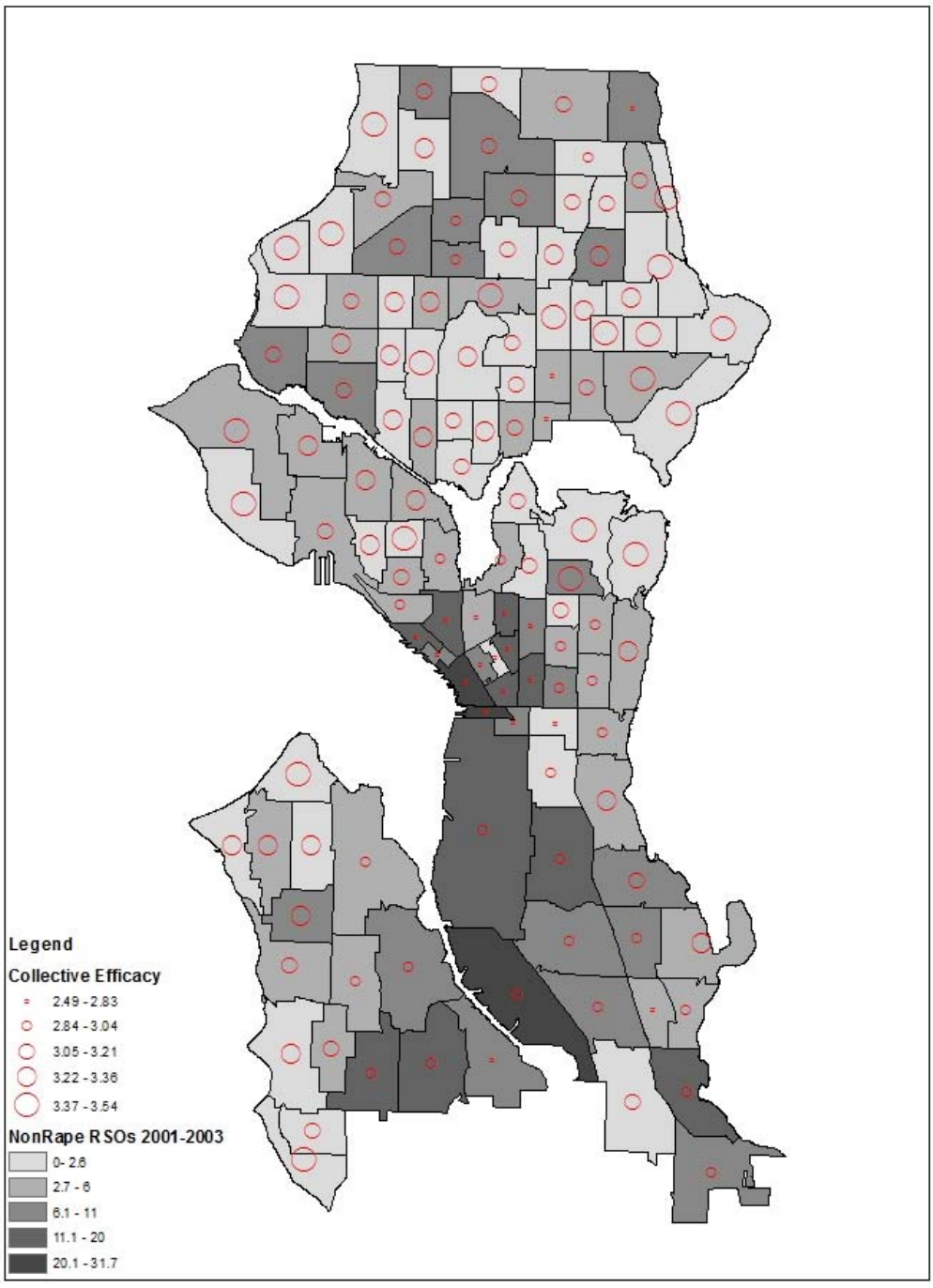

Figure 3-2 Non-Rape RSOs (2001-2003) and Collective Efficacy (2002-2003), Seattle

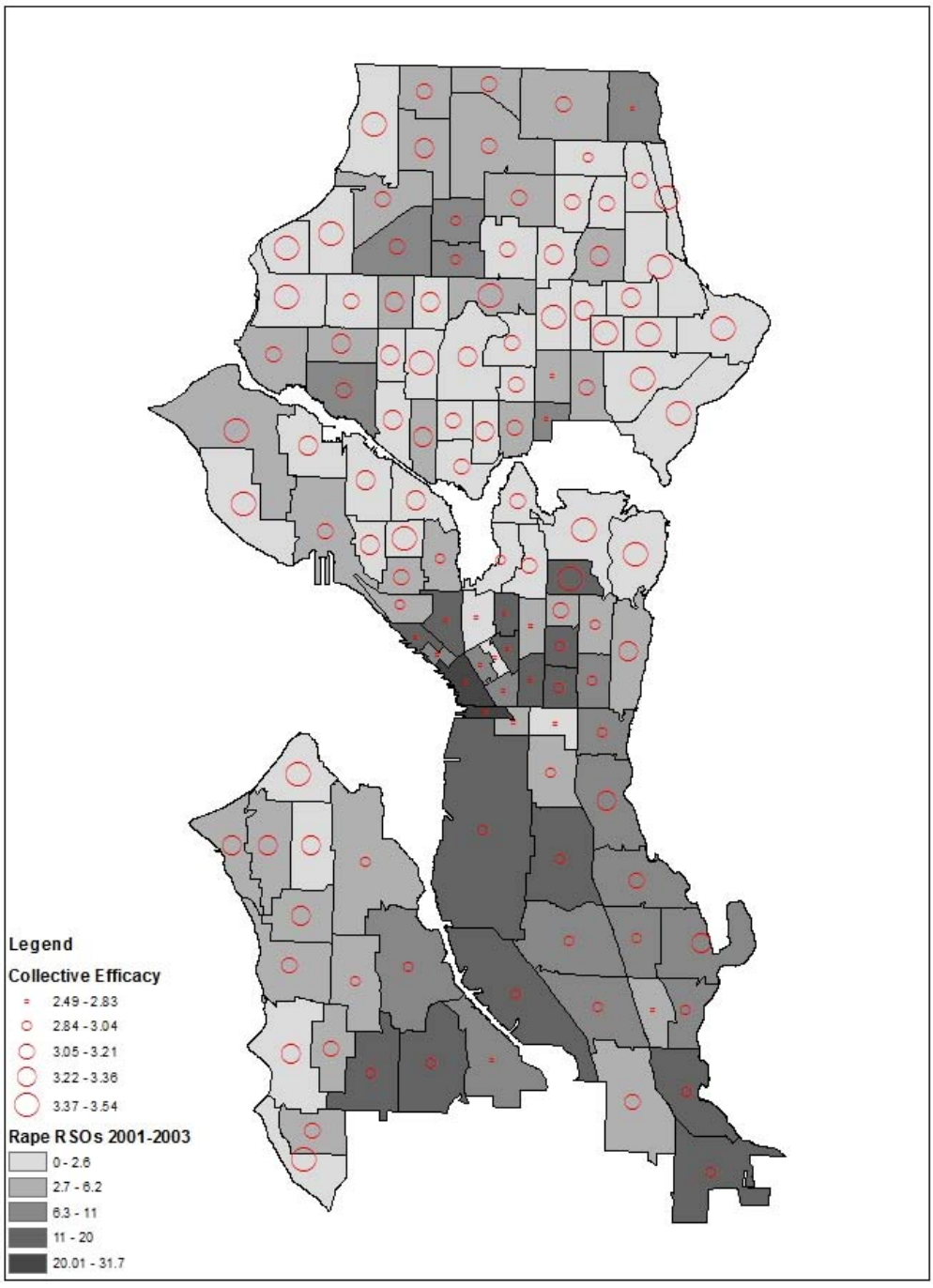

Figure 3-3 Rape RSOs (2001-2003) and Collective Efficacy (2002-2003), Seattle

Table 3-2. Negative Binomial Regressions of Three-year (2001-2003) Average Counts of RSOs on Traditional and Contemporary Social Disorganization Theory

	Model 1 Est *SE*	Model 2 Est *SE*	Model 3 Est *SE*	Model 4 Est *SE*	Model 4 Exp *%*
Intercept	-0.43 *1.45*	4.26* *2.15*	5.13** *1.84*	3.06 *1.91*	
Population logged	0.28 *0.17*	0.28· *0.17*	0.18 *0.14*	0.24· *0.14*	1.27 *26.87%*
Downtown/SODO	0.48· *0.25*	0.26 *0.25*	0.06 *0.21*	-0.27 *0.24*	0.76 *-23.96%*
Concentrated Disadvantage	0.50*** *0.14*	0.39** *0.14*	0.02 *0.13*	-0.06 *0.13*	0.94 *-6.02%*
Residential Instability	0.31*** *0.09*	0.08 *0.11*	-0.01 *0.10*	0.04 *0.10*	1.04 *4.37%*
Immigrant Concentration	0.10 *0.09*	-0.02 *0.09*	0.05 *0.08*	0.01 *0.08*	1.01 *1.24%*
Collective Efficacy		-1.51** *0.51*	-1.63*** *0.44*	-1.24** *0.45*	0.29 *-71.19%*
RSOs 94-96			0.07*** *0.01*	0.07*** *0.01*	1.07 *7.06%*
Spatial Lag				0.05** *0.02*	1.05 *5.05%*
AIC	716.92	711.00	674.61	669.03	
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001					

Table 3-3. Negative Binomial Regressions of Three-year (2001-2003) Average Counts of Non-rape RSOs on Traditional and Contemporary Social Disorganization Theory

	Model 5 Est *SE*	Model 6 Est *SE*	Model 7 Est *SE*	Model 8 Est *SE*	Model 8 Exp *%*
Intercept	-0.61 *1.50*	3.77· *2.23*	4.69* *1.96*	3.65· *2.03*	
Population logged	0.25 *0.18*	0.26 *0.17*	0.16 *0.15*	0.19 *0.15*	1.21 *21.29%*
Downtown/SODO	0.57* *0.25*	0.38 *0.25*	0.17 *0.22*	-0.07 *0.27*	0.93 *-6.57%*
Concentrated Disadvantage	0.32* *0.15*	0.22 *0.14*	-0.08 *0.13*	-0.10 *0.13*	0.91 *-9.14%*
Residential Instability	0.33*** *0.09*	0.11 *0.12*	0.00 *0.10*	0.02 *0.10*	1.02 *2.12%*
Immigrant Concentration	0.16· *0.09*	0.04 *0.10*	0.10 *0.08*	0.06 *0.09*	1.06 *5.97%*
Collective Efficacy		-1.43** *0.53*	-1.55*** *0.46*	-1.37** *0.47*	0.25 *-74.59%*
Non-rape RSOs 94-96			0.09*** *0.01*	0.08*** *0.01*	1.09 *8.74%*
Spatial Lag				0.04 *0.03*	1.04 *4.08%*
AIC	626.29	621.56	593.32	593.03	

N = 123
· p <.10; * p <.05; ** p <.01; *** p <.001

Table 3-4. Negative Binomial Regressions of Three-year (2001-2003) Average Counts of Rape RSOs on Traditional and Contemporary Social Disorganization Theory

	Model 9 Est *SE*	Model 10 Est *SE*	Model 11 Est *SE*	Model 12 Est *SE*	Model 12 Exp *%*
Intercept	-1.51 *1.64*	3.65 *2.41*	4.33* *2.09*	2.13 *2.21*	
Population logged	0.36· *0.19*	0.35· *0.19*	0.21 *0.16*	0.27· *0.17*	1.31 *31.26%*
Downtown/SODO	0.60* *0.28*	0.37 *0.27*	0.10 *0.23*	-0.19 *0.26*	0.83 *-17.39%*
Concentrated Disadvantage	0.58*** *0.16*	0.44** *0.15*	0.03 *0.14*	-0.08 *0.15*	0.93 *-7.23%*
Residential Instability	0.26** *0.10*	0.01 *0.13*	-0.05 *0.11*	0.03 *0.11*	1.03 *2.74%*
Immigrant Concentration	0.08 *0.10*	-0.05 *0.10*	0.04 *0.09*	0.03 *0.09*	1.03 *2.53%*
Collective Efficacy		-1.64** *0.57*	-1.62** *0.49*	-1.18* *0.52*	0.31 *-69.27%*
Rape RSOs 94-96			0.12*** *0.02*	0.11*** *0.02*	1.12 *11.63%*
Spatial Lag				0.07** *0.03*	1.07 *7.25%*
AIC	635.71	630.45	597.36	593.34	
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001					

Chapter 4. THE EFFECT OF REGISTERED SEX OFFENDERS ON NEIGHBORHOOD CRIME

Returning offenders[10] face numerous barriers to successful reintegration, and some researchers contend that registered sex offenders (RSOs) are further stigmatized and isolated by the effects of sex offender laws (Clear, 2007; Robbers, 2009). One of their biggest barriers is finding desirable housing (Mustaine, Tewksbury, and Stengel, 2006; Zevitz and Farkas, 2004). Returning offenders move to economically disadvantaged or disorganized neighborhoods (Drakulich et al., 2012; Hipp, Turner, and Jannetta, 2010), as do RSOs (Craun, 2008; Hipp, Turner and Jannetta, 2010; Hughes and Burchfield, 2008; Hughes and Kadleck, 2008; Mack and Grubesic, 2010; Socia and Stamatel, 2012; Tewksbury and Mustaine, 2006; Tewksbury, Mustaine, and Stengel, 2006). However, upon subsequent moves, RSOs move into even more socially disorganized neighborhoods than their non-RSO counterparts (Hipp, Turner, and Jannetta, 2010). These disadvantaged or disorganized neighborhoods are least able to facilitate the reintegration of RSOs back into free society or provide the informal social control to reduce the recidivism of RSOs as policymakers hoped. Coupled with the ramifications of the stigma of being labeled an RSO, this may have the unintended consequence of increased RSO recidivism (Robbers, 2009), increased crime in general (Hipp, Turner, and Jannetta, 2010), and increased sex crimes specifically (Tewksbury, Mustaine, and Covington, 2010).

Given where RSOs live and the laws directed at reducing recidivism for sex crimes, there is surprisingly little research on the impact of these offenders on neighborhood-levels of sex offenses. There is a misconception that RSOs specialize in committing sex offenses; however, as

[10] "Returning offenders" refers to all returning offenders. I differentiate between all returning offenders and the subset of sex offenders by using RSO for registered sex offender.

a group, RSOs commit a wide variety of offenses (Harris et al., 2010; Langan, Schmitt, and Durose, 2003; Miethe, Olson, and Mitchell, 2006; Sample and Bray, 2006), so the absence of research on the impact of RSOs on other crimes is also surprising. It is important to examine the impact of RSOs on neighborhood crime separately from other offenders because of the unique policies directed at RSOs, the impact policies have on RSOs, and the potential impact these policies have on both the residents of the communities to which they return and the communities themselves. This leads me to ask the following question: do RSOs have an additional effect on crime above and beyond traditional correlates of crime? A better understanding of the relationship between RSOs and neighborhood crime contributes to a growing literature on the impact of these offenders on neighborhoods and has the potential to inform public policy aimed at RSOs and the residents in the communities to which they return.

The previous chapter examined the characteristics of communities where RSOs live and how their distribution across neighborhoods varies by levels of concentrated disadvantage, residential instability, racial/ethnic heterogeneity, and collective efficacy through the lenses of traditional and contemporary social disorganization theory. Following Drakulich and colleagues (2012), in this chapter, I examine the effect of RSOs on three types of crime by integrating the social disorganization mechanism of instability and the labor stratification perspective that views concentrated incarceration – admissions from and releases into a neighborhood – as a source of general instability that creates an environment where criminogenic situations develop and crime from all sources increases.

In order to understand how returning offenders affect neighborhood crime, I briefly discuss the consequences of incarceration for released offenders and the additional consequences of registration, community notification, and residence restrictions for RSOs. Then, I discuss the

consequences of incarceration and community notification for the communities to which offenders and the subset of RSOs return. Next, I describe the theoretical foundations underpinning my examination of the impact of RSOs on community crime. Then, I describe the impact of RSOs, Non-rape RSO, and Rape RSOs on violent crime given other correlates of crime. Next, because it is important to examine the impact of RSOs on sex crimes given the unique policies directed at them to reduce this type recidivism, I describe the impact of RSOs, Non-rape RSOs, and Rape RSOs on rape. Finally, I describe the impact of RSOs, Non-rape RSOs, and Rape RSOs on property crime.

4.1 CHALLENGES FOR RETURNING OFFENDERS

Released prisoners face numerous, substantial challenges upon reentry to free society. These challenges include an increasingly punitive parole system, limited or no access to state services, disenfranchisement (Uggen and Manza, 2002), payment of legal fees (Harris, 2016), stigma (Haney, 2003; Pager, 2003; Western and Pettit, 2002), and decreased marriage potential (Huebner, 2005). Finding housing (Mustaine, Tewksbury, and Stengel, 2006; Robbers, 2009) and employment (Hipp and Yates, 2009; Huebner, 2005; Pager, 2003; Robbers, 2009) are two of the greatest challenges returning offenders face, yet these are the basis for successful reintegration (Sampson and Laub, 1993; Travis and Waul, 2003). For those who do find employment, the stigma associated with their criminal record limits their opportunities to low-wage jobs (Western and Pettit, 2002) usually in the secondary labor market (Drakulich et al., 2012), reduces their odds of finding full-time employment by at least 33% (Huebner, 2005), and may reduce their wages by 10% to 30% (Pettit and Western, 2004). Job stability reduces the likelihood of reoffending (Kruttschnitt, Uggen, and Shelton, 2000); however, the additional stigma of being labeled an RSO makes finding and keeping a job more difficult (Robbers, 2009).

4.2 CONSEQUENCES OF REGISTRATION, COMMUNITY NOTIFICATION, AND RESIDENCE RESTRICTIONS FOR REGISTERED SEX OFFENDERS

Due to the unique policies directed at them, RSOs face additional challenges upon reentry. Registration laws keep RSOs publicly labeled as such (Robbers, 2009; Zevitz, 2006), creating additional stigma and leading to isolation (Clear, 2007; Robbers, 2009). Community notification has the unintended consequence of loss of employment and exclusion from certain residences (Robbers, 2009; Zevitz and Farkas, 2000b). Residence restrictions prohibit RSOs from living within a certain distance from places where children congregate (Hughes and Burchfield, 2008; Meloy, Miller, and Curtis, 2008). Difficulty finding housing is one of the most serious collateral consequences for RSOs to overcome (Mustaine, Tewksbury, and Stengel, 2006; Robbers, 2009). If RSOs are financially precluded from living in more affluent areas and are prohibited from living within certain distances of places children congregate, then finding places to live where they are also able to find gainful employment and social services may be difficult (Huebner et al., 2013; Hughes and Burchfield, 2008; Zevtiz, 2006). Some RSOs may go into hiding (Robbers, 2009), risk arrest or conviction by living near prohibited places, or cluster together where opportunities exist for association and interactions with illegitimate contacts (Hughes and Burchfield, 2008.) In addition to difficulties finding places to live and work, RSOs face other sanctions such as loss of public housing assistance and loss of eligibility for welfare (Robbers, 2009).This template document will be updated as more and more students start to work on Ph.D. dissertations. Please do note that the requirements for MS thesis and Ph.D. dissertation are slightly different. Although this template may also be helpful for writing a MS thesis, it is important to identify the requirement difference and make appropriate changes.

4.3 CONSEQUENCES OF RETURNING OFFENDERS AND RSO COMMUNITY NOTIFICATION FOR COMMUNITIES

The challenges faced by all returning offenders can have devastating effects on the communities to which they return when these places experience them in high concentrations, partly due to the negative social and economic consequences for the offenders and their families (Clear et al., 2003) brought about by coercive mobility. Coercive mobility occurs when people – largely young males – are removed from disadvantaged communities through incarceration and then returned to those places, creating a churning of a portion of the population (Clear, 2007; Rose and Clear, 1998). This churning effect affects crime in two ways. First, removing these young residents disrupts relational networks creating more female-headed households (Sampson and Groves, 1989) and thereby reducing residents' capacity to solicit and utilize outside resources to help solve neighborhood problems (Clear, 2007; Clear et al., 2003; Lynch and Sabol, 2004). This weakens attachment to the community and neighborhood ties, and thereby erodes collective efficacy, reducing the capacity to provide informal social control (Clear, 2007; Lynch and Sabol, 2004). Second, these offenders return to disadvantaged communities, placing stress on their families, social networks, and other limited resources that inhibit the development of collective efficacy (Clear, 2007; Travis, Western, and Redburn, 2014). Additionally, coercive mobility may increase residential instability when families cannot afford their current home due to lost income of removed offenders or the financial burden of supporting retuning prisoners with limited job prospects (Drakulich et al., 2012).

In general, coercive mobility weakens neighborhood structure and processes that help inhibit crime. Receiving community notification may also weaken processes that help inhibit crime. Research on the impact of community notification on residents and communities to which

RSOs return demonstrates several detrimental consequences. Residents experience increased fear (Kernsmith, Craun, and Foster, 2009; Phillips, 1998), anger, despair, powerlessness (Zevitz, 2003), anxiety (Caputo and Brodsky, 2004; Kernsmith, Craun, and Foster, 2009), and a breakdown of social integration (Zevitz, 2004). As a result, residents may withdraw from the community, possibly reducing the community's capacity for collective efficacy (Hughes and Kadleck, 2008) and increasing community crime.

Although Rose and Clear (1998) suggest that informal social control could potentially explain the relationship between incarceration and crime, this was not directly investigated until recently. In the first direct test of the effect of all returning offenders on collective efficacy, Drakulich and colleagues (2012) suggest that, as expected by the coercive mobility hypothesis, returning offenders are relevant to community capacity to develop collective efficacy because they may undermine labor market and housing stability, reduce affluence, and increase female-headed households, which then fosters the development of criminogenic situations.

The reduced social capital of returning prisoners – particularly decreased employability and marriageability – and broken families have detrimental consequences for the economic conditions of neighborhoods. Ethnographic studies suggest that returning offenders are more likely to develop social networks with groups that devalue traditional employment (Anderson, 1999; Hagan and McCarthy, 1997; Pattillo-McCoy, 1999; Sullivan, 1989; Venkatesh, 2000). Consequently, they are more likely to discontinue their education, enter secondary labor markets (Huebner, 2005), and become involved in situations of company conducive to crime (Drakulich et al., 2012), or criminogenic situations. Criminogenic situations involve groups – usually young men – who are not well bonded to the workforce and have lowered stakes in conformity providing a potential pool of both victims and offenders (Crutchfield, 2014).

4.4 COERCIVE MOBILITY AND CRIME

Most of the recent research exploring the direct impact of coercive mobility investigates the effect of incarceration (prison admissions) on crime with conflicting results. Total crime in Tallahassee, Florida decreased at moderate levels of incarceration but there was a tipping point at which crime increases at higher levels of incarceration (Clear et al., 2003). Thus, there was a curvilinear relationship between incarceration and crime. Taking other factors into account, the number of residents being incarcerated directly predicted total crime in that neighborhood (Clear et al., 2003). Waring, Scully, and Clear (2005) conduct a follow-up study to disaggregate crime types in Tallahassee to find that neighborhoods with higher levels of incarceration have more homicide, sex offenses, burglary, and aggravated assault, but not robbery (unpublished paper cited in Clear, 2007: 163). These results were fully or partially replicated in three other locations. Renauer and colleagues (2006) found a similar tipping point for violent crime in Portland, Oregon, but not for property crime. Powell, et al., (2004) found a similar tipping point for violent crime and partial support for a tipping point for property crime in Columbus, Ohio (unpublished paper cited in Clear, 2007: 163-4). In their examination of female incarceration, George, LaLonde, and Schuble (2005) found a tipping point for drug crime in Chicago (unpublished paper cited in Clear, 2007: 164). On the other hand, Fagan, West, and Holland (2003) and Fagan and West (2013) found no overall effect of incarceration in New York City on homicide while Lynch and Sabol (2004) report a reduction in crime in Baltimore, Maryland. Although some research suggests that incarceration is both positively and negatively related to crime the results appear to be sensitive to model specification (Travis, Western, and Redburn, 2014).

4.5 LABOR MARKET INSTABILITY AND CRIMINOGENIC SITUATIONS

Another and less investigated component of coercive mobility is prison releases. The relationship between prison releases and crime appears to be direct, linear, and positive. Prison releases in one year have a strong, positive effect on total crime in Tallahassee in the following year (Clear et al., 2003). Similarly, an increase in the number of parolees released into California neighborhoods per month results in more incidents of robbery, burglary, and aggravated assault that same month (Hipp and Yates, 2009). Neighborhoods in Seattle with higher concentrations of returning offenders have more violent crime (Drakulich et al., 2012); however, the authors suggest that the impact appears to be largely indirect through the negative impact of returning offenders on labor and housing markets that inhibit the development of collective efficacy and foster situations of company conducive to crime. No studies have examined the relationship between RSOs and violent crime. It could be that neighborhoods with higher concentrations of RSOs have more violent crime. This leads me to my first hypothesis:

Hypothesis 1: The number of RSOs will be positively related to violent crime

Research on the impact of RSOs on neighborhood crime is sparse. Tewksbury, Mustaine, and Covington (2010) used an 11 item composite measure to capture social disorganization to examine sex offenses given the presence of available victims and RSOs in Louisville, Kentucky. Neighborhoods with higher counts of RSOs, more indicators of social disorganization, and more opportunities to access available victims – schools, daycare centers, and vulnerable populations – have higher rates of sex offenses (Tewksbury, Mustaine, and Covington, 2010). I expand upon Tewksbury and colleagues' (2010) research by investigating the effect of RSOs on rape using more nuanced measures of social disorganization, accounting for other neighborhood correlates of crime, examining two subsets of RSOs, and using a five-year average count of RSOs and

three-year count of crime to account for any year-to-year anomalies. This leads to my next hypothesis:

Hypothesis 2: The number of RSOs will be positively related to rape

Although it is important to examine the impact of RSOs on sex offenses (Tewksbury, Mustaine, and Covington, 2010), it is also important to examine their impact on other offenses because their recidivism for sex offenses is low compared to their recidivism for other offenses (Clear, 2007; Durose, Cooper, and Snyder, 2014; Langan, Schmitt, and Durose, 2003; Meloy, 2005). For example, of the RSOs released from prison in 15 states in 1994, 5.3% were rearrested for another sex crime within 3 years, compared to 43% of RSOs of who were rearrested for any type of crime (Langan, Schmitt, and Durose, 2003). Of the RSOs who committed rape/sexual assault and were released in 30 states in 2005, 1.7% were arrested for rape within 5 years, while 60.1% were arrested within 5 years for any type of offense (Durose, Cooper, and Snyder, 2014). For Washington offenders specifically, of the RSOs released from prison from 1990 to 1997, 19% of RSOs subject to community notification recidivated for a new sex offense, compared to 47% who recidivated for any offense and 22% who were not subject to community notification recidivated for anew sex offense, compared to 57% who recidivated for any offense (Lieb, 1997). No studies have examined the impact of RSOs on property crimes. It could be that neighborhoods with higher concentrations of RSOs have higher counts of property crime. I continue to explore the relationship between RSOs and neighborhood crime by examining their effect on property crime. This leads to my remaining hypothesis:

Hypothesis 3: The number of RSOs will be positively associated property crime

4.6 DATA, MEASURES, AND METHODS

4.6.1 *Data*

I combine data from the Homicide Investigation Tracking System (HITS), Census Bureau, Seattle Neighborhoods and Crime Survey (SNCS), Washington State Department of Corrections (DOC), and Seattle Police Department (SPD) to test the hypotheses. From HITS, I create measures of the counts of RSOs, Non-rape RSOs, and Rape RSOs. I obtained measures of all returning offenders from the DOC indirectly from Drakulich, et al., (2012). Measures of neighborhood structure and demographics come from the 2000 census from the Census Bureau. I use SNCS to create measures of criminogenic situations and collective efficacy and I create measures of crime statistics using data from the SPD. I describe these data sources in detail in Chapter 2.

4.6.2 *Measures*

Dependent Variables

My dependent variables are the three-year (2003-2005) total counts of violent crime, rape, and property crime. Violent crime includes aggravated assault, robbery, and homicide. Rape is usually included in a measure of violent crime but because I examine rape separately, I remove rape from the measure of violent crime. Property crime includes burglary, theft, and vehicle theft. Because crime is relatively rare, I use counts of crime rather than rates. Using a rate may violate the assumption of constant error variance because neighborhoods with smaller populations could have larger errors (Osgood, 2000).

Independent Variables

I measure *RSOs, Non-rape RSOs,* and *Rape RSOs* using five-year average counts of

RSOs, Non-rape RSOs, and Rape RSOs living in census tracts from 1998 to 2002. RSOs may have multiple convictions that include both non-rape sex offenses, e.g., indecent liberties and child pornography, and rape offenses. Accordingly, *Non-rape RSOs* and *Rape RSOs* are not mutually exclusive categories.

Control Variables

The presence of all returning offenders could influence crime rates. Accordingly, I examine the impact of RSOs, Non-rape RSOs, and Rape RSOs net of all returning offenders by controlling for all returning offenders. To measure *all returning offenders*, I use the five-year total count of offenders who returned to census tracts from 1998 to 2002.

I include measures of neighborhood structure and social processes to account for neighborhood differences. Following Drakulich, et al., (2012), I measure *labor market and housing instability* with the neighborhood average of the proportion unemployed, the proportion in poverty, the proportion employed in secondary sector jobs, the proportion who rent their homes, and the proportion who lived in a different residence five years earlier.[11] *Concentrated affluence* is measured by the neighborhood average of the proportion of wealthy households, the proportion of college graduates, and the proportion employed in managerial or professional occupations. *Female-headed households* are measured with the neighborhood average of the proportion of the population who live in female-headed households with no husband present and with children under 18 in the home. I use scale measures of labor market and housing instability, concentrated affluence, and female-headed households created from 2000 census data. I use Cronbach's alpha to measure the reliability of each scale and report the alpha statistics in Table

[11] As explained by Drakulich, et al., (2012), labor market and housing instability would ideally be examined separately because the expectation is that collective efficacy is strongly related to residential instability and criminogenic situations; however, it is not possible to disentangle the effects of labor market and housing instability because they correlate highly.

4.1.

Criminogenic situations are captured by two kinds of local problems reported by respondents: groups of teens hanging around and the presence of trouble-causing or noisy neighbors. *Collective efficacy* is captured by two highly correlated (.88) components – social cohesion/trust and informal social control – combined into one measure. *Social cohesion and trust* is measured with a two item Likert-type scale by asking residents how strongly they agreed or disagreed (strongly agree to strongly disagree) with the following statements: (1) "People in this neighborhood can be trusted" and (2) "People around here are willing to help their neighbors." *Informal social control* is measured with a four item Likert-type scale by asking residents how likely or unlikely (very likely to very unlikely) their neighbors would do something if: (1) "a group of neighborhood children were skipping school and hanging out on a street corner," (2) "some children were spray-painting graffiti on a local building," (3) "a child was showing disrespect to an adult," and (4) "children were fighting out on the street corner." I aggregate both criminogenic situations and collective efficacy to the neighborhood-level to capture their neighborhood-level averages. I use Cronbach's alpha to measure the reliability of each index and report the alpha statistics in Table 4.1.

I include controls for the racial and ethnic composition of the neighborhood because it influences neighborhood structure likely due to discrimination in the labor and housing markets (Drakulich et al., 2012). The racial and ethnic composition of a neighborhood is also related to differential policing practices and concentration of incarceration probably in part due to racial and ethnic discrimination in the criminal justice system (Drakulich et al., 2012). I include the proportion of the total population that is non-Hispanic *African American*, the proportion *Latino*, the proportion *Asian* (non-Hispanic Asian, Native Hawaiian, or other Pacific Islander), and the

proportion of *foreign born* residents. Because the proportion Asian and foreign born residents are highly correlated (.94), I combine them into one measure. Because young males are at a substantially higher risk of committing crimes than other demographic groups, I control for the presence of *young males age 15 to 24*. I also account for differences in census tract population by controlling for *population size* with its natural log.

To control for *prior crime rate*, I use the three-year average (1996-1998) rate of crime per 1,000 persons for violent crime, rape, and property crime. Variation in prior crime rates may be the result of neighborhood structure and social processes, so I control for prior crime rates in an attempt to explain the change in counts of crime from 1996-1998 to 2003-2005.

Preliminary test statistics for spatial autocorrelation for violent crime and property crime were significant, but the test statistics for rape were not. Accordingly, I control for spatial autocorrelation using *spatial lags* on the dependent variables (Anselin, 1988) either because they are statistically indicated or for the sake of comparison for those that are not statistically indicated. I describe spatial tests in more detail in Chapter 2.

4.6.3 *Methods*

I expect that neighborhoods with higher counts of RSOs will have higher counts of violent crime, rape, and property crime.[12] I combine data from SNCS, HITS, SPD, and the census to explore the relationship between RSOs and neighborhood crime. Following Drakulich, et al., (2012), I use generalized linear negative binomial models to estimate the variability of crime between neighborhoods and account for differences in census tract population by controlling for the natural log of the population.

[12] Research on the effect of incarceration on neighborhood crime has mixed results; some studies indicate a curvilinear relationship (tipping point), no effect, or positive and negative associations to crime. Research on returning offenders shows a direct relationship to crime. I checked for a tipping effect for RSOs on crime by incorporating a squared term for RSOs and no tipping point is indicated.

Following Drakulich and colleagues (2012), I combine the social disorganization mechanism of instability and the labor stratification perspective that views returning offenders as a more general source of instability that has detrimental consequences for the communities to which they return. Neighborhoods with higher concentrations of returning offenders have more crime, but this effect appears largely indirect through the impact of returning offenders on labor and housing markets, which inhibits the development of collective efficacy and fosters situations of company conducive to crime (Drakulich et al., 2012). Given that RSOs are a subset of all returning offenders and commit a wide variety of offenses, I hypothesize that there is a positive association between counts of RSOs and violent crime.

My analysis proceeds in eight steps. First, I explore the relationship between RSOs and violent crime by conducting negative binomial generalized linear model estimations of RSOs on violent crime, controlling for the racial and demographic composition of the neighborhood. Second, I add a control for all returning offenders. Third, I continue to explore the relationship between RSOs and violent crime by examining the effects of instability, affluence, and female-headed households. Fourth, I consider the influence of the presence of criminogenic situations. Fifth, I examine the influence of collective efficacy. Sixth, I add a control for prior crime. Seventh, I account for potential spatial dependencies by adding a spatial lag term (Anselin, 1988). Eighth, I replicate these models for Non-rape RSOs and Rape RSOs. Last, I replicate these models for rape and property crime. To assist in the interpretation of the strength of the relationships of these variables on crime, I include exponentiated coefficients (rate ratios) of the log odds for the final models in the right hand column of each table. For ease of interpretation, I convert the rate ratios into a percent change using this formula: $[(e^b - 1)*100]$. In the results section below, I provide the predicted counts of crime given neighborhood characteristics by

exponentiating the sum of the intercept and log odds for the final models.

4.7 RESULTS

The goal of this chapter is to examine the effect of RSOs on neighborhood crime, given other correlates of crime. Following Drakulich and colleagues (2012), I integrate social disorganization theory and the labor market perspective where all returning offenders are viewed as a general source of instability. Community notification of the presence of RSOs may have additional destabilizing effects on the neighborhoods to which they return that may negatively affect informal social control and increase crime rates. Accordingly, I examine the impact of RSOs on three crime types. I hypothesize positive associations between RSOs and each crime type. I test these hypotheses for RSOs, Non-rape RSOs, and Rape RSOs, controlling for the presence of all returning offenders. I begin by examining violent crime and then investigate their impact on rape and property crime.

Table 4.1 presents descriptive information for the measures I use in this chapter. The outcomes are the three-year (2003-2005) total count of violent crime, rape, and property crime. Violent crime includes aggravated assault, robbery, and homicide. Property crime includes burglary, theft, and vehicle theft.

Tables 4.2 and 4.3 present the relationship between RSOs, all returning offenders, neighborhood structural conditions, criminogenic situations, and collective efficacy on neighborhood variation in violent crime. Model 1 assesses the relationship between RSOs and violent crime, controlling for the demographic and racial composition of the neighborhood. As expected, RSOs have a positive association with violent crime. Violent crime is also positively associated with the proportion of young males, Latinos, and African Americans. Controlling for

all returning offenders (Model 2), the positive associations between RSOs, young males, Latinos, and African Americans remain. There is no association between all returning offenders and violent crime.

Model 3 investigates the role of instability, concentrated affluence, and female-headed households on violent crime. Accounting for these social structural conditions reduces the association between violent crime and the presence of young males and Latinos to non-significance, while population size now has a positive association with violent crime. The positive associations between violent crime and RSOs and the proportions of African American residents remain significant. Instability has a positive association to violent crime, female-headed households have a negative association, and affluence is not associated with violent crime.

Model 4 adds criminogenic situations, which has no association with violent crime. Adding criminogenic situations eliminates the significant relationship between violent crime and the proportion of female-headed households. RSOs, population size, the proportion of African American residents, and instability remain positively associated with violent crime.

Model 5 examines the impact of collective efficacy, which has a negative relationship to violent crime. Adding collective efficacy reduces to non-significance the relationship between violent crime and the proportion of African American residents. There continue to be positive associations between violent crime and RSOs, instability, and population size.

Model 6 adds a control for the rate of prior violent crime, which eliminates the significant association between violent crime and RSOs. The proportion of African American residents now has a positive association to violent crime and affluence has a negative association. Instability and population size retain their positive associations to violent crime and collective efficacy

maintains its negative association. Prior rate of violent crime in 1996-1998 has a positive association with counts of violent crime in 2003-2005.

Accounting for spatial factors (Model 7), the proportion of African Americans is no longer associated with violent crime. Population size, instability, and prior violent crime remain positively associated to violent crime. Affluence and collective efficacy maintain their negative associations to violent crime. RSOs retain their non-significant association to violent crime. Spatial factors are not themselves significantly related to violent crime; however, this could be due to differing modeling specifications because I conducted my test of spatial dependency on the logged outcome rather than the count using a negative binomial model due to limitations of the program I used to conduct tests of spatial autocorrelation.

I replicate these models for two subsets of RSOs: Non-rape RSOs and Rape RSOs. In each model, the relationship between violent crime and each subset of RSOs is the same as those for RSOs. Specifically, both Non-Rape RSOs and Rape RSOs have positive associations with violent crime in Models 1 through 5. However, when considering prior rate of violent crime (Model 6), the association between violent crime and both Non-rape RSOs and Rape RSOs is negated. The non-significant association between violent crime and each subset of RSOs remains when taking spatial factors into account (Model 7). Once all factors are considered, the results for both Non-rape RSOs and Rape RSOs are similar to those of RSOs so I do not elaborate further on these results.

These results show some support for Hypothesis 1 that RSOs have a positive relationship with violent crime. When controlling only for the demographic and racial composition of neighborhoods, RSOs are not associated with levels of violent crime in 2003-2005. Once all

returning offenders are considered, neighborhoods with more RSOs have more violent crime. The positive association between RSOs and violent crime remains controlling for instability, affluence, female-headed households, criminogenic situations, and collective efficacy. However, after controlling for the prior rate of violent crime, there is no relationship between RSOs and changes in counts of violent crime from 1996-1998 to 2003-2005. The non-significant association between RSOs and violent crime remains after accounting for spatial factors. Thus, the source of the difference in the relationship between RSOs and violent crime – from a positive association to no association – is due to shifting from an examination of their relationship with violent crime in 2003-2005 to an examination of the change in violent crime from 1996-1998 to 2003-2005. Once all factors are considered, an increase in counts of violent crime from 1996-1998 to 2003-2005 is associated with larger population sizes, more instability, less affluence, less collective efficacy, and higher rates of violent crime in 1996-1998.

Based on estimates from Model 7, in an average neighborhood, i.e., a neighborhood with all variables at their means, I could expect about 57[13] violent crimes. A neighborhood with a one standard deviation increase in instability would have about 75 violent crimes, all else being equal. A similar increase in prior violent crime would have about 78 violent crimes, holding other variables at their means. A neighborhood with a one standard deviation increase in population size would have about 76 violent crimes, controlling for other factors. In a neighborhood with a one standard deviation decrease in affluence, I would expect about 68 violent crimes, and with a similar decrease in collective efficacy I would anticipate about 70

[13] I multiplied each coefficient by their respective mean to get a predicted log odds for each variable. Then, I added the sum of the log odds for each variable to the intercept which provides the predicted log odds of violent crime given all variables at their means. Next, I exponentiated the sum of intercept and log odds to get a predicted count of violent crime given neighborhood characteristics using Model 7, i.e., [0.12 + (0.72*8.35) + (-0.08*-0.01) + (0.10*0.08) + (1.80*0.05) + (0.15*0.07) + (0.01*9.79) + (0.00*38.06) + (0.33*-0.01) + (-0.18*0.02) + (0.82*0.08) + (-0.06*1.44) + (-0.83*3.12) + (0.02*9.60) + (0.00*99.01)] = 4.05. Exp(4.05) = 57.35.

violent crimes, all else being equal. In a neighborhood with less optimal conditions, i.e., one standard deviation increases in instability, prior violent crime, and population and one standard deviation decreases in affluence and collective efficacy, I would expect about 197 violent crimes, controlling for other factors.

A neighborhood with a one standard deviation decrease in instability would have about 44 violent crimes, all else being equal. In a neighborhood with a similar decrease in prior violent crime, I would anticipate about 42 violent crimes, holding other variables at their means. A neighborhood with a one standard deviation decrease in population size would have about 43 violent crimes, controlling for other factors. In a neighborhood with a one standard deviation increase in affluence, I would anticipate about 49 violent crimes, and with a similar increase in collective efficacy I would expect about 47 violent crimes, all else being equal. A neighborhood with more optimal conditions, i.e., one standard deviation decreases in instability, prior violent crime, and population and one standard deviation increases in affluence and collective efficacy, would have about 17 violent crimes, all else being equal.

I continue to explore the relationship between RSOs and neighborhood crime by examining their effect on rape. Tables 4.4 and 4.5 present the relationship between RSOs, all returning offenders, neighborhood structural conditions, criminogenic situations, and collective efficacy on neighborhood incidents of rape.

Model 1 assesses the relationship between RSOs and rape, controlling for the demographic and racial composition of the neighborhood. As expected, there is a positive association between RSOs and incidents of rape. Rape is also positively associated with the proportions of young males and African Americans. After controlling for all returning offenders

(Model 2), the association between RSOs and rape remains as does the association between rape and the proportions of young males and African Americans. All returning offenders have no association with rape.

Model 3 adds instability, affluence, and female-headed households, which eliminate the relationship between rape and young males. RSOs and the proportion of African American residents retain their positive associations to rape. Instability, affluence, and female-headed households are not significantly related to rape.

Model 4 adds neighborhood criminogenic situations, which are not associated with rape. RSOs and the proportion of African Americans maintain their positive association with rape. Instability, affluence, and female-headed households remain non-significantly related to rape.

Model 5 adds collective efficacy, which has a negative association with rape. RSOs maintain their positive association with rape. Criminogenic situations become negatively associated with rape, while population size and the proportion of African Americans become positively associated. Instability, affluence, and female-headed households remain non-significant.

Controlling for the prior rate of rape (Model 6) eliminates the significant association between RSOs and rape, while affluence and the proportion of Asian/foreign born residents become negatively associated with rape. Collective efficacy and criminogenic situations retain their negative associations with rape and population size and the proportion of African Americans remain positively associated with rape. Prior rate of rape in 1996-1998 has a positive association with counts of rape in 2003-2005.

Controlling for spatial factors (Model 7), the results remain similar to those in Model 6: the proportion of Asian/foreign born residents, affluence, criminogenic situations, and collective efficacy maintain their negative associations with rape. Population size, the proportion of African American residents, and prior rate of rape remain positively associated with rape. RSOs retain their non-significant association to violent crime and now there is a negative association between all returning offenders and rape. Spatial factors are not associated with rape.

I replicate these models for Non-rape RSOs and Rape RSOs. Similar to violent crime, the relationship between rape and the subsets of RSOs are the same as RSOs for each model. Specifically, both Non-Rape RSOs and Rape RSOs have positive associations with rape in Models 1 through 5. When considering prior rate of rape (Model 6), the association between rape and both Non-rape RSOs and Rape RSOs is eliminated. The non-significant association between rape and each subset of RSOs remains when taking spatial factors into account (Model 7). Once all factors are considered, the results for both Non-rape RSOs and Rape RSOs are similar to those of RSOs, so I do not elaborate further on these results.

Similar to violent crime, there is some support for Hypothesis 2 that RSOs and rape have a positive association. Controlling only for the demographic and racial composition of the neighborhood, there is a positive association between RSOs and counts of rape in 2003-2005. This relationship between RSOs and rape remains controlling for all returning offenders, instability, affluence, female-headed households, criminogenic situations, and collective efficacy. Once prior rate of rape is considered, there is no relationship between RSOs and changes in counts of rape from 1996-1998 to 2003-2005. The non-significant association between RSOs and rape remains after accounting for spatial factors. Hence, the source of the difference in the relationship between RSOs and rape – from a positive association to no

association – is due to shifting my examination from of their relationship with counts of rape in 2003-2005 to my examination of the change in counts of rape from 1996-1998 to 2003-2005. All factors considered, neighborhoods with increased in incidents of rape from 1996-1998 to 2003-2005 are related to larger population size, fewer Asian/foreign born residents, more African American residents, less affluence, fewer criminogenic situations, less collective efficacy, and higher rates of rape in 1996-1998.

Based on the estimates from Model 7, in an average neighborhood with all variables at their means, I would expect about 2.57 incidents of rape. A neighborhood with a one standard deviation increase in population would have about 3.69 incidents of rape while a neighborhood with a similar decrease in the proportion of Asian/foreign born residents would have about 3.06 rapes, all else being equal. In a neighborhood with a one standard deviation increase in African American residents, I would expect about 3.08 rapes, all else being equal. A neighborhood with a one standard deviation decrease in affluence would have about 3.67 incidents of rape, while a neighborhood with a similar decrease in criminogenic situations would have about 3.19 rape incidents, with other variables at their means. In a neighborhood with a similar decrease in collective efficacy, I would anticipate about 3.55 rapes, while a neighborhood with a similar increase in prior rates of rape would have about 3.71 rapes, holding other variables at their means. In a neighborhood with less optimal conditions, i.e., larger population size, fewer Asian/foreign born residents, more African American residents, less affluence, fewer criminogenic situations, lower levels of collective efficacy, and higher prior rate of rape I would expect about 19.92 incidents of rape.

In a neighborhood with a one standard deviation decrease in population, I would expect about 1.78 incidents of rape while a neighborhood with a similar increase in the proportion of

Asian/foreign born residents would have about 2.15 rapes, all else being equal. In a neighborhood with a one standard deviation decrease in African American residents, I would anticipate about 2.13 rapes, all else being equal. A neighborhood with a one standard deviation increase in affluence would have about 1.79 incidents of rape, while a neighborhood with a similar increase in criminogenic situations would have about 2.06 rape incidents, with other variables at their means. In a neighborhood with a one standard deviation increase in collective efficacy, I would anticipate about 1.85 rapes, while a neighborhood with a similar decrease in prior rates of rape would have about 1.77 rapes, holding other variables at their means. In a neighborhood with a smaller population size, more Asian/foreign born residents, fewer African American residents, more affluence, more criminogenic situations, higher levels of collective efficacy, and lower prior rate of rape, I would anticipate about 0.29 incidents of rape.

I continue to explore the relationship between RSOs, Non-rape RSOs, and Rape RSOs and variation in neighborhood crime by examining their impact on property crime. Tables 4.6 and 4.7 present the relationship between RSOs, all returning offenders, neighborhood structural conditions, criminogenic situations, and collective efficacy on variation in neighborhood-levels of property crime.

Model 1 assesses the relationship between RSOs and property crime, controlling for the demographic and racial composition of the neighborhood. As expected, there is a positive association between RSOs and property crime. Property crime also has a positive association with the proportion of young males. Accounting for all returning offenders in Model 2, RSOs and the proportion of young males retain their positive associations with property crime. All returning offenders are not associated with property crime.

In Model 3, I add instability, affluence, and female-headed households, which negates the significant influence of RSOs and young males on property crime. Population now has a positive association with property crime. Property crime has a positive association with instability and a negative association with female-headed households, while affluence is not associated with property crime.

Model 4 adds neighborhood criminogenic situations, which is not associated with property crime. Instability and population size retain their positive associations to property crime, and female-headed households maintains its negative association. Property crime now has a positive association to RSOs. Affluence retains its non-significant relationship to property crime.

Model 5 adds collective efficacy, which has a negative association to property crime. Criminogenic situations now have a negative association with property crime and female-headed households are no longer associated with property crime. RSOs, instability, and population size retain their positive associations to property crime.

Controlling for prior rate of property crime (Model 6) reduces the relationships between property crime and RSOs and criminogenic situations to non-significance. All returning offenders become negatively associated with property crime as does the proportion of Asian/foreign born residents while the proportion of African American residents becomes positively associated. Instability and population size maintain their positive relationships with property crime, while collective efficacy retains its negative association. Prior rate of property crime in 1996-1998 has a positive relationship to counts of property crime in 2003-2005.

Accounting for spatial factors (Model 7), the results are the same as in Model 6. Property

crime has positive associations with population size, the proportion of African American residents, instability, and prior rate of property crime, and negative relationships to the proportion of Asian/foreign born residents, all returning offenders, and collective efficacy. RSOs remain non-significantly associated with property crime. Spatial factors themselves are not associated with property crime.

I replicate these models for Non-rape RSOs and Rape RSOs. Similar to violent crime and rape, the relationship between property crime and Non-Rape RSOs is the same as RSOs for each model. Specifically, Non-rape RSOs have a positive association with property crime in Models 1 through 5; however, when considering prior rate of property crime (Model 6) the association between property crime and Non-rape RSOs is reduced to non-significance. The non-significant association between property crime and Non-rape RSOs remains when taking spatial factors into account (Model 7). Like RSOs and Non-rape RSOs, there is a positive association between Rape RSOs and property crime in Models 1, 2, 4, and 5, but no association with property crime in Model 3. As with violent crime and rape, when considering prior rate of property crime (Model 6), the association between Rape RSOs and property crime is negated. Rape RSOs retain their non-significant association to property crime when accounting for spatial factors. Once all factors are considered, the results for Non-rape RSOs and Rape RSOs are similar to those of RSOs, so I do not elaborate further on the results of the relationship between property crime and either Non-rape RSOs or Rape RSOs.

Similar to the results for violent crime and rape, these results show some support for Hypothesis 3 that there is a positive association between RSOs and property crime. Controlling for the demographic and racial composition of the neighborhood, RSOs have a positive association with levels of property crime in 2003-2005. There continues to be a positive

association between RSOs and property crime when accounting for all returning offenders. Once instability, affluence, and female-headed households are included, the association between RSOs and property crime is negated; however, once criminogenic situations are considered, RSOs regain a positive association with property crime and this positive association remains when controlling for collective efficacy. After controlling for the prior rate of property crime, there is no association between RSOs and the changes in property crime from 1996-1998 to 2003-2005. After account for spatial factors, the non-significant association between RSOs and property crime remains. Thus, the source of the difference in the relationship between RSOs and property crime – from a positive association to no association – is due to shifting the examination from their relationship with property crime in 2003-2005 to an examination of the change in property crime from 1996-1998 to 2003-2005. All things considered, neighborhoods with an increase in incidents of property crime from 1996-1998 to 2003-2005 are characterized by larger population sizes, fewer Asian/foreign born residents, more African American residents, fewer all returning offenders, more instability, less collective efficacy, and higher rates of property crime in 1996-1998.

Based on estimates from Model 7, in an average neighborhood with all variables held at their means, I would expect about 887 property crimes. All else being equal, a neighborhood with one standard deviation increase in population size would have about 1,278 property crimes. With a one standard deviation decrease in the proportion of Asian/foreign born residents, a neighborhood would have about 967 property crimes, controlling for other factors, and would have about 977 property crimes in a neighborhood with a similar increase in the proportion of African American residents, net of other factors. In a neighborhood with a one standard deviation decrease in all returning offenders, I would anticipate about 1,012 property crimes, all else being

equal. A neighborhood with a similar increase in instability would have about 1,050 property crimes, net of other factors. I would expect about 1,314 property crimes in a neighborhood with a similar increase in prior rate of property crimes, with all other variables at their means. With a one standard deviation decrease in collective efficacy, I would expect about 1,072 property crimes in a neighborhood with all other variables at their means. In a neighborhood with one standard deviation increases in population size, instability, prior rate of property crimes, and similar decreases in the proportion of Asian/foreign born residents, all returning offenders, and collective efficacy, I would anticipate about 3,712 property crimes.

In a neighborhood with one standard deviation decrease in population size, I would anticipate about 615 property crimes. With a one standard deviation increase in the proportion of Asian/foreign born residents, a neighborhood would have about 814 property crimes, controlling for other factors. In a neighborhood with a one standard deviation decrease in the proportion of African American residents, I would anticipate about 806 property crimes, all else being equal. With a one standard deviation increase in all returning offenders, I would expect about 777 property crimes, net of other factors. A neighborhood with a similar decrease in instability would have about 749 property crimes, net of other factors. I would anticipate about 599 property crimes in a neighborhood with a similar decrease in prior rate of property crime, with all other variables at their means. With a one standard deviation increase in collective efficacy, I would expect about 734 property crimes in a neighborhood with all other variables at their means. In a neighborhood with one standard deviation decreases in population size, the proportion of African American residents, instability, prior rate of property crimes, and similar increases in the proportion of Asian/foreign born residents, all returning offenders, and collective efficacy, I would anticipate about 212 property crimes.

4.8 DISCUSSION AND CONCLUSIONS

Increasing concern about sex offenders led to the implementation of sex offender registration, community notification (Meloy, Saleh, and Wolff, 2007), and residence restriction laws (Meloy, Miller, and Curtin, 2008) to protect the public from (Lieb and Nunlist, 2008) and reduce the recidivism of RSOs (Vasquez, Madden, and Walker, 2007; Zevitz, 2006). Inherent in reducing recidivism is decreasing incidents of crime; however, there is little research on the relationship between RSOs and community crime. This chapter focuses on relationship between RSOs, above and beyond all returning offenders, on neighborhood-level crime.

The results suggest that RSOs are related to neighborhood-levels of violent crime, rape, and property crime when looking at levels of crime in 2003-2005. Neighborhoods with more RSOs have higher counts of violent crime, rape, and property crime, controlling for all returning offenders, demographic and racial composition of neighborhoods, neighborhood structure, and social processes. These findings confirm prior work by Tewksbury and colleagues (2010) that the presence of RSOs in a neighborhood is associated with counts of sex offenses in that neighborhood.

In their examination of the relationship between violent crime and all returning offenders, Drakulich and colleagues (2012) find that neighborhoods with higher concentrations of all returning offenders have higher counts of violent crime, controlling for the demographic and racial composition of neighborhoods, neighborhood structure, and social processes. This research expands upon that but considering the impact of RSOs on violent crime, net of all returning offenders. The current results suggest that high concentrations of RSOs rather than all returning offenders are associated with higher levels of violent crime. It could be that the differing measures of RSOs and all returning offenders affect the relationships between RSOs, all

returning offenders, and violent crime. I measure RSOs using a five-year average count of RSOs living in census tracts and measure all returning offenders using a five-year count of all offenders returning to census tracts. Ideally, I would have a measure of all returning offenders that includes information on the RSO status of offenders so I could parse out RSOs from those not registered as sex offenders but limitations of the data do not allow for that. Despite the differing measures for RSOs and all returning offenders, it could also be that more RSOs live in neighborhoods characterized by higher levels of violent crime than all returning offenders in general.

Examining the change in violent crime, rape, and property crime over time, these results suggest that RSOs are not associated with changes in crime from 1996-1998 to 2003-2005. Given the association between counts of crime in 2003-2005 and prior rates of crime in 1996-1998, crime is generally stable over time, given other correlates of crime. Increases in violent crime, rape, and property crime are associated with larger population sizes, lower levels of collective efficacy, and higher rates of prior crime. In addition, increases in rape and property crime are also associated with larger proportions of Asian/foreign born residents, larger proportions of African American residents, and *fewer* all returning offenders. Increases in violent crime and property crime are also associated with more instability, while increases in violent crime and rape are associated with less affluence. Increases in rape are also associated with fewer criminogenic situations.

Looking at changes in violent crime over time, these results are similar to those of Drakulich and colleagues (2012) in that there is no association between all returning offenders and changes in violent crime over time, given other factors. Accounting for RSOs, neither RSOs nor all returning offenders are associated with changes in violent crime from 1996-1998 to 2003-2005. Looking at changes in rape and property crime over time, these results suggest a negative

association between all returning offenders and changes in both incidents of rape and property crime, accounting for RSOs. This could be the result of the differing measures of all returning offenders (five-year count returning to neighborhoods) and RSOs (five-year average living in neighborhoods). It could also be the result of examining only returning offenders as opposed to examining all offenders living in neighborhoods, those being removed from the neighborhoods through incarceration, and those moving to other neighborhoods. It could also be that neighborhood structures and social processes have a greater impact on changes in crime over time than all returning offenders or RSOs.

Illuminating the complex dynamics of the relationship between neighborhoods and crime, these results demonstrate the relationships between different neighborhood structures and crime which is not surprising given the differing etiology of crime. The results also demonstrate the different factors associated with levels of neighborhood-level crime at one time point and those associated with changes in neighborhood-level crime over time. For example, instability is an important factor in both levels of violent and property crime in 2003-2005 and changes in violent and property crime from 1996-1998 to 2003-2005, but instability is not associated with levels of or changes in incidents of rape. Affluence is an important determinant of changes in violent crime and rape from 1996-1998 to 2003-2005, but it is not associated with levels of violent crime and rape in 2003-2005 or with either levels of or changes in property crime.

Interestingly, criminogenic situations were negatively associated with incidents of rape in 2003-2005 and changes in rape over time, but were not significantly related to violent crime or property crime. It could be that neighborhoods with more criminogenic situations have less anonymity especially in combination more collective efficacy that may inhibit the commission of rape. For example, hanging out on the street corner making noise and causing trouble may not

influence a criminogenicly situated person to commit rape, given that the vast majority of sexual victimizations occur between victims and offenders who know each other (Catalano, 2006; Fisher, Cullen, and Turner, 2000), and sex offenders oftentimes victimize people they live with and in the privacy of their own home (Hughes and Burchfield, 2008).

Neighborhoods with less collectively efficacy have significantly higher levels of violent crime, rape, and property crime in 2003-2005, and increases in violent crime, rape, and property crime from 1996-1998 to 2003-2005. It appears that residents in these neighborhoods are less able to provide informal social control to keep neighborhood-level crime low. Prior rates of each crime in 1996-1998 are positively associated with counts of each crime in 2003-2005, suggesting the general stability of neighborhood crime. Prior crime rates, however, may be a product of neighborhood structure and social processes. I also considered spatial dependency in the dependent variables. Proximity to neighborhoods with similar levels of crime was not an important factor for violent crime, rape, or property crime. In addition, I examined the effect of RSOs and two subsets – Non-rape RSOs and Rape RSOs – on each crime. Given the similarities in the relationship between RSOs and each subset of RSOs on crime, distinguishing between Non-rape RSOs and Rape RSOs does not appear as important as anticipated. Perhaps this is because the categories of Non-rape RSOs and Rape RSOs are not mutually exclusive.

Overall, these results suggest a positive association between RSOs and neighborhood-level crime in 2003-2005, but no association between RSOs and changes in neighborhood-level crime from 1996-1998 to 2003-2005. Although there is an association between RSOs and levels of crime in 2003-2005, I cannot assert that RSOs cause those crimes. Rather, these results suggest that RSOs live in neighborhoods with characteristics associated with more violent crime, rape, and property crime. Once all factors are considered, violent crime, rape, and property crime

are associated with neighborhood structures, social processes, and prior rates of crime. Perhaps RSOs are better viewed as an indicator of social disorganization rather than as a group of offenders who cause disorganization or crime. This is not to stay that RSOs have no impact on neighborhood structure or social processes. As a whole, all returning offenders have an indirect effect on neighborhood processes due to their negative impact on stability in the labor and housing markets (Drakulich et al., 2012). Given the stigma associated with being labeled a RSO, RSOs can face additional obstacles to securing housing and employment. Accordingly, RSOs may also have a negative impact on neighborhood processes because of their unique status as RSOs and the consequences associated with that status, and because they are part of the returning offender population in general.

These results call into question the usefulness and effectiveness of laws directed at monitoring and reducing recidivism of RSOs for subsequent sex offenses. The vast majority of RSOs do not offend against the type of victims these laws intend to protect: young children who are strangers to the offender. In addition, RSOs are more likely to recidivate for non-sex offenses than sex offenses (Barnoski, 2005; Durose, Cooper, and Snyder, 2014; Lieb, 1997; Schram and Milloy, 1995) and their recidivism rates are generally lower than those of non-sex offenders (Durose, Cooper, Snyder, 2014; Langan and Levin, 2002). RSOs and the communities to which they return may be better served by programs or policies that address the barriers to successful reintegration for RSOs, such as obtaining and maintaining employment and housing sans the stigmatization and additional barriers to reintegration unintentionally created by community notification.

The unique availability of information about RSOs is intended to make it possible for community members to provide informal social control in their communities. However, RSOs

live in disorganized neighborhoods with less collective efficacy and more crime which may make it difficult for residents in those communities to engage in informal social control, as evidenced by the negative association of collective efficacy and violent crime, rape, and property crime. In addition, community notification may do more harm than good in the already disorganized communities to which RSOs return. Some researchers express concern that, after receiving community notification, residents may withdraw from social activities and neighboring events which may disrupt social networks and decrease informal social control (Zevitz, 2003; Hughes and Kadleck, 2008). This may place an additional burden on socially disorganized communities that are ill equipped to handle the reentry of RSOs. Despite this concern, no studies have examined the effect of RSOs on informal social control so we do not know if this concern is warranted. In the next chapter, I examine the relationship between RSOs and informal social control.

Table 4-1 Descriptive Statistics of Measures

	Mean	SD
Crime		
Total count of violent crime 2003-2005	94.86	110.01
Average yearly violent crimes per 1,000 population 2003-2005	9.60	15.68
Average yearly violent crimes per 1,000 population 1996-1998	8.24	12.29
Total count of rape 2003-2005	3.58	3.81
Average yearly rape per 1,000 population 2003-2005	0.29	0.35
Average yearly rape per 1,000 population 1996-1998	0.49	0.73
Total count of property crime 2003-2005	1101.00	845.54
Average yearly property crime per 1,000 population 2003-2005	93.09	99.74
Average yearly property crime per 1,000 population 1996-1998	104.80	130.87
Race/ethnicity/immigration		
Proportion African American	0.08	0.10
Proportion Latino/a	0.05	0.04
Proportion Asian/foreign born (alpha = .96)		
Average of z-scores	0.00	0.99
Proportion Asian	0.12	0.12
Proportion foreign born	0.16	0.11
High-incarceration-risk demographic group		
Proportion males ages 15 to 24	0.07	0.04
Registered sex offenders (1998-2002 5 year average)		
RSOs	9.79	9.32
Non-rape RSOs	6.69	6.49
Rape RSOs	6.52	6.50
All returning offenders (1998-2002 5 year count)	37.06	44.07
Labor market and housing instability (alpha = .88)		
Average of z-scores	0.00	0.82
Proportion unemployed[14]	0.05	0.04
Proportion in poverty	0.12	0.10
Proportion employed in secondary sector jobs[15]	0.15	0.08
Healthcare support occupations		
Food preparation and serving related occupations		
Building and grounds cleaning and maintenance occupations		
Personal care and service occupations		
Farming, fishing, and forestry occupations		
Material moving workers		
Proportion renters	0.50	0.23
Proportion not in same residence 5 years ago	0.56	0.13
Concentrated affluence (alpha = .92)		
Average of z-scores	0.00	0.92
Proportion of households with income over $100,000	0.16	0.10
Proportion college[16] graduates	0.47	0.17
Proportion managerial or professional occupations	0.48	0.13
Management, professional, and related occupations		

[14] Percent in civilian labor force age 16 and over who are unemployed or percent aged 16 to 64 who are unemployed (Peterson and Krivo, 2010, National Neighborhood Crime Study)
[15] Krivo and Peterson (2010) National Neighborhood Crime Study
[16] Bachelor's degree or higher

Table 4-1 Descriptive Statistics of Measures (continued)

	Mean	SD
Family structure		
Proportion female-headed households[17]	0.08	0.05
Criminogenic situations (alpha = .57)		
Average of non-missing responses	1.44	0.22
Problem with groups of teenagers hanging around	1.42	0.64
Problem with neighbors causing trouble	1.49	0.64
Collective efficacy (alpha = .80)		
Average of non-missing responses	3.12	0.24
Neighbors would respond: kids hanging out	2.60	0.90
Neighbors would respond: kids graffiti	3.35	0.74
Neighbors would respond: kids disrespecting adults	2.49	0.83
Neighbors would respond: kids fighting	3.09	0.81
In this neighborhood: people willing to help neighbors	3.17	0.57
In this neighborhood: people can be trusted	3.14	0.63

[17] I created this variable several ways but was unable to replicate the mean and standard deviation of the variable used by Drakulich and colleagues (2012) which is .09 and .07, respectively. The first author no longer has information about how this variable was constructed.

Table 4-2 Negative Binomial Regressions on Three-year (2003-2005) Counts of Violent Crime (Models 1-4)

	Model 1 Est *SE*	Model 2 Est *SE*	Model 3 Est *SE*	Model 4 Est *SE*
Intercept	2.30** *1.11*	2.93** *1.12*	0.13 *0.95*	-0.58 *1.04*
Population (logged)	-0.02 *0.13*	-0.01 *0.13*	0.43*** *0.12*	0.42*** *0.12*
Asian/Foreign Born	0.10 *0.06*	0.10 *0.06*	0.01 *0.06*	0.01 *0.06*
African American	2.46*** *0.61*	2.81*** *0.78*	2.36** *0.78*	1.98* *0.79*
Latino/a	3.05* 1.51	3.12* *1.51*	2.57· *1.37*	2.26· *1.36*
Males 15-24	5.37*** *1.21*	5.29*** *1.22*	0.24 1.14	-0.43 *1.15*
RSOs 98-02 5 year average	0.06*** *0.01*	0.07*** *0.01*	0.03** *0.01*	0.03** *0.01*
AROs 98-02 5 year count		-0.00 *0.00*	0.00 *0.00*	0.00 *0.00*
Labor/Housing Instability			0.56*** *0.10*	0.52*** *0.10*
Concentrated Affluence			-0.17· *0.09*	-0.15· *0.09*
Female Headed Households			-3.14* *1.54*	-2.91· *1.53*
Criminogenic Situations				0.60· *0.35*
Collective Efficacy				
Rate of Violent Crime 96-98				
Spatial Lag				
AIC	1230.7	1232.3	1178.8	1178.2
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 4-3 Negative Binomial Regressions on Three-year (2003-2005) Counts of Violent Crime (Models 5-7)

	Model 5 Est *SE*	Model 6 Est *SE*	Model 7 Est *SE*	Model 7 Exp *%*
Intercept	3.66* *1.69*	0.91 *1.62*	0.12 *1.72*	
Population (logged)	0.44*** *0.11*	0.72*** *0.12*	0.72*** *0.12*	2.05 *105.24%*
Asian/Foreign Born	-0.02 *0.06*	-0.05 *0.05*	-0.08 *0.06*	0.92 *-7.87%*
African American	1.30· *0.76*	1.49* *0.71*	1.14 *0.75*	3.12 *212.05%*
Latino/a	1.56 *1.32*	1.56 *1.21*	1.80 *1.21*	6.06 *506.18%*
Males 15-24	-0.85 *1.11*	-0.01 *1.04*	0.15 *1.03*	1.16 *15.84%*
RSOs 98-02 5 year average	0.03** *0.01*	0.01 *0.01*	0.01 *0.01*	1.01 *0.90%*
AROs 98-02 5 year count	0.00 *0.00*	-0.00 *0.00*	-0.00 *0.00*	1.00 -0.08%
Labor/Housing Instability	0.42*** *0.10*	0.32** *0.10*	0.33*** *0.10*	1.39 38*.96%*
Concentrated Affluence	-0.08 *0.09*	-0.18* *0.09*	-0.18* *0.09*	0.83 *-16.81%*
Female Headed Households	-0.66 *1.57*	0.26 *1.45*	0.82 *1.48*	2.26 *126.14%*
Criminogenic Situations	0.11 *0.37*	-0.14 *0.35*	-0.06 *0.35*	0.94 -6.11*%*
Collective Efficacy	-1.21** *0.39*	-1.01** *0.36*	-0.83* *0.38*	0.44 *-56.40%*
Rate of Violent Crime 96-98		0.02*** *0.00*	0.02*** *0.01*	1.02 *2.02%*
Spatial Lag			0.00 *0.00*	1.00 *0.10%*
AIC	1170.2	1152.3	1152.3	
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 4-4 Negative Binomial Regressions on Three-year (2003-2005) Counts of Rape (Models 1-4)

	Model 1 Est *SE*	Model 2 Est *SE*	Model 3 Est *SE*	Model 4 Est *SE*
Intercept	-0.63 *1.48*	-0.86 *1.47*	-2.30 *1.52*	-2.26 *1.61*
Population logged	0.07 *0.18*	0.10 *0.18*	0.35· *0.19*	0.35· 0.19
Asian/Foreign Born	0.08 *0.08*	0.08 *0.08*	-0.03 *0.09*	-0.03 *0.09*
African American	2.03** *0.72*	2.96** *0.90*	2.71* *1.10*	2.73* *1.13*
Latino/a	2.94· *1.69*	3.01· *1.65*	1.88 *1.83*	1.90 *1.86*
Males 15-24	5.93*** *1.37*	5.36*** *1.38*	2.02 *1.53*	2.04 *1.56*
RSOs 98-02 5 year average	0.04*** *0.01*	0.06*** *0.01*	0.0*3** *0.01*	0.03* *0.01*
AROs 98-02 5 year count		-0.01· *0.00*	-0.00 0.00	-0.00 0.00
Labor/Housing Instability			0.28· *0.15*	0.29· *0.16*
Concentrated Affluence			-0.28· *0.15*	-0.28· *0.15*
Female Headed Households			-2.77 *2.29*	-2.79 *2.31*
Criminogenic Situations				-0.04 *0.53*
Collective Efficacy				
Rate of Rape 96-98				
Spatial Lag				
AIC	533.05	532.48	523.15	525.15
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 4-5 Negative Binomial Regressions on Three-year (2003-2005) Counts of Rape (Models 5-7)

	Model 5 Est *SE*	Model 6 Est *SE*	Model 7 Est *SE*	Model 7 Exp *%*
Intercept	5.67* *2.40*	-0.93 *2.13*	-1.92 *2.21*	
Population logged	0.43* *0.17*	0.94*** *0.17*	0.91*** *0.17*	2.49 *148.93%*
Asian/Foreign Born	-0.08 *0.08*	-0.16* *0.07*	-0.18** *0.07*	0.84 *-16.47%*
African American	2.24* *0.99*	2.17** *0.74*	1.82* *0.77*	6.16 *515.95%*
Latino/a	0.81 *1.67*	0.79 *1.32*	1.29 *1.35*	3.67 *266.93%*
Males 15-24	0.83 *1.39*	1.47 *1.04*	1.76· *1.06*	5.81 *481.24%*
RSOs 98-02 5 year average	0.04*** *0.01*	0.01 *0.01*	0.01 *0.01*	1.01 *1.31%*
AROs 98-02 5 year count	-0.01· 0.00	-0.00· 0.00	-0.00* 0.00	1.00 -0.40%
Labor/Housing Instability	0.13 *0.14*	0.05 *0.11*	0.03 *0.11*	1.03 *3.36%*
Concentrated Affluence	-0.16 *0.14*	-0.42** *0.13*	-0.40** *0.13*	0.67 *-32.97%*
Female Headed Households	0.40 *2.09*	0.07 *1.60*	0.79 *1.65*	2.20 *-119.90%*
Criminogenic Situations	-1.09* *0.54*	-1.17** *0.43*	-0.99* *0.44*	0.37 *-62.88%*
Collective Efficacy	-2.32*** *0.55*	-1.55*** *0.44*	-1.32** *0.47*	0.27 *-73.29%*
Rate of Rape 96-98		0.58*** *0.10*	0.51*** *0.11*	1.66 *65.86%*
Spatial Lag			0.05· *0.03*	1.05 *4.92%*
AIC	510.84	484.36	483.48	
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 4-6 Negative Binomial Regressions on Three-year (2003-2005) Counts of Property Crime (Models 1-4)

	Model 1 Est *SE*	Model 2 Est *SE*	Model 3 Est *SE*	Model 4 Est *SE*
Intercept	5.26*** *0.92*	5.27*** *0.92*	2.44** *0.75*	2.79*** *0.83*
Population logged	0.12 *0.11*	0.12 *0.11*	0.53*** *0.09*	0.53*** *0.09*
Asian/Foreign Born	-0.05 *0.05*	-0.05 *0.05*	-0.07 *0.05*	-0.07 *0.05*
African American	0.11 *0.51*	0.03 *0.66*	0.58 *0.63*	0.78· *0.64*
Latino/a	0.07 *1.27*	0.05 *1.27*	1.51 *1.12*	1.66 *1.12*
Males 15-24	3.83*** *1.01*	3.85*** *1.02*	-0.17 *0.93*	0.17 *0.95*
RSOs 98-02 5 year average	0.04*** *0.01*	0.04*** *0.01*	0.01· *0.01*	0.02* *0.01*
AROs 98-02 5 year count		0.00 *0.00*	0.00 *0.00*	0.00 *0.00*
Labor/Housing Instability			0.51*** *0.08*	0.53*** *0.08*
Concentrated Affluence			0.08 *0.07*	0.06 *0.07*
Female Headed Households			-3.55** *1.25*	-3.67** *1.24*
Criminogenic Situations				-0.31 *0.29*
Collective Efficacy				
Rate of Property Crime 96-98				
Spatial Lag				
AIC	1863.7	1865.60	1804.00	1804.90
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 4-7 Negative Binomial Regressions on Three-year (2003-2005) Counts of Property Crime (Models 5-7)

	Model 5 Est *SE*	Model 6 Est *SE*	Model 7 Est *SE*	Model 7 Exp *%*
Intercept	6.61*** *1.36*	2.11* *1.04*	1.67 *1.15*	
Population logged	0.54*** *0.09*	0.91*** *0.07*	0.91*** *0.07*	2.49 *149.43%*
Asian/Foreign Born	-0.09· *0.05*	-0.08* *0.04*	-0.09* *0.04*	0.92 *-8.42%*
African American	0.20 *0.62*	1.01* *0.47*	0.95* *0.47*	2.60 159*.61%*
Latino/a	0.96 *1.09*	0.99 *0.80*	1.09 *0.80*	2.97 *197.43%*
Males 15-24	-0.28 *0.91*	-0.03 *0.68*	0.09 *0.68*	2.58 *158.31%*
RSOs 98-02 5 year average	0.02* *0.01*	0.01 *0.01*	0.01 *0.01*	1.01 *-0.50%*
AROs 98-02 5 year count	0.00 *0.00*	-0.00** *0.00*	-0.00* *0.00*	1.00 -0.30%
Labor/Housing Instability	0.45*** *0.08*	0.22*** *0.06*	0.21** *0.07*	1.02 *2.12%*
Concentrated Affluence	0.12· *0.07*	0.05 *0.05*	0.04 *0.05*	1.04 *3.87%*
Female Headed Households	-1.61 *1.28*	-0.18 *0.95*	-0.01 *0.96*	0.99 *-1.00%*
Criminogenic Situations	-0.73* *0.30*	-0.39· *0.22*	-0.39· *0.22*	0.68 *-31.95%*
Collective Efficacy	-1.08*** *0.31*	-0.87*** *0.23*	-0.77** *0.25*	0.46 *-53.70%*
Rate of Property Crime 96-98		0.00*** *0.00*	0.00*** *0.00*	1.00 *0.30%*
Spatial Lag			0.00 *0.00*	1.00 *0.01%*
AIC	1794.90	1719.80	1720.60	
N = 123 · p <.10; * p <.05; ** p <.01; *** p <.001				

Chapter 5. THE EFFECT OF REGISTERED SEX OFFENDERS ON PROTECTIVE BEHAVIORS AND NEIGHBORING ACTIVITIES

Several studies examine the consequences of community notification laws on RSOs such as recidivism (e.g., Miethe, 2006; Schram and Milloy, 1995; Zevitz, 2006), reintegration (e.g., Zevitz, 2006), and residential locations of RSOs (e.g., Hipp, Turner, and Jannetta, 2010; Hughes and Kadleck, 2008; Tewksbury and Mustaine, 2006). However, community notification is directed at the public's behavior rather than the offenders' so the effectiveness of this policy relies on the behavioral responses of people who receive community notification (Bandy, 2011; Beck and Travis, 2004b).

Given the importance of public behavior in carrying out informal social control, there is little research about the impact of community notification or the presence of RSOs on informal social control. Protective behaviors – locking doors, installing lighting, keeping a weapon in the home – are one way residents can engage in informal social control to reduce potential risk of victimization for themselves and others. A few studies examine the relationship between community notification and the use of protective behaviors by residents, e.g., Beck and Travis, 2004b; Caputo and Brodsky, 2004; Anderson, Evans, and Sample, 2009; Anderson and Sample, 2008. Beck and colleagues (2004) expand the investigation to include the role of fear and perceived risk of victimization on the use of protective behaviors. Bandy (2011) further expands the investigation by examining variation in the use of protective behaviors in socially disorganized and socially organized communities. These studies are primarily descriptive and their results are mixed: either community notification results in the use of protective measures or it does not. Even so, they shed some light on the utility – or lack of utility – of community

notification in prompting residents to take precautionary measures. The primarily descriptive nature of previous research leads me to ask: is there a relationship between RSOs and protective behaviors, given other neighborhood contextual factors that may contribute to the adoption of these behaviors?

An area of research that has received much less attention is the relationship between community notification or the presence of RSOs on the social networking aspect of informal social control. Some researchers are concerned that the ensuing fear from community notification may cause residents to withdraw from neighboring events and social activities (Zevitz, 2003; Hughes and Kadleck, 2008), disrupting social networks and informal social control (Zevitz, 2003; Hughes and Kadleck, 2008), such as collective efficacy. Is this concern warranted? Despite this concern, no known studies to date have examined this. A more comprehensive examination is needed of the relationship between RSOs and informal social control that also considers factors that may influence informal social control, particularly neighboring activities. Neighboring activities – borrowing tools, having a meal together, helping with a problem, watching a neighbor's property – are one aspect that underlies the willingness of residents to engage in informal social control (Lynch and Sabol, 2004). This leads me to ask: what is the relationship between RSOs and neighboring activities, given other factors that may contribute to variation in these activities?

The previous chapters examined the characteristics of Seattle communities with high counts of RSOs. Namely, how the distribution of RSOs across neighborhoods is related to levels of concentrated disadvantage, residential instability, racial/ethnic heterogeneity, and collective efficacy as well as the relationship between RSOs and neighborhood-level variations in violent crime, rape, and property crime, taking into account other correlates of crime. In this chapter, I

conduct a neighborhood-level examination of the relationship between RSOs and protective behaviors and neighboring activities. The success of community notification relies on the capacity and willingness of residents to engage in informal social control, so it is important to understand the relationship between RSOs and informal social control in general. Because RSOs live in socially disorganized communities (Hughes and Burchfield, 2008; Mustaine, Tewksbury, and Stengel, 2006; Tewksbury and Mustaine, 2006) characterized by low levels of collective efficacy (Socia and Stamatel, 2012), they live in neighborhoods least able or willing to engage in informal social control. But is the presence of RSOs associated with lower levels of informal social control, net of other factors that influence informal social control? A better understanding of the relationship between RSOs and informal social control has potential to inform public policy directed at the residents of the communities to which RSOs return.

In order to understand how RSOs may affect informal social control, I examine the relationship between RSOs and two types of informal social control: protective behaviors and neighboring activities. First, I discuss the impact of community notification on protective behaviors. Then, I discuss the potential consequences of community notification on social networks. Next, I describe the role of social networks in informal social control and crime control, the impact of one RSO on social integration, and the impact of all returning offenders on informal social control.

5.1 COMMUNITY NOTIFICATION

As of February 28, 1990, residents in Washington are notified when some RSOs move into their neighborhood through the process of community notification. Local law enforcement has discretion to assess the level of risk (Levels I, II, and III) for RSOs to reoffend for other sex offenses and notify the public when RSOs are released (Lieb, 1998). Level I RSOs are at lowest

risk to reoffend, followed by Level II (moderate risk), and Level III (highest risk). Community notification of Levels I, II, and III RSOs occurs by listing information and photos of them on a website maintained by the Washington Association of Sheriffs and Police Chiefs (Drake and Aos, 2009). When Level II and III RSOs are released into the community, local law enforcement agencies notify individuals, the media, or community organizations about their impending presence (Lieb and Nunlist, 2008). From 1990 to 1996, about 50% of RSOs in Washington were subject to community notification (Barnoski, 2005). Since 1997, about 88% of RSOs in Washington are subject to community notification (Barnoski, 2005).

Although the legislative intent is to encourage community members to engage in informal social control, receiving community notification may propel residents to withdraw from neighborhood activities and social events (Zevitz, 2004), and, thus, weaken crime-inhibiting forms of informal social control (Zevitz, 2004), such as neighboring activities. A few studies examine the effect of community notification on protective behaviors (e.g., Anderson, Evans, and Sample, 2009; Anderson and Sample, 2008; Bandy, 2011; Beck and Travis, 2004b; Beck et al., 2004; Caputo and Brodsky, 2004) and one study examines the effect on social integration (e.g., Zevitz, 2004). In the next section, I discuss the empirical studies that examine the effect of community notification on protective behaviors.

5.2 COMMUNITY NOTIFICATION AND PROTECTIVE BEHAVIORS

One goal of community notification is to deter future sex offenses of RSOs by prompting community members to take preventative actions to protect themselves and others from victimization (Bandy, 2011; Beck and Travis, 2004a; Duwe and Donnay, 2008; Petrosino and Petrosino, 1999). Protective behaviors have been measured by "determining if people install security devices, carry a weapon, or change routine activities as a result of crime" (Beck and

Travis, 2004b: 292). Protective behaviors can be used to either protect oneself or others from victimization, and they can be used to either avoid (e.g., avoid unsafe places) or defend (e.g., install door locks) against victimization (Beck and Travis, 2004b). Several studies examine the impact of community notification on the adoption of protective behaviors.

To assess the reactions of residents to community notification, the Washington State Institute for Public Policy conducted a state-wide survey of residents in 1997 and again in 2007 (Lieb and Nunlist, 2008). Overall, the proportion of residents who were more likely to use protective behaviors, report suspicious behaviors, and be more involved in the community increased.

Beck and Travis' (2004b) exploratory study examined protective behaviors among residents in Hamilton County, Ohio. Residents in neighborhoods who received community notification were significantly more likely to engage in more precautionary behaviors to protect themselves and others than residents in neighborhoods who did not receive notification (Beck and Travis, 2004b). Expanding on the work of Beck and Travis (2004b), Beck and colleagues (2004) examined the difference between fear of victimization and perceived risk of victimization on protective behaviors of residents in neighborhoods in Hamilton County, Ohio. Although community notification increased fear of victimization, neither community notification nor fear of victimization was associated with more protective behaviors (Beck et al., 2004). Rather, increased perceived risk of victimization led to increased protective behaviors as did previous crime victimization of self or others (Beck et al., 2004).

Caputo and Brodsky (2004) used stress and coping theory to investigate the emotional and behavioral reactions of residents in Tuscaloosa, Alabama. After they received community

notification, respondents engaged in general coping strategies, but crime-protecting safety behaviors were uncommon (Caputo and Brodsky, 2004).

Similarly, Anderson and Sample's (2008) examination of residents in Nebraskan found that, of people who accessed the registry, most felt safer but most did not take preventative actions. Anderson, Evans, and Sample (2009) expand upon the study by Anderson and Sample (2008) and found that, of people who accessed the registry, females with children and males with a high school education or less with internet access were more likely to engage in protective behaviors.

Expanding on the work of Beck and Travis (2004b), Beck, et al. (2004), Anderson and Sample (2008), and Anderson, et al. (2009), Bandy (2011) examined the relationship between community notification and the use of protective behaviors in Memphis. Similar to Beck, et al. (2004), increased perceived risk was associated with the adoption of protective behaviors (Bandy, 2011). Similar to the findings of Anderson and Sample (2008) and Beck and colleagues (2004), there was no significant relationship between community notification and self-protective behaviors; however, there was a significant relationship between community notification and altruistic protective behaviors to protect children (Bandy, 2011). In addition, living in a disorganized neighborhood was significantly and positively related to the adoption of self-protective behaviors but not altruistic behaviors (Bandy, 2011).

In general, these studies have mixed results. Two studies found that community notification, including accessing RSO registry information, resulted in the use of protective measures and three did not. Perceived risk rather than community notification prompts the adoption of protective behaviors (Bandy, 2011; Beck et al., 2004), as does being a female with children (Anderson, Evans, and Sample, 2009), and living in a disorganized neighborhood

(Bandy, 2011). However, most of these studies are descriptive in nature, and with the exception of Bandy (2011), do not take neighborhood context into consideration. The individuals responsible for adopting protective behaviors cannot be removed from the neighborhood context within which they and RSOs reside; the behavior of residents in socially disorganized neighborhoods may differ from those in more socially organized neighborhoods. Compared to residents who live in socially organized neighborhoods, people who live in socially disorganized neighborhoods have higher levels of perceived victimization risk in general and use protective measures daily (Bandy, 2011). An examination that takes more comprehensive measures of neighborhood structural factors into account is needed.

As in Chapter 4, I combine social disorganization theory and the labor market perspective to provide a framework within which I examine the relationship between RSOs and protective behaviors. The differential capacity of residents to engage in informal social control stems from differential neighborhood structural conditions (Sampson, Morenoff, and Earls, 1999) on which informal social control is built. Even in neighborhoods with less collective informal social control, residents may still engage in individual informal social control to protect themselves, others, and their home. In addition, socially disorganized neighborhoods are characterized by more disorder (Steenbeck and Hipp, 2011), crime (Morenoff, Sampson, and Raudenbush, 2001; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997), returning offenders of all types (Hipp, Turner, and Jannetta, 2010), and RSOs (Craun, 2008; Hipp Turner, and Jannetta, 2010; Hughes and Burchfield, 2008; Hughes and Kadleck, 2008; Mack and Grubesic, 2010; Mustaine and Tewksbury, 2011; Socia and Stamatel, 2012; Tewksbury and Mustaine, 2006). Residents in these neighborhoods may be propelled to use protective behaviors due to a perceived increase in the risk of victimization (Bandy, 2011), especially after receiving

community notification (Anderson, Evans, and Sample, 2009). Given that females tend to be more fearful, perceive a greater risk of victimization (Beck and Travis, 2004a), and engage in more altruistic and self-protective behaviors (Anderson, Evans, and Sample, 2009), neighborhoods with larger proportions of female-headed households may have higher levels of protective behaviors in general.

I expand on prior research by conducting the first empirical test of the relationship between RSOs and protective behaviors that takes into account more comprehensive measures of neighborhood structure and other factors that may contribute to the adoption of protective behaviors. In addition, I use a measure of rate of RSO growth over a nine year (1994-2002) period to account for yearly fluctuations in the number of RSOs. As the numbers of RSOs increase and the proportion of RSOs subject to community notification increases, the number of community notifications also increases. Communities with an increase in RSOs may differ in their use of protective behaviors compared to communities with a decrease in RSOs given the difference in number of community notifications. I assume any neighborhood in which RSOs reside received at least one community notification during this nine year period because the majority of RSOs are subject to community notification. Based on the foregoing, I test the following hypothesis:

Hypothesis 1: Rate of RSO growth is positively associated with protective behaviors

5.3 REGISTERED SEX OFFENDERS AND INFORMAL SOCIAL CONTROL

Social networks promote the development of informal social control (Bellair, 1997; Bursik and Grasmick, 1988; Sampson, 1988; Sampson, Morenoff, and Earls, 1999; Sampson, Raudenbush, and Earls, 1997). Neighboring activities – borrowing tools, having a meal together, helping with a problem, watching a neighbor's property – are one form of social networking upon which the

willingness of community members to engage in collective informal social control is developed (Warner and Rountree, 1997; Lynch and Sabol, 2004). Residents with a history of mutually beneficial interactions, such as borrowing and lending tools, are better equipped to work together on future endeavors (Lynch and Sabol, 2004). Studies of neighboring activities primarily examine the crime control capacity of and the impact of crime on these activities. Given that community members are charged with the task of informal social control of RSOs, examining neighboring activities in these communities could provide some insight about the capacity of neighborhoods to develop informal social control.

Neighboring activities are an important element of a community's ability to engage in informal social control, and are negatively impacted due to perceived risk of victimization (Bellair, 2000). According to the systemic model of crime, social networks are the scaffolding upon which informal social control is built and either inhibit or enhance a neighborhood's capacity to control crime and disorder (Bellair, 2000; Bursik and Grasmick, 1993; Morenoff, Sampson, and Raudenbush, 2001). Neighborhood structure is the foundation upon which this scaffolding is built (Bellair, 2000; Sampson and Raudenbush, 1999; Sampson, Raudenbush, and Earls, 1997). For example, residents in neighborhoods characterized by affluence and stability are more likely to work collectively towards a shared goal of neighborhood safety (Sampson, Raudenbush and Earls, 1997) by developing social networks that facilitate informal social control. These social networks reduce crime and disorder by increasing informal social control (Bellair, 1997; Bursik, 1998; Bursik and Grasmick, 1993).

In their examination of British communities, Sampson and Groves (1989) found that sparse local friendship networks were associated with higher rates of property crime, but not personal violence (Sampson and Groves, 1989). Getting together with neighbors at least once a

year was the strongest and most consistent predictor in the reduction of burglary, robbery, and motor vehicle theft in Rochester, New York, Tampa and St. Petersburg, Florida, and St. Louis, Missouri (Bellair, 1997). In Seattle, more robbery was associated with higher levels of residents' perceived risk of victimization, which was associated with fewer neighboring activities (i.e., checking on a neighbor's home) (Bellair, 2000). On the flip side, residents engaged in more neighboring activities due to outrage about burglary (Bellair, 2000). Although robbery was associated with fewer neighboring activities and burglary was associated with more (Bellair, 2000), higher levels of neighboring activities in Seattle were associated with fewer incidents of victimization and had a direct, negative effect on crime through informal social control (Bellair and Browning, 2010).

Despite concern among some researchers that RSOs have a detrimental impact on informal social control, very little research examines the impact of RSOs on a neighborhood's capacity for crime-inhibiting forms of informal social control. Some researchers suggest that the ensuing fear from community notification may cause residents to withdraw from neighboring events and social activities (e.g., Zevitz, 2003; Hughes and Kadleck, 2008). This withdrawal may disrupt social networks and hinder other forms of informal social control, such as collective efficacy or neighboring activities. In one small mid-western town, social integration suffered because of community notification of one RSO (Zevitz, 2004).

Drakulich and colleagues (2012) examined the effect of all returning offenders on informal social control in Seattle. They find that more instability and less affluence "appeared to account for the effect of released prisoners on collective efficacy, potentially suggesting a meditation effect: that returning prisoners are relevant to levels of collective efficacy because they undermine the neighborhood structural conditions in which it is rooted" (Drakulich et al.,

2012: 507). In addition, high rates of violent crime were associated with lower levels of collective efficacy (Drakulich et al., 2012).

My research contributes to the literature on the effect of RSOs on communities by conducting the first empirical test of the relationship between RSOs and neighboring activities. As part of my examination, I test the impact of RSOs on neighboring activities in 2002-2003 given other factors that impact informal social control such as neighborhood demographics, all returning offenders, and neighborhood structure. Rather than use a cross-sectional measure of RSOs, I use a measure of the rate of RSO growth per census tract over nine years (1994-2002). In addition, I control for prior levels of neighboring activities in 1990 before community notification became a common practice. Given that community notification increases fear and perceived risk of victimization which may lead residents to withdraw from the community coupled with increased use of community notification, I expect that RSO growth will negatively impact neighboring activities. This leads to my next hypothesis:

Hypothesis 2: Rate of RSO growth is negatively associated with neighboring activities

5.4 DATA, MEASURES, AND METHODS

5.4.1 *Data*

I test my hypotheses with data from several sources: survey data from the Seattle Neighborhood Crime Survey (SNCS) and Testing Theories of Criminality and Victimization in Seattle (CVS); counts of RSOs per census tract per year from the Homicide Investigation Tracking System (HITS); counts of all returning offenders per census tract from the Department of Justice (DOJ); general contextual information from the 2000 Census; and counts of crime from the Seattle Police Department (SPD). I provide details of these data sources in Chapter 2;

however, I elaborate on some of the similarities and differences between SNCS and CVS here because of its relevance to this chapter.

The CVS contains data to examine crime and correlations of crime in Seattle, Washington (Miethe, 1998). A multistage clustered sampling design was used that first identified census tracts whose boundaries had not changed since 1960, then identified 100 census tracts that fit that criterion (Miethe, 1998). Next, three block pairs from each of the 100 census tracts were selected for a total of 600 city blocks, with a burglary reported in 1989 in one of each of the block pairs (Miethe, 1998). The other block served as a non-burglary control (Miethe, 1998). This sampling design was used to examine the displacement of crime across adjoining blocks (Miethe and McDowall, 1993). Telephone surveys were conducted in 1990 of 5,302 residents from these blocks (Miethe and McDowall, 1993).

The SCNS obtained survey responses from 5,812 residents in Seattle's census tracts in 2002 and early 2003. It includes measures that tap into individual and collective forms of informal social control. Researchers identified respondents using four sampling approaches. First, potential respondents were identified from a simple random sample stratified by census tracts. Second, additional respondents were identified by sampling from the 100 census tracts with burglaries targeted in the CVS survey.[18] Third, they targeted a disproportionate number of blocks with larger proportions of racial and ethnic minorities. These surveys were either conducted over the telephone or respondents were mailed a survey to complete and return. To include respondents without telephones, they also mailed and/or hand delivered surveys to potential participants who did not have listed telephone numbers.

[18] Although the research team targeted street segments used in the CVS, in several cases they needed to extend the blocks in either direction to collect the number of required surveys (Drakulich et al., 2012).

5.4.2 *Measures*

Dependent Variables

My dependent variables are *protective behaviors* and *neighboring activities*. I measure *protective behaviors* in 2002-2003 using an index of survey responses to six items: leaves lights on when not home, has extra locks on doors and windows, has a burglar alarm, has a dog, has a weapon at home, and has neighbors watch the home when respondent is away. Response categories for each item are dichotomous with 0 = absence of that behavior and 1 = presence of that behavior. I aggregate individual responses to census tracts to obtain a neighborhood-level average of protective behaviors. The neighborhood-level average of the six items has a scale from 0 (use of zero protective behaviors) to 6 (use of all six protective behaviors). To account for any changes in protective behaviors over time, I control for the neighborhood-level average of protective behaviors in 1990 measured with the same items and in the same way. I use Cronbach's alpha to measure the reliability of these indices and report the alpha statistics in Table 5.1.

With guidance from studies by Warner and Rountree (1997), Bellair (2000), Bellair and Browning (2010), and Lynch and Sabol (2004), I capture *neighboring activities* by creating an index of survey responses to four items: watched neighbor's property when the neighbor was out of town, borrowed tools or food, had dinner or lunch with a neighbor, and helped a neighbor with a problem. The response categories for each item are dichotomous with 0 = absence of that activity and 1 = presence of that activity. I aggregate individual responses with census tracts to obtain a neighborhood-level average of neighboring activities. The neighborhood average of the four items ranges from 0 (use of zero neighboring activities) to 4 (use of all four neighboring activities). To account for any changes in neighboring activities over time, I control for the

neighborhood-level average of neighboring activities in 1990 measured with the same items and in the same way. I use Cronbach's alpha to measure the reliability of these indices and report the alpha statistics in Table 5.1.

Independent Variables

The *rate of RSO growth* measures the change in the number of RSOs per census tract per year from 1994 to 2002. I operationalize the change in count of RSOs by running separate bivariate OLS models for each census tract and regressing count of RSOs on years to create slopes to estimate of the rate of RSO growth for each census tract using the following formula: rate of RSO growth = $\beta_0 + \beta_1$(year). For example, census tract 100 had 1 RSO in 1994, 10 in 1995, 12 in 1996, 12 in 1997, 11 in 1998, 21 in 1999, 15 in 2000, 16 in 2001, and 12 in 2002. Regressing year on count of RSOs for census tract 100, the coefficient for year is 1.28 so the rate of RSO growth in this census tract is represented by the slope of 1.28 indicating an increase in the presence of RSOs. Census tract 121 had 1 RSO in 1994, 1995, 1996, 1997, and 1998, 0 in 1999, 1 in 2000, 0 in 2001, and 1 in 2002. Regressing year on count of RSOs for census tract 121, the coefficient for year is -0.133 so the rate of RSO growth is represented by the slope of -0.133, indicating a decrease in the presence of RSOs. Although some studies include a measure for community notification, I assume that residents in any neighborhood with one or more RSOs received at least one community notification, if not multiple notifications, or accessed RSO information online, during this time given that the majority of RSOs were subject to community notification.

Controls

I include controls for the racial and ethnic composition of the neighborhood because the effectiveness of social ties varies by racial and ethnic composition of the neighborhood;

specifically, white neighborhoods benefit from social ties whereas predominantly mixed and predominantly minority neighborhoods do not (Warner and Rountree, 1997). Racial and ethnic composition also influences neighborhood structure likely due to labor market and housing discrimination (Drakulich et al., 2012). Accordingly, I include controls for the proportion of the total population that is non-Hispanic *African American* and the proportion *Latino*. The proportion of Asian and foreign born residents is highly correlated (.94), so I combine them into one measure – *Asian/foreign born* – that includes the proportion Asian (non-Hispanic Asian, Native Hawaiian, or other Pacific Islander) and the proportion of foreign born residents. Because racial and ethnic minorities were oversampled in the SNCS, controlling for these demographics controls for those disproportions. Young males are at a substantially higher risk of committing crimes than other demographic groups and this may affect the crime rate as well as perceived risk and may negatively affect the development of informal social control. Accordingly, I control for the presence of *young males age 15 to 24*. I also control for *population size* with its natural log.

To take into account the salience of RSOs, I include a control for the presence of *RSOs in 2002* using the RSO counts per census tract in 2002. RSOs have always lived among us; however, information about their status as sex offenders along with community notification of their presence was not public information until February 28, 1990. Accordingly, there were zero RSOs in Seattle in January 1990. In March 1990, as RSOs were released from prison, their numbers understandably increased until their counts peaked and then leveled off.[19] Controlling

[19] The average number of RSOs per census tract increased from 2.37 in 1994 to 4.90 in 1995, 5.59 in 1996, 6.99 in 1997, and then to 10.75 in 1998. It dropped to 9.82 in 1999 and then increased a bit to 10.06 in 2000 then dropped again to 7.87 in 2001 and 7.78 in 2002. Looking at total counts of RSOs in Seattle per year, there were 306 RSOs in 1994, 623 in 1995, 718 in 1996, 908 in 1997, 1362 in 1998, 1260 in 1999, 1337 in 2000, 1056 in 2001, and 1008 in 2002, 934 in 2003, 876 in 2004, and 863 in 2005. When I accessed information on the Washington Association of Sheriffs and Police Chiefs' website on May 21, 2011, there were 899 RSOs in Seattle. On November 22, 2016, there were 819 RSOs in Seattle; it appears the number of RSOs have leveled off.

for their count in 2002 allows me to examine if the rate of growth of RSOs influences both protective behaviors and neighboring activities net of RSO counts in 2002. *Rate of RSO growth* and *RSOs in 2002* are highly correlated (.75).

Given that high concentrations of all returning offenders are associated with reduced collective efficacy potentially indirectly through their negative effect on stability and affluence (Drakulich et al., 2012), I also control for all returning offenders. Although I am not examining collective efficacy here, neighboring activities and collective efficacy are highly correlated (.81) so they tap into similar constructs. I also control for all returning offenders to examine the effect of RSOs above and beyond all returning offenders. To measure *all returning offenders*, I use the rate per 100 persons of the five-year (1998-2002) count of all returning offenders released into a community. The *rate of RSO growth* and *all returning offenders* have a low correlation (.45). *RSOs in 2002* and *all returning offenders* are moderately correlated (.66).

Given the relationship between neighborhood structure and informal social control, I account for neighborhood structure. *Labor market and housing instability* is measured with the neighborhood average of the proportion of the population who is unemployed, lives in poverty, employed in secondary sector jobs, rent their homes, and lived in a different residence five years earlier. *Concentrated affluence* is measured with the neighborhood average of the proportions of the population who live in wealthy households, are college graduates, and are employed in managerial or professional occupations. *Female-headed households* are measured with the neighborhood average of the proportion of the population who live in female-headed households with no husband present and with children under 18 in the home. I use scale measures of labor market and housing instability, concentrated affluence, and female-headed households created

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(http://www.icrimewatch.net/results.php?AgencyID=54528&SubmitNameSearch=1&OfndrLast=&OfndrFirst=&OfndrCity=Seattle&AllCity=).

from 2000 census data. I use Cronbach's alpha to measure the reliability of each scale and report the alpha statistics in Table 5.1.

I control for *perceived risk of victimization*, given its importance in the use of protective behaviors (e.g., Bandy, 2011; Beck et al., 2004) and because it may decrease neighboring activities (Bellair, 2000). I measure *perceived risk of victimization* with seven items that use four item Likert-type scales that ask how often (less than once a month, once a month, about one a week, everyday) respondents worried about 1) being physically attacked by a stranger in the neighborhood and 2) someone breaking into the home and stealing property; 3) how safe (very safe to very unsafe) the neighborhood is from crime; and how concerned respondents were (not at all concerned to very concerned) about the safety of 4) self, 5) spouse or partner, 6) eldest son, and 7) eldest daughter. I aggregate individual responses to census tracts to obtain a neighborhood-level average of perceived risk of victimization. I use Cronbach's alpha to test the reliability of the items in this measure and report the alpha statistic in Table 5.1.

I also control for the *rate of violent crime* using a three-year average for 1996 to 1998 because it reduces levels of neighborhood trust (Garcia, Taylor, and Lawton, 2007), inhibits interaction of residents, weakens solidarity (Lynch and Sabol, 2004), and is associated with lower levels of collective efficacy (Drakulich et al., 2012). In addition, residents in neighborhoods with high rates of violent crime generally use more protective behaviors (Bandy, 2011).

5.4.3 *Methods*

I expect that rate of RSO growth will be positively associated with protective behaviors and negatively associated with neighboring activities. I combine data from CVS, SNCS, HITS, DOJ, SPD, and the census to explore the relationship between RSOs and protective behaviors

and neighboring activities. Since the CVS includes data only from 100 census tracts, this analysis includes 102 census tracts (two census tracts split since the CVS data was collected) rather than 123 census tracts as in the previous chapters. I use OLS models to estimate variation in the neighborhood average of protective behaviors and neighboring activities and account for differences in census tract population by controlling for the natural log of the population.

My analysis for each outcome proceeds in five steps. First, I examine the relationship between RSOs and protective behaviors in 2002-2003 by conducting a series of OLS model estimations, controlling for the racial and demographic composition of the neighborhood given the rate of RSO growth during the period of 1994 to 2002. Second, I control for levels of RSOs in 2002. Third, I add a control for all returning offenders to examine the impact of RSOs above and beyond that of all returning offenders. Next, I consider the effect of labor market and housing instability, affluence, and female-headed households on protective behaviors. Then, I add a control for protective behaviors in 1990 to examine the change in protective behaviors from 1990 to 2002-2003. Last, I control for perceived risk and violent crime separately and then I consider them together. I repeat this sequence of analyses for neighboring activities. Given the relative unimportance in previous chapters of examining the subsets of both Non-rape RSOs and Rape RSOs, I examine only RSOs here.

Unlike previous chapters, I do not include spatially lagged dependent variables because my preliminary tests for spatial dependence indicated no spatial autocorrelation. This is not surprising since this analysis is limited to 102 of 123 census tracts and many census tracts that have adjacent census tracts in the physical world do not have adjacent census tracts in the spatial statistical analysis.

5.5 RESULTS

Concern for public safety led to the implementation of community notification laws so residents could protect themselves and others from victimization by released RSOs. The success of community notification is determined by the ability and willingness of community members to engage in informal social control; however, little is known about the impact of community notification or the presence of RSOs on informal social control. The goal of this chapter is to examine the relationship between the rate of RSO growth on both protective behaviors and neighboring activities, given other factors that influence informal social control. I first present the results for protective behaviors.

Table 5.1 contains the means and standard deviations for measures I use in this chapter. I use the neighborhood-level average response to six questions with dichotomous responses to measure protective behaviors. The scale for protective behaviors is 0 to 6, with 0 equal to a neighborhood-level average of zero protective behaviors and 6 equal to a neighborhood-level average of 6 protective behaviors. The range for protective behaviors in 2002-2003 is 1.09 to 3.46 with a mean of 2.66 and standard deviation of 0.56. The range for 1990 is 1.39 to 3.94 with a mean of 2.92 and standard deviation of 0.51. Protective behaviors at 1990 and 2002-2003 have a strong correlation of 0.86. The neighborhood-level average of protective behaviors decreased over this time period. The most common protective behavior for both time periods is leaving the lights on when not a home followed by having neighbors watch their home when away.

Tables 5.2 and 5.3 present the relationship between RSOs, neighborhood demographics, neighborhood structure, and protective behaviors in a series of OLS regression models. Model 1 assesses the relationship between RSO growth and protective behaviors in 2002-2003,

accounting for the demographic and racial composition of the neighborhood. Contrary to expectations, rate of RSO growth has a negative association with protective behaviors. The proportion of young males also has a negative association with protective behaviors. However, accounting for the number of RSOs in 2002 (Model 2) eliminates the significant relationship between RSO growth and protective behaviors. There is a negative association between RSO counts in 2002 and protective behaviors. Young males retain its negative association with protective behaviors. In Model 3, I consider the presence of all returning offenders. Both the presence of RSOs in 2002 and young males remains negatively associated with protective behaviors, while a measure of all returning offenders are not associated with protective behaviors.

Model 4 incorporates labor market and housing instability, concentrated affluence, and female-headed households. Instability has a negative association with protective behaviors while female-headed households are positively associated. Affluence is not significantly associated with protective behaviors. Accounting for these factors negates the significant association between the presence of RSOs in 2002 and young males and protective behaviors. Once protective behaviors in 1990 are taken into account (Model 5), the relationship between female-headed households and protective behaviors in 2002-2003 is no longer significant. Instability remains negatively associated with protective behaviors while affluence remains non-significant. Protective behaviors in 1990 and protective behaviors in 2002-2003 have a positive association. Change in protective behaviors from 1990 to 2002-2003 is negatively associated with instability and positively associated with protective behaviors in 1990.

In Model 6, I add a control for perceived risk, which is positively associated with protective behaviors. Instability remains negatively associated to protective behaviors in 2002-

2003. Protective behaviors in 1990 retains its positive association with protective behaviors in 2002-2003. Change in protective behaviors from 1990 to 2002-2003 has a negative association with instability, a positive association with perceived risk, and positive association with prior levels of protective behaviors in 1990. Model 7 removes perceived risk and instead adds a control for violent crime, which is not associated with protective behaviors. Instability retains its negative association with protective behaviors while protective behaviors in 1990 retain its positive association. Change in protective behaviors from 1990 to 2002-2003 is positively associated with protective behaviors in 1990 and negatively associated with instability. When I consider both perceived risk and violent crime together (Model 8), perceived risk has a positive association with protective behaviors, and the relationship between violent crime and protective behaviors is no longer significant. Instability remains negatively associated with protective behaviors in 2002-2003 and protective behaviors in 1990 remains positively associated with protective behaviors in 2002-2003. Change in protective behaviors from 1990 to 2002-2003 has a negative association with instability and positive associations with both perceived risk and protective behaviors in 1990.

Overall, the results show no support for Hypothesis 1 that rate of RSO growth is positively associated with protective behaviors. When considering only neighborhood demographics, the rate of RSO growth has a negative association with protective behaviors in 2002-2003 (Model 1), contrary to the findings of Beck and Travis (2004b) and Anderson and colleagues (2009) that residents use protective behaviors in response to community notification. Once other factors are taken into account, there is no significant relationship between the rate of RSO growth and protective behaviors (Models 2-7). In general, these results provide some support for Beck, et al., (2004), Caputo and Brodsky (2004), Anderson and Sample (2008), and

Bandy (2011) that community notification is not associated with more preventative measures.

Overall, the rate of RSO growth is not associated with protective behaviors when looking at the level of protective behaviors in 1990 or the change in protective behaviors from 1990 to 2002-2003. Rather, the change in protective behaviors from 1990 to 2002-2003 is primarily associated with instability, protective behaviors in 1990, and perceived risk, controlling for other factors.

Based on the estimates in Model 8, in a neighborhood with all variables at their means, I would expect a neighborhood-level average of 2.59 protective behaviors. In a neighborhood with a one standard deviation increase in instability, the neighborhood-level average of protective behaviors would decrease to 2.32, all other things being equal. In a neighborhood with a decrease of one standard deviation in protective behaviors in 1990, I would expect its neighborhood-level average of protective behaviors to decrease to 2.31, holding all other variables at their means. In a neighborhood with a one standard deviation decrease in perceived risk, the neighborhood-level average of protective behaviors would decrease to 2.48, controlling for other factors. In a neighborhood with a one standard deviation increase in instability and one standard deviation decreases in both protective behaviors in 1990 and perceived risk, I would expect a neighborhood-level average of protective behaviors of 1.93, all else being equal.

In a neighborhood with a one standard deviation decrease in instability, I would expect its neighborhood-level average of protective behaviors to increase to 2.86, all other things being equal. In a neighborhood with an increase of one standard deviation in protective behaviors in 1990, I would expect its neighborhood-level average of protective behaviors to increase to 2.87, controlling for other factors. In a neighborhood with a one standard deviation increase in

perceived risk, I would anticipate the neighborhood average level of protective behaviors to increase to 2.69, all else being equal. In a neighborhood with a one standard deviation decrease in instability and one standard deviation increases in both protective behaviors in 1990 and perceived risk, I would anticipate a neighborhood-level average of protective behaviors of 3.25, net of other factors.

Next, I examine the relationship between RSO growth and neighboring activities. Table 5.1 contains descriptive information for the measures I use in this chapter. Neighboring activities is the neighborhood-level average of dichotomous responses to four questions. The scale for neighboring activities is 0 to 4, with 0 indicating a neighborhood-level average use of zero neighboring activities and 4 indicating a neighborhood-level average use of four neighboring activities. The range for neighboring activities in 2002-2003 is 1.55 to 3.45 with a mean of 2.67 and standard deviation of 0.40. The range for 1990 is 1.19 to 3.13 with a mean of 2.43 and standard deviation of 0.42. Neighboring activities in 2002-2003 and 1990 are correlated strongly at 0.73. The neighborhood-level average of neighboring activities increased over this 12 year period. For both time periods, the most common neighboring activity was helping a neighbor with a problem followed by watching a neighbor's property when the neighbor was out of town.

Tables 5.4 and 5.5 present the relationship between RSOs, neighborhood demographics, neighborhood structural conditions, and neighboring activities in a series of OLS regression models. Model 1 assesses the relationship between RSO growth and neighboring activities in 2002-2003, accounting for the demographic and racial composition of the neighborhood. As expected, RSO growth is negatively associated with neighboring activities. Young males and Asian/foreign born residents are also negatively associated with neighboring activities. Accounting for the number of RSOs in 2002 (Model 2), however, eliminates the significant

relationship between neighboring activities and RSO growth. Young males and Asian/foreign born residents remain negatively associated with neighboring activities. The level of RSOs in 2002 is positively associated with neighboring activities. In Model 3, I consider all returning offenders, which eliminates the significant association between the presence of RSOs in 2002 and neighboring activities. The proportions of young males and Asian/foreign born residents remain negatively associated with neighboring activities.

Model 4 incorporates labor market and housing instability, concentrated affluence, and female-headed households. Instability has a negative association with neighboring activities while female-headed households and affluence have positive associations. Accounting for these factors negates the significant association between young males and Asian/foreign born residents and neighboring activities. Taking levels of neighboring activities in 1990 into account (Model 5) eliminates the significant relationships between affluence and female-headed households and neighboring activities in 2002-2003, while instability maintains its negative association. Neighboring activities in 1990 are positively associated to those in 2002-2003. Change in neighboring activities from 1990 to 2002-2003 is negatively associated with instability and positively associated with neighboring activities in 1990.

I control for perceived risk in Model 6. Perceived risk is not associated with neighboring activities. Instability retains its negative association and neighboring activities in 1990 retains its positive association with neighboring activities in 2002-2003. Change in neighboring activities from 1990 to 2002-2003 remains negatively associated with instability and positively associated with neighboring activities in 1990. Model 7 removes perceived risk and adds a control for the rate of violent crime. Violent crime is not significantly associated with neighboring activities; however, its addition to the model reduces the relationship between instability and neighboring

activities to non-significance, leaving only neighboring activities in 1990 significantly related to neighboring activities in 2002-2003. Change in neighboring activities from 1990 to 2002-2003 is now only positively associated with neighboring activities in 1990. In Model 8, I include both perceived risk and rate of violent crime. Neither perceived risk nor violent crime is associated with neighboring activities while neighboring activities in 1990 retains its positive association to neighboring activities in 2002-2003. Change in neighboring activities from 1990 to 2002-2003 remains positively associated with neighboring activities in 1990, net of other factors.

In summary, these results show little support for Hypothesis 2 that RSO growth is negatively associated with neighboring activities. When considering neighborhood demographics, RSO growth does have a negative association with neighboring activities (Model 1), but once other factors are taken into account (Models 2-7), this significant relationship is eliminated. As with protective behaviors, RSO growth is not significantly related to neighboring activities when examining the level of neighboring activists in 1990 or the change in neighboring activities from 1990 to 2002-2003. Once all factors are considered, the change in neighboring activities in 1990 to 2002-2003 is primarily associated with neighboring activities in 1990. Based on the estimates in Model 8, in a neighborhood with all variables at their means, I would anticipate a neighborhood-level average of 2.71 neighboring activities. In a neighborhood with a decrease of one standard deviation in neighboring activities in 1990, I would expect its neighborhood-level average of neighboring activities in 2002-2003 to decrease to 2.54, compared to a neighborhood with an increase of one standard deviation in neighboring activities in 1990 that would have a neighborhood-level average of neighboring activities in 2002-2003 of 2.89, all else being equal.

5.6 Discussion and conclusions

Community notification laws are directed at the behavior of residents of the communities to which RSOs return rather than RSOs themselves. Through awareness of the presence of RSOs, policy makers hope that residents will engage in informal social control to reduce victimization by RSOs. Prior research suggests that this awareness either increases protective behaviors (Beck and Travis, 2004b; Lieb and Nunlist, 2008) or has no effect on protective behaviors (Anderson and Sample, 2008; Bandy, 2011; Beck et al., 2004; Caputo and Brodsky, 2004). Earlier research also suggests that community notification decreases social integration (Zevitz, 2003). In addition, researchers express concern that community notification may negatively affect informal social control if residents withdraw from the community due to fear (Hughes and Kadleck, 2008; Zevitz, 2003; Zevitz, 2004). In this chapter, I explore the relationship between RSOs and informal social control by examining the relationship between RSO growth and both protective behaviors and neighboring activities while considering neighborhood demographics, the presence of RSOs in 2002, all returning offenders, neighborhood structure, prior levels of protective behaviors and neighboring activities, perceived risk, and violent crime.

These results suggest that RSO growth is not significantly associated with protective behaviors. When considering only the demographic composition of the neighborhood, RSO growth has a negative association with protective behaviors but the relationship is in the opposite direction hypothesized; however, once I consider RSOs in 2002, the relationship between RSO growth and protective behaviors disappears. After I control for all returning offenders, the significant relationship between RSOs in 2002 is eliminated. Neither RSO growth from 1994 to 2002 nor levels of RSOs in 2002 are associated with protective behaviors in 2002-2003 or the change in protective behaviors from 1990 to 2002-2003, controlling for other factors. Protective

behaviors in 2002-2003 are largely determined by instability, protective behaviors in 1990, and perceived risk, net of other factors. These results show the importance of taking other neighborhood-level factors account when examining the relationship between RSOs and informal social control such as protective behaviors.

The results are similar for neighboring activities. Considering only neighborhood demographics, RSO growth is negatively associated with neighboring activities. However, as with protective behaviors, the relationship between RSO growth and neighboring activities disappears when I consider the presence of RSOs in 2002, and the relationship between the presence of RSOs in 2002 is eliminated when I take all returning offenders into account. Neither RSO growth from 1994 to 2002 nor levels of RSOs in 2002 are associated with neighboring activities in 2002-2003 or the change in neighboring activities from 1990 to 2002-2003, net of other factors. Rather, neighboring activities in 1990 is the main determining factor of neighboring activities in 2002-2003, controlling for other factors. Unlike protective behaviors, neither instability nor perceived risk is significantly related to neighboring activities. This again demonstrates the importance of taking neighborhood context into account when examining the relationship between RSOs and informal social control such as neighboring activities.

Policy makers intended for community notification to encourage community members to engage in individual and collective forms of informal social control, such as protective behaviors and neighboring activities. Given the strong positive association of both protective behaviors and neighboring activities in 1990 with protective behaviors and neighboring activities in 2002-2003, neighborhood-level use of both protective behaviors and neighboring activities are relatively stable given the neighborhood structure. Interestingly, prior levels of informal social control were measured in the same year community notification was implemented. Despite the increased

use of community notification from 1990 (when approximately 50% of RSOs were subject to community notification) to 1997 (when approximately 88% of RSOs were subject to community notification), both neighborhood-level protective behaviors and neighboring activities remained stable, given the neighborhood context in which they occurred. It could be that residents in these neighborhoods are unable or unwilling to do anything with the information from community notification, assuming residents access or receive the information. Although I do not include a measure of community notifications received in each neighborhood, it is reasonable to assume that some residents in neighborhoods with RSOs either accessed or received information about RSOs residing in their neighborhoods during the nine years in which I measure RSO growth. Community notification alerts residents when RSOs enter communities; however, there is no process to notify residents when RSOs move out of their communities. Accordingly, I am unable to account for any process of community notification of the departure of RSOs from communities in my models because no such process exists.

Neither RSO growth from 1994 to 2002 nor the presence of RSOs in 2002 is associated with neighborhood-levels of either protective behaviors or neighboring activities. This could imply that community notification does not enhance neighborhood-level informal social control as policy makers hoped. Alternatively, this could also imply that community notification does not have the detrimental impact on informal social control that some researchers feared. Protective behaviors and neighboring activities at the neighborhood-level appear to have little to do with RSO growth, the presence of RSOs, or community notification. Rather, neighborhood-levels of both protective behaviors and neighboring activities are associated with neighborhood structure and social processes. This calls into question the usefulness of community notification – a policy meant to increase informal social control. Perhaps RSOs and the residents in the

communities in which they reside would be better served by policies that assist the reintegration of RSOs, such as employment, housing or other reintegration services. It could also be helpful to provide additional services to communities with high concentrations of RSOs. Communities with high concentrations of RSOs also have lower levels of collective efficacy, and residents in communities with lower levels of collective efficacy are least able to provide the informal social control that policy makers hoped. Programs or services to educate and assist these communities with informal social control could help both the communities and the RSOs that live within them.

Table 5-1 Descriptive Statistics of Measures

	Mean	SD
Protective Behaviors (2002-2003)		
Leaves lights on when not home (scale 0-1)	0.76	0.17
Has extra locks on doors and windows (scale 0-1)	0.50	0.11
Has a burglar alarm (scale 0-1)	0.25	0.10
Has a dog (scale 0-1)	0.23	0.09
Has a weapon at home (scale 0-1)	0.19	0.08
Has neighbors watch home when away (scale 0-1)	0.74	0.15
Average (scale 0-6) (alpha = .86)	2.67	0.56
Protective Behaviors (1990)		
Leaves lights on when not home (scale 0-1)	0.87	0.13
Has extra locks on doors and windows (scale 0-1)	0.59	0.10
Has a burglar alarm (scale 0-1)	0.21	0.10
Has a dog (scale 0-1)	0.23	0.11
Has a weapon at home (scale 0-1)	0.25	0.08
Has neighbors watch home when away (scale 0-1)	0.77	0.15
Average (scale 0-6) (alpha = .83)	2.92	0.51
Neighboring Activities (2002-2003)		
Watched neighbor's property when neighbor out of town (scale 0-1)	0.70	0.15
Borrowed tools/small food items (scale 0-1)	0.58	0.13
Had dinner or lunch with a neighbor (scale 0-1)	0.57	0.11
Helped a neighbor with a problem (scale 0-1)	0.83	0.08
Average (scale 0-4) (alpha = .84)	2.69	0.40
Neighboring Activities (1990)		
Watched neighbor's property when neighbor out of town (scale 0-1)	0.71	0.18
Borrowed tools/food (scale 0-1)	0.51	0.12
Had dinner or lunch with a neighbor (scale 0-1)	0.48	0.12
Helped a neighbor with a problem (scale 0-1)	0.73	0.09
Average (scale 0-4) (alpha = .68)	2.43	0.42
Race/ethnicity/immigration		
Proportion African American	0.08	0.10
Proportion Latino/a	0.05	0.04
Proportion Asian/foreign born (alpha = .96)		
Average of z-scores	0.00	0.98
Proportion Asian	0.12	0.12
Proportion foreign born	0.16	0.11
High-incarceration-risk demographic group		
Proportion males ages 15-24	0.07	0.04
All registered sex offenders (1994-2002)		
Rate of RSO growth 1994-2002 (range -1.08 to 4.58)	0.71	0.85
RSO Count 1994 (range 0-23)	2.37	3.59
RSO Count 1995 (range 0-30)	4.90	5.76
RSO Count 1996 (range 0-29)	5.59	5.95
RSO Count 1997 (range 0-48)	6.99	8.00
RSO Count 1998 (range 0-56)	10.75	9.82
RSO Count 1999 (range 0-49)	9.82	8.92
RSO Count 2000 (range 0-38)	10.06	8.44
RSO Count 2001 (range 0-34)	7.87	6.47
RSO Count 2002 (range 0-29)	7.78	6.77

Table 5-1 Descriptive Statistics of Measures (continued)

	Mean	SD
All returning offenders (1998-2002)		
Rate of all returning offenders per 100 population	0.76	0.86
Total five-year count of all returning offenders (range 1 to 248)	31.11	35.49
Labor market and housing instability (alpha = .88)		
Average of z-scores	0.00	0.73
Proportion unemployed	0.05	0.03
Proportion in poverty	0.12	0.08
Proportion employed in secondary sector jobs	0.15	0.08
Healthcare support occupations		
Food preparation and serving related occupations		
Building and grounds cleaning and maintenance occupations		
Personal care and service occupations		
Farming, fishing, and forestry occupations		
Material moving workers		
Proportion renters	0.49	0.23
Proportion not in same residence 5 years ago	0.55	0.13
Concentrated affluence (alpha = .92)		
Average of z-scores	0.00	0.90
Proportion households with income over $100,000	0.17	0.10
Proportion college graduates	0.48	0.18
Proportion managerial or professional occupations	0.49	0.13
Management, professional, and related occupations		
Family structure		
Proportion female-headed households	0.08	0.05
Perceived risk (2002-2003)		
Worry about being physically attacked by a stranger (scale 1-4)	1.44	0.22
Worry about someone breaking into home to steal (scale 1-4)	1.79	0.21
Neighborhood is safe from crime (scale 1-4)	1.90	0.29
Worries about safety of self in household (scale 1-4)	1.97	0.19
Worries about safety of spouse/partner in household (scale 1-4)	2.19	0.26
Worries about eldest son in household (scale 1-4)	2.60	0.46
Worries about eldest daughter in household (scale 1-4)	2.66	0.42
Average (scale 1 to 28) (alpha = .81)	14.51	1.50
Perceived risk (1990)		
Neighborhood is safe from crime (scale 1-4; 4 = very unsafe)	2.11	0.33
Rate of violent crime		
Average yearly violent crimes per 1,000 population 1996-1998	8.41	10.99

Table 5-2 OLS Regressions on Neighborhood-level Protective Behaviors (Models 1-4)

	Model 1 Est *SE*	Model 2 Est *SE*	Model 3 Est *SE*	Model 4 Est *SE*
Intercept	3.50** *1.11*	2.93** *1.10*	2.98* *1.29*	3.66*** *0.79*
Population logged	-0.06 *0.13*	0.01 *0.13*	0.00 *0.16*	-0.18· *0.10*
Asian/Foreign Born	-0.02 *0.06*	-0.03 *0.06*	-0.03 *0.06*	0.07 *0.05*
African American	0.39 *0.55*	0.88 *0.57*	0.94 *0.95*	0.09 *0.70*
Latino/a	0.91 *1.39*	1.51 *1.37*	1.52 *1.39*	0.48 *0.95*
Males 15-24	-5.45*** *1.40*	-3.96** *1.47*	-3.95** *1.48*	1.64 *1.00*
RSO Growth 94-02	-0.15* *0.06*	0.03 *0.09*	0.03 *0.10*	0.00 *0.06*
RSO Counts 02		-0.04* *0.01*	-0.03* *0.01*	-0.01 *0.01*
All Returning Offenders 98-02			-0.01 *0.14*	0.08 *0.09*
Labor/Housing Instability				-0.65*** *0.08*
Concentrated Affluence				0.00 *0.06*
Female Headed Households				4.16*** *1.08*
Protective Behaviors 1990				
Perceived Risk 2002				
Rate of Violent Crime 96-98				
Adj R-squared	0.16	.21	0.20	0.71
N = 102 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 5-3 OLS Regressions on Neighborhood-level Protective Behaviors (Models 5-8)

	Model 5 Est *SE*	Model 6 Est *SE*	Model 7 Est *SE*	Model 8 Est *SE*
Intercept	1.81* *0.70*	0.72 *0.75*	2.29** *0.75*	1.12 *0.82*
Population logged	-0.12 *0.08*	-0.12 *0.08*	-0.16· *0.08*	-0.15· *0.08*
Asian/Foreign Born	0.05 *0.04*	0.06· *0.04*	0.06 *0.04*	0.07· *0.04*
African American	0.05 *0.58*	0.10 *0.55*	-0.11 *0.58*	-0.00 *0.55*
Latino/a	0.80 *0.78*	0.28 *0.76*	0.83 *0.77*	0.34 *0.76*
Males 15-24	1.01 *0.82*	0.84 *0.78*	0.89 *0.82*	0.78 *0.78*
RSO Growth 94-02	-0.00 *0.05*	-0.02 *0.05*	0.02 *0.05*	-0.00 *0.05*
RSO Counts 02	-0.01 *0.01*	-0.01 *0.01*	-0.01 *0.01*	-0.01 *0.01*
All Returning Offenders 98-02	0.08 *0.07*	0.07 *0.07*	0.15· *0.08*	0.11 *0.08*
Labor/Housing Instability	-0.35*** *0.08*	-0.39*** *0.08*	-0.33*** *0.08*	-0.37*** *0.08*
Concentrated Affluence	0.04 *0.05*	0.06 *0.05*	0.05 *0.05*	0.07 *0.05*
Female Headed Households	1.42 *0.98*	0.76 *0.95*	1.56 *0.97*	0.90 *0.96*
Protective Behaviors 1990	0.56*** *0.08*	0.58*** *0.08*	0.51*** *0.09*	0.55*** *0.08*
Perceived Risk 2002		0.08** *0.02*		0.07** *0.02*
Rate of Violent Crime 96-98			-0.01· *0.00*	-0.01 *0.00*
Adj R-squared	0.81	0.83	0.81	0.83
N = 102 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 5-4 OLS Regressions on Neighborhood-level Neighboring Activities (Models 1-4)

	Model 1 Est *SE*	Model 2 Est *SE*	Model 3 Est *SE*	Model 4 Est *SE*
Intercept	3.66*** *0.73*	3.36*** *0.73*	3.31*** *0.89*	3.31*** *0.71*
Population logged	-0.08 *0.09*	-0.05 *0.09*	-0.04 *0.10*	-0.10 *0.09*
Asian/Foreign Born	-0.11** *0.04*	-0.11** *0.04*	-0.11** *0.04*	-0.02 *0.04*
African American	-0.02 *0.36*	0.25 *0.38*	0.19 *0.64*	-0.41 *0.63*
Latino/a	-0.10 *0.91*	0.22 *0.91*	0.21 *0.92*	0.55 *0.85*
Males 15-24	-3.31*** *0.92*	-2.52* *0.98*	-2.53* *0.99*	0.14 *0.89*
RSO Growth 94-02	-0.11** *0.04*	-0.02 *0.06*	-0.02 *0.06*	-0.05 *0.05*
RSO Counts 02		-0.02* *0.01*	-0.02· *0.01*	-0.01 *0.01*
All Returning Offenders 98-02			0.01 *0.10*	0.09 *0.08*
Labor/Housing Instability				-0.25*** *0.07*
Concentrated Affluence				0.14* *0.06*
Female Headed Households				2.16* *0.97*
Neighboring Activities 1990				
Perceived Risk 2002				
Rate of Violent Crime 96-98				
Adj R-squared	0.30	0.32	0.31	0.55
N = 102 · p <.10; * p <.05; ** p <.01; *** p <.001				

Table 5-5 OLS Regressions on Neighborhood-level Neighboring Activities (Models 5-8)

	Model 5 Est *SE*	Model 6 Est *SE*	Model 7 Est *SE*	Model 8 Est *SE*
Intercept	2.14** *0.71*	1.45· *0.79*	2.32** *0.72*	1.65* *0.80*
Population logged	-0.06 *0.08*	-0.06 *0.08*	-0.09 *0.08*	-0.08 *0.08*
Asian/Foreign Born	-0.04 *0.04*	-0.03 *0.04*	-0.04 *0.04*	-0.03 *0.04*
African American	-0.27 *0.58*	-0.23 *0.57*	-0.38 *0.59*	-0.32 *0.58*
Latino/a	1.10 *0.79*	0.81 *0.80*	1.19 *0.79*	0.90 *0.80*
Males 15-24	0.03 *0.82*	-0.06 *0.81*	-0.10 *0.83*	-0.16 *0.82*
RSO Growth 94-02	-0.06 *0.05*	-0.07 *0.05*	-0.04 *0.05*	-0.05 *0.05*
RSO Counts 02	-0.00 *0.01*	-0.00 0.01	-0.00 *0.01*	-0.00 *0.01*
All Returning Offenders 98-02	0.07 *0.07*	0.06 *0.07*	0.12 *0.08*	0.10 *0.08*
Labor/Housing Instability	-0.15* *0.07*	-0.18* *0.07*	-0.11 *0.08*	-0.14· *0.08*
Concentrated Affluence	0.09 *0.05*	0.10· *0.05*	0.10· *0.06*	0.11· *0.05*
Female Headed Households	1.18 *0.93*	0.79 *0.94*	1.05 *0.93*	0.71 *0.94*
Neighboring Activities 1990	0.38*** *0.09*	0.41*** *0.09*	0.41*** *0.09*	0.42*** *0.09*
Perceived Risk 2002		0.05· *0.03*		0.04· *0.03*
Rate of Violent Crime 96-98			-0.01 *0.00*	-0.00 *0.00*
Adj R-squared	0.62	0.63	0.62	0.63
N = 102 · p <.10; * p <.05; ** p <.01; *** p <.001				

Chapter 6. SUMMARY AND CONCLUSIONS

Registered sex offenders (RSOs) are the most feared type of offender (Kernsmith, Craun, and Foster, 2009). All states and the federal government have implemented registration and community notification laws to monitor the behavior of RSOs (Meloy, Saleh, and Wolff, 2007), and most states have residence restriction laws that prevent RSOs from living near areas where children congregate (Hughes and Burchfield, 2008; Meloy, Miller, and Curtis, 2008). These laws are likely based on emotional responses to media accounts that generated a moral panic among the public stemming from a few particularly heinous crimes of children being sexually attacked and killed by strangers (Meloy, Miller, and Curtis, 2008; Sample, 2006; Sample and Kadleck, 2008). Although Washington State addresses the misperception that sex offenses occur between strangers by educating community members that sex offenses typically occur between family members or acquaintances (Lieb, 1996), media accounts of these heinous sexual offenses leave the impression that the public should fear strangers rather than people known to them (Sample, 2006; Sample and Kadleck, 2008).

When RSOs are released into the community, residents are notified of their impending presence and then charged with the task of providing informal social control of those RSOs. Some researchers express concern that community notification may damage social networks and informal social control (Hughes and Kadleck, 2008; Zevitz, 2003). Despite these concerns, little research investigates the impact of RSOs on neighborhood-level crime or informal social control. In my dissertation, I examine the relationship between RSOs and neighborhood context by examining both the neighborhood characteristics of the communities in which RSOs reside as well their impact on neighborhood-level crime and informal social control. In general, my findings suggest that RSOs live in neighborhoods with less collective efficacy. My findings also

suggest that the presence of RSOs is associated with higher levels of violent crime, rape, and property crime in 2003-2005. However, the presence of RSOs is not associated with changes in levels of violent crime, rape, or property crime over time. Despite concerns that RSOs have a detrimental impact on informal social control, there is no association between RSOs and both neighborhood-levels of protective behaviors and neighboring activities in 2002-2003 or the change in neighborhood-levels of both protective behaviors and neighboring activities over time.

In my first empirical chapter, I investigate the characteristics of the neighborhoods in which RSOs live. Prior research indicates that RSOs live in disorganized or disadvantaged neighborhoods (e.g., Craun, 2008; Hipp, Turner and Jannetta, 2010; Hughes and Burchfield, 2008; Hughes and Kadleck, 2008; Mack and Grubesic, 2010; Tewksbury and Mustaine, 2006; Tewksbury, Mustaine, and Stengel, 2006) and in areas with less collective efficacy (e.g., Socia and Stamatel, 2012). I expand upon these studies by examining the distribution of RSOs from both traditional and contemporary social disorganization perspectives, the latter emphasizing collective efficacy. I also expand upon previous research by using a three-year average measure for counts of RSOs and by examining both all RSOs and two subsets of RSO: Non-rape RSOs and Rape RSOs. From the perspective of traditional social disorganization theory, my research provides support for prior work that RSOs live in disorganized or disadvantaged neighborhoods. Specifically, more RSOs live in neighborhoods characterized by higher levels of concentrated disadvantage and residential instability. Expanding my examination to include contemporary social disorganization theory shows that collective efficacy plays an important role in the distribution of RSOs, confirming prior research by Socia and Stamatel (2012). Specifically, RSOs disproportionately live in neighborhoods characterized by less collective efficacy, and accounting for collective efficacy negates the relationship between residential instability and

distribution of RSOs. Spatial factors are also important in explaining the distribution of RSOs. More RSOs are present (or absent) in neighborhoods adjacent to other neighborhoods with more (or fewer) RSOs. In essence, RSOs live in and near disadvantaged neighborhoods with low levels of collective efficacy where residents are least able or willing to engage in informal social control. Contrary to my expectations that more Rape RSOs live in neighborhoods with less collective efficacy than Non-rape RSOs, both subsets of RSOs live in neighborhoods with less collective efficacy.

Some researchers suggest that RSOs are relegated to disorganized or disadvantaged neighborhoods due to residence restrictions (e.g., Mustaine, Tewksbury, and Stengel, 2006). Even though Seattle does not enforce residence restrictions,[20] RSOs cluster together in and near other disorganized neighborhoods. It appears that residence restrictions may not be an important determining factor of where RSOs reside. However, we do not know why RSOs live in the neighborhoods they do. It could be that RSOs return to the disorganized neighborhoods from which they came (Socia and Stamatel, 2012) or these neighborhoods are more affordable than affluent ones (Grubesic, Murray, and Mack, 2008). Given barriers to housing and employment, RSOs may not be able to afford to live anywhere else. It could also be that RSOs choose to live in disorganized neighborhoods because they provide more anonymity or opportunity to reoffend (Tewksbury and Mustaine, 2006; Tewksbury, Mustaine, and Stengel, 2008). Or perhaps it is because residents in more affluent neighborhoods are better able to draw upon their resources to keep RSOs out of their communities.

In my second research chapter, I continue my investigation by examining the impact of RSOs on neighborhood-level crime. Given the wide range of offenses committed by RSOs

[20] Residence restrictions in Washington only apply to RSOs under supervision of the Department of Corrections supervision and are tailored to each offender. There are no statewide residence restrictions.

offenders (e.g., Harris et al., 2010; Langan, Schmitt, and Durose, 2003; Miethe, Olson, and Mitchell, 2006; Sample and Bray, 2006), I expand upon previous research by Tewksbury et al., (2010) by examining the impact of RSOs, Non-rape RSOs, and Rape RSOs on violent crime, rape, and property crime using five-year average counts of RSOs. In addition, I take the presence of all returning offenders into account. Following Drakulich and colleagues (2012), I conduct my examination by combining the social disorganization mechanism of instability with the labor stratification perspective. My results suggest a positive association between RSOs and neighborhood-levels of violent crime, rape, and property crime when looking at levels of crime in 2003-2005. However, examining the change in neighborhood-levels of violent crime, rape, and property crime from 1996-1998 to 2003-2005 reveals that there is no association between RSOs and changes in levels of each of these crime types. Rather, neighborhood-levels of crime appear to be relatively stable over time, given other factors that contribute to it.

Given the concern that RSOs may have a detrimental impact on informal social control (e.g., Hughes and Kadleck, 2008; Zevitz, 2003; Zevitz, 2004), in my third research chapter I examine whether or not RSOs impact informal social control. Prior research on this topic has focused primarily on the use of protective behaviors (e.g., Anderson, Evans, and Sample, 2009; Anderson and Sample, 2008; Bandy, 2011; Beck and Travis, 2004b; Beck et al., 2004; Caputo and Brodsky, 2004) and one study examines the effect of social integration (e.g., Zevitz, 2004). I expand on previous research by examining the impact of RSOs on neighborhood-levels of both protective behaviors and neighboring activities given neighborhood demographics, all returning offenders, neighborhood structure, and prior levels of protective behaviors or neighboring activities. In addition, I measure RSOs using a rate of RSO growth in each census tract over a nine year period and control for the presence of RSOs. My results suggest that neither the rate of

RSO growth nor levels of RSOs is associated with neighborhood-levels of protective behaviors or neighboring activities in 2002-2003 or in the change in levels of both protective behaviors and neighboring activities from 1990 to 2002-2003. My results are contrary to those of Beck and Travis (2004b) and Lieb and Nunlist (2008) who found an increase in protective behaviors; however, these studies were primarily descriptive and did not consider neighborhood context. On the other hand, these results provide further support for studies that found that community notification does not increase protective behaviors, such as Anderson and Sample, 2008; Bandy, 2011; Beck et al., 2004; and Caputo and Brodsky, 2004. RSOs are neither associated with levels of protective behaviors nor the change in protective behaviors over time. Rather, change in protective behaviors is primarily determined by instability, prior levels of protective behaviors, and perceived risk, controlling for other factors. If community notification increases perceived risk of victimization as suggested by Beck, et al., (2004), then perhaps this may be associated with higher levels of neighborhood-level perceived risk and contribute to the use of more protective behaviors. RSOs are also not associated with levels of neighboring activities or change in neighboring activities over time. Instead, change in neighboring activities is largely determined by prior levels of neighboring activities. The positive associations between neighborhood-levels of both protective behaviors and neighboring activities in 2002-2003 and levels in 1990 suggest the relative stability of these forms of informal social control over time. In general, my results suggest that RSOs are not associated with neighborhood-level informal social control.

When examining the impact of RSOs on communities, one important factor to consider is that although RSOs can be theoretically, hypothetically, and statistically separated from all returning offenders, RSOs are still part of the larger offending population. As such, RSOs do

have a negative impact on the communities to which they return, not because they are RSOs but because they are part of the returning offender population.

6.1 POLICY IMPLICATIONS

These results call into question the usefulness of the policies aimed at RSOs and the residents of the communities in which they reside. The purpose of community notification laws is to increase awareness about the presence of RSOs and for community members to facilitate the reintegration of RSOs and help reduce RSO recidivism through informal social control (Mack and Grubesic, 2006). However, RSOs live in disorganized communities with less collective efficacy. Although their presence is associated with higher levels of violent crime, rape, and property crime, their presence is not associated with changes in levels of violent crime, rape, or property crime over time. Both the rate of growth of RSOs and level of RSOs have no impact on neighborhood-levels of either protective behaviors or neighboring activities or the changes in levels of both protective behaviors and neighboring activities from 1990 – when community notification was implemented – to 2002-2003. Rather, levels of crime and informal social control are relatively stable over time, controlling for other factors that influence crime and informal social control. This could imply that community notification does not appear to reduce RSO recidivism or neighborhood-level informal social control when considering other factors associated with crime and informal social control.

In addition, sex offender policies are based on faulty assumptions, including that sex offenders are more likely to recidivate than other offenders, sex offenders will be deterred from committing crime because residents are aware of their presence, and surveillance in communities will protect residents from sex offenders (Vasquez, Madden, and Walker, 2007). Less than 2% of RSOs convicted of rape are arrested for another rape (Durose, Cooper, and Snyder, 2014) while

about 5% of RSOs are arrested for another sex offense crime (Langan, Schmitt, and Durose, 2003; Meloy, 2008). Because approximately 90% of sexual victimizations occur between victims and offenders known to each other (Catalano, 2006; Fisher, Cullen, and Turner, 2000), it is unlikely that policies to create awareness about RSOs who are strangers to their victims will have much of an impact on curtailing the majority of sex offenses. Given the evidence against these laws' underlying assumptions, perhaps these laws are in place due to emotional responses to a few horrifying crimes (Meloy, Miller, and Curtis, 2008; Sample, 2006; Sample and Kadleck, 2008) because they help the public feel safer (Anderson and Sample, 2008). Yet, they are unlikely to have any meaningful reduction in sexual violence due to the statistical rarity of the events the laws were created to reduce (Meloy, Saleh, and Wolf, 2007): victimization of children by strangers.

There are many negative consequences of community notification to RSOs. Community notification affects RSOs' transition from prison to the community through loss of employment, exclusion from residences, faltered relationships (Robbers, 2009; Zevitz and Farkas, 2000b), and harassment (Matson and Leib, 1996; Robbers, 2009). In areas where there are residence restrictions, some RSOs may go into hiding or risk arrest or conviction by living near prohibited places (Hughes and Burchfield, 2008). These laws negatively affect several factors usually associated with successful reintegration (Meloy, Miller, and Curtis, 2008), such as stable housing, stable employment, strong informal social control networks, and community integration.

Given the relative stability of neighborhood-level crime and informal social control, and the collateral consequences to RSOs of community notification laws, these laws are likely more harmful than beneficial. Returning offenders already face numerous challenges to reintegration.

Based on emotions rather than evidence, these policies were applied broadly to all RSOs to protect the public from one of the rarest types of crime: recidivism for rape of a child to whom the offender is a stranger. Community notification laws aimed broadly at all RSOs seem misdirected. Washington's post-release civil commitment law appears to target the types of sex offenders community notification generally intended to target: sexually violent predators. A sexually violent predator[21] is one who "has been convicted of or charged with a crime of sexual violence[22] and who suffers from a mental abnormality or personality disorder which makes the person likely to engage in predatory acts of sexual violence if not confined in a secure facility[23]" (Revised Code of Washington 71.09.020). Sexually violent predators comprise about 1% of the sex offending population (Lieb, 1996). If sex offenders are about 5% of the offending population and sexually violent predators are about 1% of the sex offending population, then we could expect that out of 10,000 offenders, about 500 of them would be sex offenders, of which 5 would be sexually violent predators. Sexually violent predators are the type of offender and the types of offenses that seem best served by sex offender laws, rather than their blanket application to all RSOs. Moreover, the post-release civil commitment policy seems unduly harsh. As Meloy and colleagues (2007) point out, "truly dangerous sex offenders should be sentenced to sufficiently long periods of incarceration to avoid the need for preventative detention" (439). In 1996, the Washington State legislature amended their 1993 "Three Strikes and You're Out" initiative to include lifetime sentences for sex offenders with two separate convictions for specified sex

[21] Predatory means acts directed towards strangers, those "with whom a relationship has been established or promoted for the primary purpose of victimization," or "persons of casual acquaintances with whom no substantial personal relationship exists" (Revised Code of Washington, 71.09.20).
[22] Sexually violent offenses include first and second degree rape, indecent liberties, incest, child molestation; murder, assault, kidnapping, burglary, or unlawful imprisonment with sexual motivation; or an attempt of any of these crimes (Revised Code of Washington, 71.09.020).
[23] Although legislature found that "a small but extremely dangerous group of sexually violent predators exist who do not have a mental disease or defect that renders them appropriate for the involuntary commitment system" (Revised Code of Washington, 71.09.010).

offenses[24] or attempts at these specified sex offenses (Lieb, 1996); this law seems better able to target the repeat sex offender that prompted the development of registration, community notification, and residence restriction laws in the first place.

6.2 LIMITATIONS

There are several limitations to this study, which I detail below. There could be additional important variables that may help explain the distribution of RSOs and their relationship to neighborhood-levels of crime and informal social control. The addresses provided by RSOs may be inaccurate either because RSOs provided inaccurate information deliberately or accidentally, the information was entered into the dataset incorrectly, or RSOs did not update their addresses each time they moved. I assumed that an RSO lived at an address unless otherwise updated and did not know when each of the RSOs was officially relieved from obligation to report information to the registry. Therefore, I used their last entries as their final entry even though they could have lived at same address for one or more years and not have yet updated the registry. In addition, I was unable to geocode every address due to either missing or incomplete information. In Chapter 4, I examined the effect of RSOs on neighborhood-level crime above and beyond all returning offenders. I measured RSOs using the count of RSOs living in neighborhoods and measured all returning offenders using the count of offenders returning to neighborhoods, and I was not able to parse out which of all returning offenders were RSOs. Ideally, I would have more comparable measures of RSOs and all returning offenders. As with any crime data from law enforcement agencies, only crimes known to the police are included in my analyses. In Chapter 5, I examined RSO growth rather than community notification;

[24] Rape (first or second degree); Indecent Liberties by Forcible Compulsion; or Murder (first or second degree), Kidnapping (first or second degree), Assault (first or second degree), or Burglary (first degree) with a finding of sexual motivation (Lieb, 1996).

however, it is reasonable to assume that many residents in neighborhoods where RSOs reside received one or more community notifications or accessed the available RSO information online. Because communities are not notified when RSOs leave neighborhoods, I was unable to control for community response to declines in RSOs. Nevertheless, this study provides an important contribution to the understanding of the relationship between RSOs and neighborhood-level crime and informal social control given the dearth of information on the topic.

6.3 FUTURE DIRECTIONS

Future examinations of the relationship between RSOs and neighborhood-level crime and informal social control would benefit from taking into account a variety of community-level characteristics, including all returning offenders. Due to the propensity of RSOs to be arrested more frequently for non-sex offenses than sex offenses, it would behoove future researchers to examine the impact of RSOs on non-sex offenses, as well as a wider range of sex offenses. However, studies of sex offender registration or community notification on RSO recidivism suggest that these policies have little impact on overall RSO recidivism (Barnoski, 2005; Mustaine, Tewksbury, and Stengel, 2006; Scharm and Milloy, 1995). Similarly, my examination revealed no relationship between RSOs and neighborhood-level protective behaviors or neighboring activities so further examination may not be necessary.

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VITA

Heidi Irene Thielmann is originally from Long Beach, California. She received her Bachelor of Arts degree with a double major in Criminology, Law & Society and Psychology & Social Behavior from the University of California, Irvine in 2004. She received her Master of Arts degree in Sociology in 2007 at the University of Washington.