ABSTRACT

Title of Document: THE ECOLOGY OF THE REENTRY PROCESS: A GENDERED ANALYSIS OF COMMUNITY INFLUENCES

Mariel Alper, Doctor of Philosophy, 2014

Directed By: Professors Sally Simpson and Kiminori Nakamura
Department of Criminology and Criminal Justice

Utilizing original data on a large sample of male and female first-time parolees in Pennsylvania (N=10,579), this dissertation examines parole violations and police arrest recidivism outcomes to assess how community characteristics influence men and women's recidivism during parole. It adds to the literature by examining specific types of technical violations and arrests, including those that do not result in revocation, as they can serve as indicators of the difficulties parolees encounter after prison such as substance abuse and employment difficulties. Additionally, this dissertation adds to the literature by examining whether community effects vary by gender and by race/gender.

The findings support the importance of several community characteristics that have been implicated in prior research and uncover previously unexamined gender and gender/race differences. Additionally, the effect of community characteristics varies by the type of recidivism that is examined, suggesting that the way recidivism is conceptualized and measured matters. Disadvantage in the community was associated with higher odds of arrests for men, but lower odds of technical violations. While the availability of service providers increased the odds of monetary violations for both men and women, they were associated with higher odds of employment violations for women and lower odds for men. Offender concentration in the community was associated with higher odds of several types of technical violations for men, including treatment violations, and lower odds of treatment violations for women. On the other hand, offender concentration was also associated with lower odds of drug violations and police arrests for men. For both men and women, lower informal social ties were associated with higher odds of most types of technical violations. Several race-specific effects for men and women were also found. Policy and theoretical implications of these findings are discussed. For example, community effects may be more nuanced than previous theories have suggested and theoretical explanations should incorporate gendered experiences and intersectionality. Additionally, investing in parolees' communities can aid offender reintegration and reduce recidivism and risk assessments should more systematically incorporate community characteristics. Further, findings from this project suggest the need to avoid practices that unintentionally increase recidivism and punitiveness for parolees.

THE ECOLOGY OF THE REENTRY PROCESS: A GENDERED ANALYSIS OF COMMUNITY INFLUENCES

By

Mariel Alper

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Dissertation Committee:
Dr. Sally S. Simpson (Co-Chair)
Dr. Kiminori Nakamura (Co-Chair)
Dr. Laura Dugan
Dr. Terrence Thornberry
Dr. Alan Neustadtl (Dean's Representative)

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

SCOPE OF THE PROBLEM

America is currently experiencing the effects of mass imprisonment. In 2012, more than 1.5 million prisoners were under the jurisdiction of state and federal correctional authorities (Carson & Golinelli, 2013) compared to just over 300,000 in 1980 (Bureau of Justice Statistics (BJS), 1988). During this time, the rate of imprisonment increased from 228 to 492 per 100,000 residents. As most prisoners are released at some point, the high rate of incarceration inexorably means that the number of people being released from prison and returning to their communities is also high; almost 700,000 people were released from state and federal prisons in 2012. Nearly four times as many people are released from prison into the community compared to twenty years ago (Harrison & Karberg, 2003; Travis & Visher, 2005).

National statistics suggest that released prisoners do not fare well in their reentry process, and numerous scholars have echoed this conclusion (Clear, 2007; Mauer, 2005; Petersilia, 2009; Simon, 2000). Langan and Levin (2002) found that two thirds of the offenders released from prison in 1994 had been rearrested and about half had been reincarcerated within three years. Ex-prisoners can return to prisons for reasons other than a new criminal offense, such as technical parole violations. Approximately 80 percent of prisoners are released conditionally to parole supervision (Hughes et al., 2001), and they are subject to certain supervision conditions that they must abide by. Technical parole violations are violations of these supervision conditions (such as failure to report to supervision or failure to maintain employment) and may not involve the commission of a new criminal act. Violations can have negative implications for public

safety as they may lead to more serious forms of criminal behavior. They can also have negative implications for the parolee as technical violations indicate areas where parolees are struggling after release, such as in the areas of employment, housing, substance abuse, or financial stability. Technical violations are frequent and a key driver of prison population; a quarter of those who left parole supervision and returned to prison in 2009 did so through a revocation based on a technical violation rather than a new criminal offense. Reincarcerations for technical violations are also costly: more than $4 billion was spent in the US incarcerating technical parole violators in 2009 alone (Pew, 2009). Nationally, parole revocations accounted for about a third of prison admissions in 2011 (Carson & Sabol, 2012) [1]. Given that there are more than 200,000 parolees a year who return to prison for parole violations[2] (Carson & Sabol, 2012), "we have, in essence, created a separate path to prison for large numbers of former prisoners" (Travis & Lawrence, 2002, p. 24). Parole violators have become an increasingly salient contributor to the prison population in the last several decades. The number of admissions for violations alone in 2000 was nearly equal to the total number of admissions to state prisons in 1980 (Travis & Lawrence, 2002).

Large incarcerated populations are also present in Pennsylvania, where, as the state with the sixth largest prison population, more than 50,000 individuals were incarcerated at the end of 2012 (Carson & Golinelli, 2013). Over 17,000 prisoners in Pennsylvania were released back into society in 2012 and about 80% of these offenders

[1] In 2011, parole violations comprised 33% of state prison admissions, a decrease from 35% in 2010 largely due to changes in California (Carson & Sabol, 2012). An important part of the changes is that efforts are made to prevent parolees from returning to state prisons for technical violations, and this has greatly contributed to the reduction in the prison populations in California and in the United States overall (Carson & Sabol, 2012).

[2] Parole violations include all conditional release violators returned to prison for violations of conditions of release (technical violation) or for new crimes.

were released to parole supervision (Kramer et al., 2008). The Pennsylvania Board of Probation and Parole (PBPP) supervises more than 36,000 individuals at any given time (PBPP, 2013a). Similar to national trends, parole failure in Pennsylvania, due to new criminal activity and parole revocations, has become a major public safety and fiscal issue. Fabelo (2007) reported that, from 2000 to 2006, prison admissions for all parole violations in Pennsylvania increased by 37% and prison admissions for technical parole violations increased by 21%. Bucklen (2005) reported that prison admissions from parole revocations had increased 51% over the past 7 years, compared with a 25% increase for court admissions. Pennsylvania thus mirrors the national trend of parole violation admissions accounting for a large and costly share of prison admissions overall. About 60% of all released inmates (including those who are released on parole or unconditionally) in Pennsylvania are rearrested or reincarcerated within three years of their release (Pennsylvania Department of Corrections (PADOC), 2013). Inmates in Pennsylvania who are released on parole who return to prison are most likely to return due to a violation of technical conditions (61.5%) rather than a violation of a condition of a parole that is also against the law (33.4%) or a new court commitment (5.0%).

One segment of the population that has been hit especially hard by mass imprisonment is women. Although females comprise a relatively small percentage of the prisoner population (6.7% of the 2011 state and federal prisoner population (Carson & Sabol, 2012)), the rate of imprisonment for women has grown at a much faster rate than for men. Between 1980 and 2008, the rate of imprisonment increased more than sixfold for women in the U.S. (11 to 69 per 100,000 residences) while the incarceration rate for men increased just more than threefold (from 275 to 957 per 100,000 residences)

(Kruttschnitt, 2010). Based on the numbers reported in the BJS publications on prison populations, in the twenty-four years from 1987 to 2011, the imprisoned population increased by 288% for females and 170% for males (BJS, 1988; Carson & Sabol, 2012). Mirroring the national trend, the female prison population in Pennsylvania increased 305% from 1987 to 2011 while the male prison population increased 213%. (BJS, 1988; Carson & Sabol, 2012). While females still comprise a small percentage of the prison population both nationally and in Pennsylvania, their faster rate of growth has resulted in a larger female prison population than ever before.

Just as men's rate of incarceration is higher generally, across all conventional measures of recidivism (including rearrest, reconviction, resentenced to prison for a new crime, and returning to prison with or without a new prison sentence) men are more likely to recidivate than women. The differences are considerable, with men's rates seven to thirteen percentage points higher than women's (Langan & Levin, 2002). The same trend can be seen in Pennsylvania, where the rearrest and reincarceration rates for men (51.8% and 44.2%, respectively) are also higher than for women (36.8% and 24.8%, respectively) (PADOC, 2013). Parole failures are also more common for male than female parolees in Pennsylvania: men are 1.6 times as likely as women to be reincarcerated due to a technical violation and over two times as likely to be reincarcerated for new criminal charges (Kramer et al., 2008). These figures suggest unique trends for men and women experiencing incarceration and recidivism in both the U.S. generally and Pennsylvania in the last several decades: while remaining a relatively small proportion of the overall prisoner and parolee population and typically

characterized by *lower* (but not low) recidivism, women experienced a larger increase in incarceration.

Mass imprisonment and reentry forces us to recognize that prisoner reentry, "the process of leaving prison and returning to free *society*" (Visher & Travis, 2003, p. 89; emphasis added), does not occur in a vacuum, and the community that the prisoner returns to matters. After being released, prisoners tend to return to a few number of neighborhoods (Petersilia, 2003) and these neighborhoods are disproportionately located in disadvantaged areas (Clear et al., 2003; Lynch & Sabol 2001; Rose & Clear, 2003; Travis, Solomon, & Waul, 2001). Neighborhood effects are defined as "the effects imposed on individuals as a result of living in a specific neighborhood that the same individual (or household) would not experience if living in a different neighborhood" (National Research Council, 1999, p. 54). There has been a significant increase in the number of empirical studies of neighborhood effects since the mid-1990s in criminology (Sampson, Morenoff, & Gannon-Rowley, 2002, p. 443) which have examined how community characteristics influence a variety of individual-level outcomes including victimization, adolescent development, delinquency, and violence.

The theoretical framework of these studies emphasizes that community characteristics shape the level of social control and the cultural manifestations within the community. Though men and women may live in similar communities after prison, their experiences are colored by their "gendered lives" as they sense and contend with society in different ways (Finneman, 1990) suggesting that contextual factors may uniquely affect, or affect through unique mechanisms, the recidivism of men and women. Communities are a reflection of race/ethnicity, class, and gender (Wilson, 1987), and

offer an alternative way to examine an individual's identity and difference in social context (Daly, 1997; Jones & Flores, 2012; Simpson, 1991; Simpson & Ellis, 1995). Gendered expectations for behavior, for example, shape how informal social control in the community affects the offending of men and women (Collins, 2004). The subcultures that develop in communities as a result of the structural conditions are also experienced in unique ways by men and women (Jones, 2008). Pathways of offending and recidivism (composite scenarios that take an offender's entire life into account to explain criminal involvement) vary within and between genders, and some of this variation can be explained, not only by individual characteristics, but by the characteristics of the community (Arnold, 1995; Chesney-Lind, 1997; Chesney-Lind & Rodriguez, 1983; Daly, 1992; Daly, 1994; Gilfus, 1993; Miller, 1986; Salibury & Van Voorhis, 2009).

There are a number of demanding challenges ex-prisoners face in reentry, including challenges that exist before incarceration (such as health and substance abuse problems), locating housing after release, securing employment, receiving treatment, and complying with the terms of supervision. Men and women may have unique challenges after incarceration, given their unique need profiles. For example, women tend to have more mental and physical health problems, substance abuse problems, lack of employment readiness, and child responsibilities than do men (LaVigne et al., 2009; Spjeldnes & Goodkind, 2009). While the neighborhood has been connected to offending, health, and economic outcomes for the general population, given their situations and needs, ex-prisoners' reentry process may be especially sensitive to neighborhood conditions such as concentrated disadvantage (Kubrin & Stewart, 2006), racial segregation (Kubrin & Stewart, 2006), and the availability of services (Hipp, Petersilia, &

Turner, 2010) as these characteristics shape ex-prisoners' experiences in the community, and these men and women may be increasingly reliant on their neighborhoods for assistance and resources.

RESEARCH FOCUS

This study will examine a promising new avenue for improving reentry success by providing a deeper understanding of the impact of community characteristics on recidivism outcomes that are experienced by parolees during their reentry process in Pennsylvania (including reincarceration, rearrest, and technical violations) as well as how gender interacts with the community setting to produce recidivism outcomes. Technical violations, including those that do not result in parole revocation, are indicators of the difficulties parolees encounter after prison such as substance abuse and employment difficulties. By examining the entire parole experience, including specific types of technical violations, a richer picture of how the community affects parolees' reentry experience can be drawn. The research utilizes a unique data set that includes parolees' entire history of parole violations and their entire residential history while on parole. This improves on prior studies that do not differentiate between types of technical violations and do not capture mobility, instead assuming that parolees remain at the same address after release from prison. In addition, the project examines the ways in which the community may exert similar or unique effects on the recidivism of male and female parolees. Given the substantial rate of parole violations and recidivism, including the large number resulting in reincarceration, ways to improve reentry outcomes for the parolee population are greatly needed. Moreover, since parolees remain under

correctional supervision in the community after release, they are more amenable to programs and policy changes that could reduce their recidivism. The characteristics of the community that is being reentered matter and parole practices should be responsive to this. For example, just as community supervision is responsive to an individual's risks and strengths (e.g., Andrews et al., 2011), parole should also take into account the parolee's community's risks and strengths when developing a re-entry plan. In addition, parole practices should be responsive to the ways that gender shapes parolees' experiences in the community. For example, men and women may have unique risks of accruing some types of technical violations due to their unique individual characteristics and experiences in their communities. If a risk or strength present in the community has particular importance for women's recidivism, simply focusing on how that community risk or strength affects men, who compose the majority of the parole population, will deprive parole of a potentially efficacious practice to reduce the recidivism of women and could potentially increase women's recidivism.

The following research areas will guide the current study. First, the frequency and patterns of recidivism for men and women will be examined. Second, guided by the prior literature and theoretical perspectives, this study will examine how individual parolee characteristics and characteristics of the areas parolees are released to affect their reentry process, as measured by multiple types of recidivism outcomes. Third, this study will examine how these ecological effects vary by gender.

The subsequent chapters will be organized as follows. Chapter 2 will review the literature on gender, context, and recidivism. Chapter 3 describes the data and methods. Chapter 4 contains descriptives of the data and discusses gendered patterns of the

parolees' backgrounds and recidivism. Chapter 5 examines the predictors of recidivism for the male and female samples. Finally, chapter 6 discusses the findings and the significance of the results, including policy implications, limitations, and suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

BEYOND REARREST AND REINCARCERATION

Though parole revocations, especially those that result from technical violations, are an important contributor to the United States' prison population, little is known about the predictors of technical violations and how these may differ from revocation for a new crime. The majority of research on recidivism uses broad measures of rearrest or reincarceration as the outcome of interest. Only a small number of studies examine the predictors of multiple recidivism outcomes including some aspect of technical violations, but even they typically limit their focus to technical violations that result in a revocation or reincarceration. However, it is unclear whether simply the lack of a revocation, reincarceration, or rearrest indicates successful re-entry and completion of parole. Regardless of whether a violation leads to revocation or not, technical violations are important to examine as they are likely to proximate the specific problems that parolees encounter, such as drug problems or financial difficulties that are not distinguished when broad measures of recidivism, such as rearrest or reincarceration, are used. A few studies provide evidence that technical violations are unique outcomes with unique predictors from traditional recidivism measures such as rearrest or reincarceration.

For example, Duwe (2012) evaluated a randomized experiment to examine the effectiveness of the Minnesota Comprehensive Offender Reentry Plan (MCORP). MCORP was designed to increase service delivery by improving access to employment, housing, and programming in the communities for released offenders. During the follow up period, five recidivism measures were compared: 1) a rearrest, 2) a reconviction, 3) a new offense reincarceration, 4) a revocation for a technical violation, and 5) any

reincarceration, whether or not it is for a new offense or a technical violation. The author found that the MCORP program did not have the same effect on all recidivism measures. While the increased service delivery made possible through the program significantly reduced three measures of reoffending related to the commission of a new crime (rearrest, reconviction, and new offense reincarceration), it did not significantly affect overall technical violation revocations.

In another study, Kramer et al. (2008) examine parole violations (both criminal and technical violations) and the sanctions applied as a result of those violations in Pennsylvania. They find that incarceration is more likely to be used as a sanction the more serious the technical violation is, suggesting that studies that use outcome measures of any reincarceration are likely to miss more minor technical violations. This is one of the few studies to include data on the technical violation for which the parolee is incarcerated or sanctioned and the variety of resulting sanctions, including but not limited to, reincarceration. However, the analysis did not distinguish between specific types of technical violations (other than absconding), even though these violations may be important indicators of the problems that parolees are encountering which may lead up to a revocation or the commission of a new crime.

Turner et al. (2012) evaluated the effect of the California Parole Violation Decision-Making Instrument on sanctioning decisions in response to parole violations. They found that parolees who committed exclusively technical violations were reincarcerated more often than those who committed only new crimes, a surprising finding considering that technical violations include minor infractions. Like Kramer et al. (2008), this study suggests the importance of considering outcomes beyond

reincarceration or conviction for a new crime as there are nuances within these broad categories and technical violations, even though many of them are relatively minor, do result in reincarceration.

There is also evidence that offenders who are reincarcerated for technical violations, rather than a new offense, may pose less of a threat to public safety. Using prison misconduct as a proxy for future dangerousness, Orrick and Morris (2012) compared those returning to prison most recently for a technical violation versus those returning for a new offense conviction and found that the offenders with a new offense conviction were significantly more likely to engage in all types of misconduct, including violence, compared with those who were returned to prison for a technical violation. The authors conclude that reducing or eliminating the return of technical violators to prison may be an effective way to lower the prison population while avoiding increasing the risk posed to the community.

Steen and Opsal (2007) examine whether there are differences in individual characteristics between offenders who successfully complete parole, who experience revocation for a new offense, and who experience revocation for a technical violation. The authors note that research on parole revocation is limited, with just a few studies (Hughes et al., 2001; Kassebaum, 1999; Kassebaum et al., 2001) examining effects of individual and parole characteristics on parole revocation using small samples and limited statistical analysis. The analysis showed that the legal and demographic predictors vary substantially depending on whether revocations are for a new offense or for a technical violation, suggesting that it is important to separate these two types of revocations and view them as two different types of decisions. For example, females are

less likely than males to experience parole revocations, but this difference is larger for new offenses compared to technical violations (females are 48% and 26% less likely, respectively). However, given that the authors did not have data on the specific type of technical violation, they are unable to explain why there are differences between the two types of revocations.

While the above studies are strengthened by using multiple, often more detailed, recidivism measures than the most common measures of any rearrest or any return to prison, they also reveal several shortcomings. First, the individual factors examined are often limited and none looks at detailed ecological factors, even though numerous studies have shown that the local context plays an important role in recidivism generally (e.g., Bellair & Kowalski, 2011; Hipp et al., 2010; Kubrin & Stewart, 2006; Mears et al., 2008; Mears, Wang, & Bales, 2012; Orrick et al., 2011; Wallace & Papachristos, 2012; Wooditch, Lawton, & Taxman, 2013; Wright & Rodriguez, 2012). Second, studies that include detailed data on the type of violation or crime (e.g. Kramer et al., 2008; Turner et al., 2012) are limited to analyses of parole sanction decision making and do not examine what factors contribute to the specific recidivism outcome. A third shortcoming of these studies is that they do not pay much attention to gendered recidivism patterns, though there are theoretical and empirical reasons for expecting men and women's patterns of and reasons for technical violations to be unique. In sum, none of these studies provide a detailed, granular analysis of how individual characteristics and contextual characteristics contribute to the entire range of recidivism outcomes. However, results from these studies do suggest that important differences are present depending on how recidivism is measured and that different measures lead to dissimilar conclusions about the predictors

of recidivism. They also suggest that recidivists with technical violations do not pose the same public safety threat as recidivists who have committed a new crime.

GENDER, COMMUNITIES, AND RECIDIVISM

There are multiple reasons for suspecting gender-specific causes of parole violations and parolee reoffending as the existing theoretical and empirical literature suggests that men and women's pathways to crime and desistance are sometimes distinct and may require unique theoretical explanations (Chesney-Lind, 1997; Daly, 1994; Steffensmeier & Allan, 1996).

Conceptual Framework

Historically, criminology linked female criminality to individual biological and psychological sources while male criminality was often associated with environmental factors (Simon & Landis, 1991). More recently, the literature is ambiguous regarding the effect of neighborhood characteristics on women and men's offending (Steffensmeier & Haynie, 2000). Traditional theories of the effect of the neighborhood context on offending generally do not make gender-specific propositions and typically focus on male criminality (e.g., Anderson, 1999; Grasmick et al., 1993; Sampson, Raudenbush, & Earls, 1997; Shaw & McKay, 1942), yet these approaches have been used by others to suggest that contextual factors will uniquely affect, or affect through unique mechanisms, the offending of men and women (e.g., Jones, 2004; 2008; 2010). These more nuanced understandings of neighborhood context and gendered crime can be extended to gender differences in parole violations.

Communities and Crime

There are several mechanisms through which communities can affect crime, both at the macro-level (the entire community) and micro-level (individuals within the community). These mechanisms which are likely to be relevant for adult ex-prisoners after release, can be grouped into two schools: social control and subculture.

Social Control

Shaw and McKay (1942) posited that structural characteristics about a community can lead to the inability of the community to realize common values and solve problems in the community. This inability of the community to regulate itself was termed social disorganization. Many structural factors have been recognized as causes of social disorganization including the division of labor (Durkheim, 1893), isolation from former cultures and urbanism (Thomas & Znaneicki, 1918), low socioeconomic status, population turnover and instability, and ethnic heterogeneity (Shaw & McKay, 1942). These structural factors lead to a diversity in the norms and standards of behavior, weakening the ability of the community to regulate behavior and control crime.

Social disorganization can take many forms, and multiple theories provide various descriptions of the components of the concept. For example, social disorganization can manifest itself in disorder which signals that the community does not have control over the behavior that occurs within it, resulting in outcomes such as graffiti, vandalism, physical decay, public drunkenness, noisy neighbors, etc. (Skogan, 1990). Social disorganization can also be manifested in social networks, including those within and external to the community (Bursik & Grasmick, 1993). These various forms of social ties include informal, private networks between neighbors, parochial networks between

residents and local institutions, and public networks among representatives, institutions, and external actors. Strong ties allow a community to exercise both formal and informal social control. This works because social ties encourage formal organizations and informal social networks that can intervene and enforce norms in the community and by encouraging the supervision and surveillance of the community, including crime in the community (Sampson & Groves, 1989). These strong ties (both informal ties to other people and formal ties to other institutions) also determine the resources available to individuals (Wilson, 1987), resources that, for ex-prisoners, may be important to promote reintegration and reduce recidivism (Kubrin & Stewart, 2006). When communities are characterized by social disorganization, social ties are weaker. Weak ties mitigate private, parochial, and public control. A third version of social disorganization is not linked to social networks per se, but instead posits that social control is exercised through trust and a shared willingness to intervene in the community (Sampson et al., 1997). In addition, crime and disorder may lead to fear, anger, and demoralization, increasing social disorganization as residents become less willing to intervene and decrease their supervision of the community in a more risky environment (Bellair, 2000; Skogan, 1990). On the other hand, crime can fuel outrage, motivating residents to exercise more informal surveillance, thereby decreasing social disorganization (Bellair, 2000).

Subculture

In addition to social control, cultural mechanisms can also explain how the community can influence crime. Class-based subcultural explanations implicate similar structural factors as social disorganization theories including economic disadvantage as well as isolation from the middle class and legal cynicism (Anderson, 1999; Miller, 1958;

Sullivan, 1989; Willis, 1977; Wolfgang & Ferracuti, 1982). These subcultures provide an alternative value system to that of the middle class and may require or simply tolerate violence or other forms of deviance. For example, Elijah Anderson (1999) explains crime in urban, minority communities as a result of a cultural manifestation of social conditions typically found in these areas. This cultural manifestation is called "the Code of the Street," defined as an informal system of rules that govern inter-personal behavior and violence in urban, black neighborhoods. This cultural manifestation is a result of structural conditions typically found in disadvantaged areas where segregation and lack of jobs are prevalent. These structural conditions lead to a feeling of alienation and perceived inadequacy of the criminal justice system. As the criminal justice system cannot be relied upon (police, etc.), a need for self-help and the need to protect one's safety emerges. The Code emphasizes reputation, respect, and retaliation. Following the code means carrying oneself with a defensive posture to avoid confrontation and, if challenged in public, to respond with aggression. The result is that poor, urban men are encouraged to risk their lives in order to be respected and recognized as a man by others.

Gendered Communities

The concept of "gendered lives" suggests that men and women experience society in significantly different ways (Fineman, 1990). Women have unique experiences from men (e.g., rape, sexual harassment, pregnancy, etc.) and they share experiences with men that they experience in unique ways (e.g., aging has distinct social and economic impacts for men and women). Some contexts are less apt to be shared (for example, women are more likely to have responsibility for the care of dependent children), which suggests that

some experiences themselves may be uniquely gendered. Nonetheless, even if men and women parolees live in similar contexts and experience the same structural conditions as are described in the theories above (Steffensmeier & Allan, 1996), such as disadvantage, lack of employment opportunities, and lack of faith in the criminal justice system, they may experience these things in different ways. One way this occurs is through gendered expectations of behavior (Collins, 2004). For example, social control of females—primarily informal control—is greater than it is for males. This translates into greater supervision (females are more closely monitored) and constraints over female risk-taking through negative sanctions and stereotypes. Because crime is a form of risk-taking, gendered expectations affect the willingness and ability of women to commit crime more so than for men (Simmons & Blyth, 1987; Steffensmeier & Allan, 1996). The implication is that structural factors associated with social disorganization (such as bonds and stability, disadvantage, and employment) will have a greater effect on women's recidivism as the available social control in the community will be used to monitor female behavior more than male behavior. This gender difference is likely to be strongest for technical violations due to the fact that the greater social control women experience also comes from another source; criminal justice agents such as parole officers (Kruttschnitt & Green, 1984; Nagel & Hagan, 1983). Female parolees who reside in areas with lower levels of social control will experience less supervision and constraints from their community; in addition, parole officers may be more likely to record technical violations that are seen as counter to the appropriate sex roles of women (such as maintaining a stable residence, attending treatment and abstaining from drugs, attending meetings with parole officers). Gendered differences in the expectation that parolees

refrain from criminal activity is likely to be smaller than the expectation that they refrain from these non-criminal, rule-breaking behaviors.

Jones (2004; 2008; 2010) incorporates the ideas of gendered lives and gendered expectations of behavior to extend Anderson's (1999) Code of the Street to young, inner-city women as well as men. Jones and Anderson theorize about urban, disadvantaged, minority communities, characteristics that often describe the communities that offenders are released to (Clear et al., 2003; Lynch & Sabol 2001; Rose & Clear, 2003; Travis et al. 2001). Other theorists highlight how patterns of offending and victimization are affected by the intersection of gender, race, and class (e.g., Daly, 1997; Jones & Flores, 2012; Simpson, 1991; Simpson & Ellis, 1995). Communities not only represent and reproduce gender divisions, but racial and class segregation as well (Wilson, 1987). Distinctions are revealed in factors such as family structure, female-headed households, and the presence of men in the community (who may be removed through imprisonment or violence). To the extent that communities represent the intersection of gender, race, and class, one's community offers an additional approach to examining intersectionality.

Collins (2004) elaborates on the connection between the Code of the Street and masculinity and explains that the recent over-criminalization of urban areas, as seen in the very high rates of incarceration in these areas, exacerbates, and is exacerbated by, the Code. Men in these communities cycle in and out of correctional facilities, such that the community has become a nexus of prison, youth, and street cultures which cumulatively exert additional pressure on Black men (particularly young, working class men) not to be seen as "weak". Young men respond to these circumstances of inner-city life in a way

that reflects elements of hegemonic masculinity[3], including the belief that a "real man" must demonstrate control over violence. Violence, then is used to demonstrate one's strength as men, combining strength with dominance. Since young, poor, urban, Back men have fewer methods to "do gender" legitimately (accomplish masculinity), they are more likely than white, middle-class men to use physical aggression and violence to demonstrate their manhood[4] (Jones, 2008; Messerschmidt, 1993; West & Zimmerman, 1987). The implication of this is that men in disadvantaged areas may be more likely to recidivate after release from prison, particularly through violence, as they respond to the structural conditions in their communities. "Doing gender" could also lead to other types of recidivism for men including thefts to earn respect (Anderson, 1995; Simpson & Ellis, 1995) or finding employment (legitimate or illegitimate) in order to be the breadwinner for family members or partners.

Collins' work describes how the Code operates in a gendered manner for men, suggesting that it may uniquely impact women's behavior. Women in these urban, disadvantaged communities also must survive in the same structural conditions (Baskin et al., 1993; Jones, 2008; Sommers & Baskin, 1992). Being female does not protect inner-city girls and young women from much of the violence as both men and women are continuously preoccupied with survival. However, women must balance the Code of the Street with the benchmarks of hegemonic femininity (the culturally normative ideal for

[3] Hegemonic masculinity can be "understood as the pattern of practice (i.e., things done, not just a set of role expectations or an identity) that allowed men's dominance over women to continue" (Connell & Messerschmidt, 2005, p. 832). While it is the normative form of masculinity, only a minority of men (white and upper/middle class) are able to enact it.

[4] The concept of "doing gender" suggests that masculinity and femininity are not essential properties of individuals and, instead, are characteristics that are carried out through interaction with others. Because individuals are held accountable to others for their actions, they chose their actions based on how they may be interpreted by others within the social context (West & Zimmerman, 1987).

female behavior) which is achieved through things such as normative standards of beauty and displays of submissiveness to men (Jones, 2008). These competing expectations require that girls and women code-switch between these two identities. However, both young men and young women are committed to the Code such that they mask signs of vulnerability, do not want to be seen as weak, and will use violence when necessary (Jones, 2008; 2010). For example, when it is necessary, girls and women may use violence to facilitate their movement through their neighborhood or school as well as to come to the aid of others. Jones highlights two strategies that females use to reduce encountering serious threats while in public. One way is by using situational avoidance, confining oneself to the home and limiting one's movement in the community. Another strategy is relational isolation; isolating oneself from close friendships, especially other young women, as those ties increase the likelihood of needing to come to another's defense.

While the situational characteristics may vary by gender (for example, boys and men are more likely to use guns while girls and women are more likely to use no weapon or a knife), the women Jones studied still used violence while embracing popular notions of femininity. However, the girls and women did not couple strength and dominance, and instead saw surviving as more important than winning with lethal violence. In addition, the structural context and the code of the street exacerbates the problem of intimate violence for inner-city girls and women by increasing the likely use of violence by male partners and reducing the availability of social and economic resources to manage a violent relationship (Jones, 2010). In disadvantaged areas where there are few positive education opportunities or legitimate employment opportunities in which they can gain

success, property crime and prostitution offers women alternative methods for succeeding and accomplishing femininity (Simpson & Ellis, 1995).

Gendered Communities Expectations

As Anderson (1999) explains, this use of violence under the Code of the Street originates from the structural conditions of the communities. These cultural manifestations can be traced back to the isolation and alienation that results from the lack of decent work opportunities and housing conditions and the lack of faith in the criminal justice system. The work of Jones and Collins suggests that these structural conditions lead to violence by men as well as women. However, because of the competing demands of femininity, the use of situational avoidance and relational isolation, and the lack of coupling strength and dominance may temper the effect of disadvantage on women's use of violence. So, while structural disadvantage will likely be important for explaining violence among both men and women, it may be more strongly related to men's violence. The implication of this is that structural disadvantage of the community will be more strongly related to men's recidivism, especially violent recidivism, than for women's, though it is still an important factor in explaining women's behavior. On the other hand, structural conditions and gender expectations may be equally likely to promote property crime for men and women Employment may be an important method of doing gender for men, suggesting that men in less disadvantaged areas will be more likely to maintain employment during parole.

Gendered Pathways

Gendered pathways, observed by feminist scholars, also give insight into the ways that communities texture offending (and recidivism) patterns. This body of literature

connecting women's early and adult life experiences to later offending has emphasized the importance of childhood victimization, mental illness, substance abuse, dysfunctional intimate relationships, adult victimization, social capital, and human capital (Arnold, 1995; Chesney-Lind, 1997; Chesney-Lind & Rodriguez, 1983; Daly, 1992; Daly, 1994; Gilfus, 1993; Miller, 1986; Salisbury & Van Voorhis, 2009). These life experiences are affected by the gendered nature of girls' and women's environments (Arnold, 1995; Chesney-Lind, 1997). While these pathways do not directly address the community context, they implicate mechanisms through which the community may influence offending. One example of the pathways approach can be seen in the work of Daly (1992; 1994) who expanded the focus beyond how the immediate circumstances influence offending, and examined composite scenarios (the context of offenders' entire lives). These composite scenarios were developed based on male and female defendants in felony court: a sample of more serious offenders which is similar to the more serious offenders present among ex-prisoners on parole. Using these life histories, Daly developed pathways of offending for women and men, supported by the work of other theorists such as Chesney-Lind (1997).

For the women, Daly (1994) identified five pathways that lead to felony court. First, the *harmed-and-harming woman* was abused or neglected and exhibited problem behavior during childhood. Childhood abuse and neglect was a common feature among both Black and white women. In adulthood, she also exhibited psychological problems. Unable to cope with her current situation, she turned to alcohol and is often addicted to drugs. She was violent when drinking and confrontational during interpersonal disputes, leading to current criminal activity. The key to this group is the history of problem

behavior, substance abuse, and psychological problems. For the harmed and harming woman, communities may impact current offending through available services that address these long-standing problem behaviors. Second, the *battered woman* is in or was recently in a relationship with a violent man, and this led to criminal activity directly related to this violent relationship. Often, this criminal activity is in the form of violence to fight back against a violent partner and/or using drugs with her partner. In Daly's sample, women in this group tended to be more often Black or Latin than white. For these battered women, the community matters to the extent that it determines the opportunity for a violent relationship (e.g., a lack of social control to regulate intimate partner violence) and the options for dealing with the abusive relationship (e.g., social support/informal control and service availability/formal control). Third, *street women* were pushed out or ran away from abusive households to live on the streets or were drawn to the excitement of the street and the illicit opportunities it offered. Chesney-Lind (1997) noted the existence of racial differences in women with this history; it was more common among Black or white women rather than Latin, and the effects of parental abuse was even more pronounced for the Black girls. While drug use and running away from home lead women of all races to street life, Black women may also enter street life through criminally-involved extended family. Women in this group got involved in petty hustles, became addicted to drugs and engaged in prostitution, theft, or selling drugs to support the habit, and developed a long offending history. This group, who is caught in the street lifestyle, may not be affected much by the community's resources as they are ensnared in this lifestyle rather than being driven by the economic opportunities and service availability in the community. However, this group is most likely to be found in

high-crime neighborhoods where drugs and co-offenders are available as they are drawn to these neighborhoods for the opportunities they offer. Fourth, *drug-connected women* were addicted to drugs as a result of a relationship with a boyfriend or they sold drugs through a relationship with their children or mothers (Daly, 1994). For this pathway, the relationships with family and partners matter rather than the community context as women became addicted to drugs through their connections with others who are drug-involved. However, the community determines the level of control the community has over crime, affecting the available opportunities that make drug use and sales more or less available. The last category (called the *"other"* category) was more motivated by economic gain. This group had economic motives that were unrelated to drug addiction or a street life. Although this was a small group of women in Daly's sample, this pathway suggests that the economic context of the community may be important to current offending.

The pathways research also implies that race and the racial characteristics of neighborhoods are apt to affect life experiences (Miller, 1986). African American women tend to grow up in more economically marginalized families than the white women (Gilfus, 1993). In addition, extended family networks are more prevalent among African American women, and they are more likely to have criminally-involved family members as part of this extended domestic network (Miller, 1986). These extended kin networks develop in response to economic strain, as the kin network can provide financial resources, as well as in response to the heated tensions that often results from economic marginality, as it can provide an escape from a home that is violent or full of conflict (Chesney-Lind, 1997). As a result, these networks are formed in order to achieve some

level of financial and emotional security (Miller, 1986). While the extended family may offer the child greater protection and isolation from neighborhood risks by increasing familial supervision, it also offers another opportunity to initiate Black girls into street crime as they are introduced to crime and offend with family members. White and Hispanic women, on the other hand, seem to be less likely to offend with family members. These experiences of women who live in somewhat similar neighborhoods suggest that their pathways into crime are shaped by their race. An implication of this is that various racial compositions of the communities may reveal different processes within it that may lead its residents to offending or reoffending. For example, an African American community that attracts a large number of returning prisoners may contain a large number of familial co-offenders while a community that is largely Hispanic or white may be more likely to be composed of non-relational co-offenders. In addition, in impoverished, largely African American communities, women may be more likely to offend and re-offend in order to provide for their families while other motivations may be key in non-African American neighborhoods.

Focusing on recidivism by probationers, Salisbury and Van Voorhis (2009) posit that there are three unique models or pathways for women's recidivism which involve similar processes to those suggested by the earlier pathways literature, suggesting a great deal of overlap between pathways of women's offending generally and pathways of recidivism. Examining a sample of women convicted of a felony and sentenced to probation, the first model is the childhood victimization model in which child abuse indirectly affected women's recidivism though its psychosocial and behavioral effects such as depression, anxiety, and substance abuse. This model suggests that services to

address adult mental health and substance abuse, including services available in the community, would be important for reducing recidivism. Second, the relations model describes a pathway in which dysfunctional relationships—painful, unsupportive, unsatisfying intimate relationships in which the women had little personal voice or power—increased recidivism indirectly through its effect on increased risk of adult victimization, reduced self-efficacy, depression and anxiety, and addictive behavior. This pathway suggests that disadvantaged communities, to the extent that they are related to strained relationships and victimization, may be an important factor for these women's recidivism. Lastly, the social and human capital model describes a pathway in which the traditionally gender-neutral risk factors of employment and financial problems both contributed directly to recidivism and their contributions were exacerbated by their effects on gendered constructs such as lack of support in romantic and familial relationships and diminished self-efficacy (Salisbury & Van Voorhis, 2009). This pathway suggests that the community, to the extent that it structures employment availability and economic marginality, may contribute to recidivism as it structures individuals' personal relationships (Chesney-Lind, 1997).

For the men, Daly identified four pathways—some were overlapping with the women but differed qualitatively. First, *street men* differed from street women in that they sometimes withdrew from street life to get regular jobs. Similar to the street women, this group was more likely to be Black. They also did not run from abusive households. Although boys do experience childhood physical and sexual abuse, boys are less likely to experience abuse, are less likely to experience abuse as early, and are less likely to run away from home as a result of the abuse or become involved in delinquency (Chesney-

Lind, 1997). Rather, these men turned to street life because they had dropped out of school because they were not doing well and began working. Since street men may enter the labor market and leave street life, they are more likely to be influenced by employment opportunities in the community. Second, *drug-connected men*, like drug-connected women, were not necessarily heavily addicted to drugs. Rather, their offending supported a part-time recreational habit. However, the men differed from the women in that their drug use and drug selling was not linked to girlfriends or family members. Instead, peers were more important, suggesting that the presence of other offenders in the community who can serve as potential co-offenders may be important for these men. Third, *harmed and harming men*, like harmed and harming women, experienced childhood abuse or neglect and grew up in chaotic family circumstance. However, this group differed from the women in that they were not characterized by family members as "out of control" and did not show as much alcohol-related violence as the women. Like the harmed and harming women, the link to the community context is less clear.

The final pathway identified for males consists of three groups which fall under *excesses of masculinity*, encompassing masculine-specific contexts and forms of law-breaking. First, the explosively violent men, unlike the harmed and harming group, were not likely to have been victimized by abusive or alcoholic parents growing up, but rather had problems with alcohol abuse which were linked to work pressures and other life problems, often economic. Disadvantage and employment availability may influence this pathway, given that the explosive violence is often set off by work or financial-related circumstances. Second, bad luck men did not abuse drugs or alcohol and were simply in the wrong place at the wrong time and they had to defend themselves or others from

harassment. Third, the masculine gaming men considered crime as a form of recreation rather than a form of economic gain. This pathway is similar to the delinquent subculture that develops out of status frustrations (Cohen, 1955; Miller, 1958); this process is closely linked to community disadvantage and the lack of employment opportunities. Rather than gaining status through legitimate employment, status is gained through criminal acts.

Pathways Expectations

The pathways perspective observes a large deal of intra-gender variation. Some of this variation may be explained by features of the community as neighborhoods are a reflection of race and class. Some generalizations across the various pathways that have been proposed can be made regarding the mechanisms through which the community may impact the offending of men and women parolees whose pathway to offending began much earlier in their lives.

Some community features are likely to affect reoffending for both men and women. For example, substance use and abuse is prevalent among both men and women, although the context of the drug use may vary by gender with drug-connected women more likely to be involved in drugs through a partner or family member while drug-connected men are more likely to be recreational drug users. This suggests that the availability of drugs in the community and the availability of treatment services will be important for the recidivism of both men and women. As living in proximity to a greater number of offenders, who may serve as co-offenders, are important for women's and men's pathways (Daly, 1994; Miller, 1986), the availability of offenders in the community should affect offending for both genders. However, given that women are

more likely than men to offend with family members and intimate partners, the number of offenders in the community may be relatively less important for determining opportunity to engage in crime for women compared to men.

On the other hand, the gendered nature of the pathways suggests that some community features may have unique effects on men's and women's recidivism. For example, for women, service availability may be more important in order to address persistent substance abuse and psychological problems present among the armed and harming women which may, as a result of interpersonal disputes or economic dependency on criminally-involved others, lead to offending.

In addition, abusive intimate partner relationships are also prevalent in the women's pathways. Service availability may also be important for dealing with abusive relationships that may directly lead to offending as well as addressing drug addiction which may make drug-related crimes and crimes to finance the addiction more likely. Strong social ties present in the community may affect women parolees' offending as they increase the community's ability to respond to abusive relationships (Browning, 2002).

Since current economic gain or economic strains themselves are not identified as key contributors to current offending for women, this suggests that factors such as disadvantage and employment will be more important to men's offending. Street men seem to be less committed to the street lifestyle and may take advantage of legitimate employment opportunities. The excesses of masculinity pathway also suggests that men's offending is influenced by work pressures, economic problems, and status frustration linked to a lack of legitimate opportunities, implying that disadvantage and employment

plays an important role in determining men's offending. However, economic strains may contribute to women's offending as well. Disadvantage in the community may exacerbate the problem of intimate violence for inner-city girls and women by increasing the likely use of violence by male partners and reducing the availability of social and economic resources to manage a violent relationship (Jones, 2010). In disadvantaged areas where there are few positive education opportunities or legitimate employment opportunities in which they can gain success, women may turn to property crime and prostitution as alternative methods for succeeding and accomplishing femininity (Simpson & Ellis, 1995).

In sum, these theoretical perspectives enforce the idea that different aspects of the community context may play similar or unique roles in shaping the recidivism of men and women. Economic factors, such as structural disadvantage and employment opportunities play a more important role in the explanations of men's offending while social ties and service availability play a more important role in the explanations of women's offending. The presence of other offenders in the community (a number driven by the number of non-familial offenders living in the community), on the other hand, plays an important role for both men and women's offending. However, for women, the availability of familial co-offenders in addition to the number of offenders in the community generally may be important.

While these theoretical perspectives generalize to serious offenders, it is unclear how well it applies to the specific subset of serious offenders composed of ex-prisoners on parole. The primary difference between this subset and the population of serious offenders as a whole is that parolees are subject to increased monitoring and additional

opportunities for offending through technical violations. However, there is no preemptive reason to believe that these mechanisms will not also apply to violations of parole conditions. As the theory suggests that characteristics about the community lead to different consequences (such as violence, drug use, property crime, etc.), it is important to disaggregate these behaviors as they are each important indicators of the difficulties parolees encounter after prison. While the conceptual framework has focused on criminal activity and violence, characteristics of the community may also offender other post-release outcomes that are critically important to reintegration "including finding and holding a job, avoiding use of alcohol and illegal drugs, finding affordable housing, and receiving physical and mental health care. Yet there has been no research on identifying, measuring, and examining the effects of neighborhood factors on these outcomes" (Visher & Travis, 2003).

Empirical Research on Gendered Contexts of Crime and Desistance

A large body of empirical literature exists on the similarities and differences in men and women's patterns and contexts of offending. In addition, women's processes of desistance are often unique from men's (Giordano, Cernkovich, & Rudolph, 2002; Uggen & Kruttschnitt, 1998). This literature suggests that the reentry process may be colored by gender and awareness of this fact has led to the creation of gender-responsive programs (Stalans, 2009) (including health-related programing as well as housing, employment, and child care services), though the development of such programs in reentry has been spotty at best (Kruttschnitt, 2010; Kruttschnitt, 2011).

While “most of the empirical knowledge of reentry has been derived from studies using all-male or single-gender samples of the correctional population” (Cobbina, Huebner, & Berg, 2012, p. 346), the available research does suggest many differences. For example, empirical research has shown gender differences in offense rates and recidivism rates. Men’s recidivism rates are higher than women’s (Langan & Levin, 2002; Spjeldnes & Goodkind, 2009) and a higher proportion of women are incarcerated for drug crimes (25%) compared to men (17%) and property crimes (29% of women and 18% of men). A higher proportion of men are incarcerated for violent crimes (54%) than women (37%) (Carson & Sabol, 2012).

Women also have distinct needs that need to be addressed during reentry: women tend to have more mental and physical health problems, substance abuse problems, lack of employment readiness, and child responsibilities than do men (LaVigne et al., 2009; Spjeldnes & Goodkind, 2009). Though these are needs that are important for both men and women, women often experience greater needs in these areas (Spjeldnes & Goodkind, 2009). Women must also frequently face the burdens of single motherhood and encounter a lack of services and programs that target women (Covington & Bloom, 2006) as many communities lack sufficient services to address women’s needs during reentry including those addressing childcare and parenting skills development, healthcare and counseling services, housing and transportation, and education (Scroggins & Malley; 2010). Female offenders are more likely to grow up in families marked by long-term poverty and social problems and are more likely to experience exclusion from the labor market and family formation than males (Estrada & Milsson, 2012). A large proportion of women who commit crimes have substance abuse issues, and women substance

abusers often have worse socioeconomic indicators than men, experience higher rates of abuse, are more likely to have dependents and to have other family members who are substance abusers, engage in less serious crimes, and may have greater

Research on individual social ties also suggests that different social ties are more salient for men and women. Past research has found that criminal peer associations tend to be more criminogenic for men than women during reentry while women tend to experience greater benefits during reentry from quality familial and intimate partner relationships (Benda, 2005; Cobbina et al., 2012). Whereas social factors such as relationships to family, partners, and friends, having a criminal partner, having children, and involvement in conventional activities were more important for women's recidivism than men's (Alarid et al., 2000; Benda, 2005), instrumental factors such as alcohol abuse, education, and job satisfaction were more important for men's recidivism than women's (Benda, 2005). As a whole, this research suggests that men and women's reoffending behavior may have somewhat different predictors. Though this research focuses on reoffending, it is also likely that the predictors of men and women's problems during reentry (including non-criminal technical violations) also vary. Additionally, as men and women's needs during reentry differ (such as mental and physical health problems, chemical dependency problems, and lack of employment readiness), men and women will experience different rates of technical violations that are directly related to these needs. For example, if more women experience a lack of employment readiness, they may have more technical violations related to unemployment.

EMPIRICAL LITERATURE ON COMMUNITIES AND RECIDIVISM

Until recently, research on recidivism largely focused on individual factors associated with recidivism risk (e.g. Gendreau, Little, & Goggin, 1996; Cullen & Gendreau, 2000). This research has identified numerous individual characteristics that are associated with a higher risk of recidivism including age, gender, race, and criminal history. While some of the risk factors that have been identified partially capture contextual information through measures of the offender's employment status, peers, and marital status, these are still treated as individual-level measures. The focus on individual characteristics was driven partially by the belief among policy makers, practitioners, and some scholars that recidivism risk is individually determined (Kubrin & Stewart, 2006). As a consequence, risk prediction instruments that have been developed (e.g., Level of Service Inventory-Revised (LSI-R)) focus exclusively or primarily on individual factors (Cullen & Gendreau, 2000; Kubrin & Stewart, 2006). Like the broader literature, the gendered recidivism literature largely focuses on these individual-level influences.

However, there has been a recent wave of research investigating the role of context on recidivism, sparking interest in the ecology of recidivism. This strain of research draws from the large body of literature connecting ecological variables to crime (e.g., Pratt & Cullen, 2005; Sampson et al., 2002), suggesting that just as the context plays an important role in determining crime rates, victimization, adolescent development, delinquency, and violence (c.f., Anderson, 1995; Collins, 2004; Jones, 2008), it is also important for understanding recidivism. Ex-prisoners may be particularly affected by the neighborhood structure as they are often reliant on community networks, resources, and services (Kubrin & Stewart, 2006) given their greater needs and the

disruptions to their ties to economic and social institutions caused by their time in prison (Visher & Travis, 2003).

As discussed earlier in this chapter, criminological theories suggest multiple mechanisms through which the community may impact offending. While these theories have traditionally been used to explain crime outcomes such as crime rates or homicide rates (e.g., Mears & Bhati, 2006; Sampson et al., 2002), they may also explain crime among released offenders (Mears et al., 2008). To the extent that ex-prisoners have greater needs that they must rely on the community to address, this group may be even more susceptible to the influences of community characteristics such as levels of formal and informal social control, the availability of services and local labor market conditions, social isolation, and opportunities to engage in crime (Morenoff & Harding, 2011). Through these mechanisms, ecological characteristics may drive offenders' success or failure during reentry. In addition, though not yet addressed in this body of research, the gendered lives of men and women may affect how parolees experience and respond to the conditions in their communities.

Gottfredson and Taylor (1986; 1988) conducted an early ecological analysis by looking at recidivism among individuals in Baltimore neighborhoods. They found no direct contextual effects and few, inconsistent individual-contextual interactions. However, this study looked at a relatively small sample (500 individuals) within one city and limited variables (ecological variables included incivilities and non-residential land use). Their call for further research was not answered for some time. In the past few years, numerous studies have begun looking at the effect of the ecological context on recidivism (Bellair & Kowalski, 2011; Hipp et al., 2010; Kubrin & Stewart, 2006; Mears

et al., 2008; Mears et al., 2012; Orrick et al., 2011; Wallace & Papachristos, 2012; Wooditch et al., 2013; Wright & Rodriguez, 2012). Recently, community characteristics have even been integrated into recidivism risk prediction, moving away from the belief that risk is individually determined. Berk et al. (2009) forecasted the risk of homicide or attempted homicide among a sample of probationers and parolees in Philadelphia and found that the number of people residing in the offender's zip code, median household income in the zip code, and the proportion of the population in the zip code that is African American all contributed to the risk forecast.

Recent studies have examined the influence of many additional contextual factors on recidivism including disadvantage, affluence, unemployment and job availability, the availability of social services and health care organizations, disorder, residential stability, racial and ethnic heterogeneity, criminal justice system resources, and social support. The recent attention of research on the ecology of recidivism began with a study conducted by Kubrin and Stewart (2006) in which they examined the effect of neighborhood disadvantage and concentrated affluence on recidivism for a sample of about 5,000 ex-prisoners in Oregon. They found that, controlling for individual characteristics, those who returned to disadvantaged census tracts were re-arrested at a higher rate than those who returned to more affluent census tracts. The authors expressed the need for more detailed data which would help explain precisely how the neighborhood affected recidivism rates. Subsequently, numerous studies have further examined ecological influences on recidivism, though the mechanisms through which the neighborhood affects recidivism is still largely speculative, a consequence of the lack of detail available in the data.

These studies, discussed below, have suggested that recidivism is related to many ecological factors implicated in criminological theory including the level of resource deprivation and racial segregation in ex-prisoner's communities, the opportunity for offending and employment, the level of immigration, and the availability of service providers and community resources.

Disadvantage and Resource Deprivation

A couple of studies, in addition to Kubrin and Stewart (2006), have examined the influence of racial economic inequality and racial segregation on recidivism. These studies support a qualified link between racial economic inequality or segregation and recidivism: these contextual factors matters for some groups of offenders, and their effect differs by the type of crime.

Mears et al. (2008) and Orrick et al. (2011) conducted studies using a cohort of male offenders released to counties in the state of Florida. The findings suggested that resource deprivation was associated with greater violent recidivism, less drug recidivism, and did not significantly affect property recidivism. However, the authors' explanations of their findings remain speculative in lieu of more detailed data with which to untangle the mechanisms.

Reisig, Holtfreter, and Morash (2007) focus on *Black* male prisoners in Florida. They find that prisoners released to communities with greater levels of economic deprivation among Blacks, contrary to their expectations, significantly *reduced* the probability of reconviction for a felony. The authors speculate that this may be because greater deprivation indicates less governmental resources (they measure government

resources by police officers per capita) and because citizens are more mistrusting in these areas and reluctant to assist officials apprehend and convict ex-prisoners who reoffend. These mechanisms reduce the ability of the police to make arrests when ex-prisoners recidivate. However, the authors also suggest that these areas with high levels of deprivation may also have fewer resources in the community to support reentry. Fewer resources may increase technical violations as parolees are unable to find the resources to abide by the conditions of their supervision, though the authors to not examine technical violations. The authors conclude that future recidivism research should account for the social context to which black ex-inmates are released as prisoners are not released into a social vacuum. They reenter communities with differing levels of economic inequalities that potentially constrain their ability to pursue conventional lifestyles (Reisig et al., 2007, p. 427). However, it is important to keep in mind that only felony reconviction was examined, and different community processes may be present for other less serious forms of recidivism.

Labor Market and Employment

Several studies have examined the role of macro-level labor market conditions on individual-level recidivism among ex-prisoners. While labor market indicators are often included as a component of disadvantage, employment opportunity is an important ecological characteristic on its own. Overall, these studies offer qualified support for the link between labor market conditions and recidivism: worse labor market conditions, declines in labor market conditions, or unavailability of employment in low-skill sectors are associated with greater recidivism, though these effects are often offense-specific.

For example, Raphael and Weiman (2007) found evidence that employment availability may have more of a lagged effect than an immediate effect, suggesting that the challenge for parolees is not finding a job after release, but rather keeping the job for a long time.

Examining reconviction for different types of crimes, research has found that the availability of employment for male offenders (Wang, Mears, & Bales, 2010) and changes in the availability of employment for Black, male offenders (Mears et al., 2012) affects violent recidivism, but not property or drug offending. Wang et al. (2010) speculate that the employment context might be linked to violent crime because unemployment contributes to strain and anger, leading to violent, expressive crimes (cf. Anderson, 1999) or because males might seek alternative ways to survive and express their masculinity through violence (cf. Messerschmidt, 1986). However, the mechanism through which employment exerts its effects can only be speculated, and the analysis is limited to serious recidivism and to black and white male ex-offenders, though the authors suggest that an important avenue to explore is how race-specific employment context affect female ex-prisoner recidivism given that they are becoming incarcerated at higher rates and because the labor market is stratified along race and gender lines, likely resulting in different effects for male versus female ex-prisoners.

Immigration

Traditional social disorganization theories predict that higher immigration rates will be associated with higher crime rates, as immigration is accompanied by higher rates of poverty, mobility, and population heterogeneity, all factors that lead to a breakdown of

communication and cohesion in a community. On the other hand, the immigration revitalization perspective posits that immigration will be associated with lower crime rates, as immigration is associated with higher rates of two-parent families, economic renewal of the areas they settle into, and high rates of social capital (Lee & Martinez; 2002; Martinez, Stowell, & Lee, 2010; Ousey & Kubrin, 2009).

Two studies have examined the effect of immigration concentration on recidivism and have not found a strong link, though the relationship between immigration concentration and recidivism may be gender-specific. Tillver and Vose (2011) greater residential stability was associated with lower recidivism. They speculate that communities with high residential instability may lack the stable social networks necessary to both provide social support and resources for reentry and exert informal social control. This is counter to the conclusion offered by Hipp et al. (2010) who show that service providers are *less* likely to be located in areas with greater residential stability, increasing recidivism in more stable areas. Tillyer and Vose (2011) also found that immigration concentration was unrelated to recidivism (a new felony or aggravated misdemeanor conviction within three years). Although not examined, it could be that immigration concentration strengthens social institutions, such that immigration indirectly affects recidivism through its effects on the revitalization of community social services, though the authors can only speculate regarding mechanisms that explain their findings.

Although not studying re-entry among ex-offenders released from prison, Wright and Rodriguez (2012) examine the impact of immigration on male and female *juvenile* offenders. Boys who lived in high immigrant communities and disadvantaged areas were

more likely to recidivate than boys who lived in low immigrant or disadvantaged areas while Latino/a youth who lived in high immigrant communities were less *likely* to recidivate than those who lived in low immigrant communities. Additionally, while immigration concentration was not a significant predictor of recidivism for White boys or Latino boys, but *Latina girls* who lived in high immigrant communities were less likely to recidivate than those living in low immigrant communities, indicating that the ecological effects may be contingent on individual characteristics with regards to re-offending. Overall, these studies present theoretical reasons for expecting an effect of aggregate-level immigration concentration on recidivism. However, the empirical support is limited due to the small number of studies and the narrow measures of recidivism. When gender-specific effects are examined (Wright & Rodriguez, 2012), though, there is some evidence that immigration concentration is a greater protective factor for females compared to males.

Service Providers and Community Resources

A few studies have explored the effect of the availability of service providers on recidivism and have found that lower availability of services or the loss of service providers is associated with greater reoffending, though this relationship may be conditioned by neighborhood disadvantage and individual demographics.

Examining recidivism in the form of a return to prison within a one to two year follow up period, Hipp et al. (2010) use data on a cohort of prisoners released in the state of California. The findings suggested that the availability of nearby social service providers reduced the county rate of return to prison, and that this positive effect is

reduced as potential demand increases (as more parolees live near the service providers) and services become overtaxed. Further, concentrated disadvantage was also associated with higher rates of return to prison. Counterintuitively, residential stability was also associated with higher rates of return to prison; the authors posit that this findings may be explained by the fact that there are fewer service providers in areas with greater residential stability.

Wallace & Papachristos (2012) focused their attention on the availability of health care organizations, and found that neighborhoods with higher levels of concentrated disadvantage experienced higher recidivism when they lost organizations and larger reductions in recidivism when they gained organizations, indicating that disadvantaged neighborhoods may be more reliant on these organizations. The authors suggest that health care organizations may reduce recidivism by addressing the numerous health needs among released prisoners, increasing ex-prisoners' ability to manage their daily lives. Ex-prisoners who are in better health may have lower rates of substance abuse, be able to take advantage of more employment and educational opportunities, and maintain better familial and intimate partner relationships, indirectly reducing recidivism.

Offender Concentration

Recent research also suggests that the community influences opportunity for offending by determining the availability of drugs and interaction with other recidivists. Wooditch et al. (2013) examine ecological influences on drug use among 250 drug-involved probationers in Baltimore, Maryland. The findings suggested that, controlling for individual characteristics, nearby drug availability was associated with risk of drug

test failure; just as the availability of resources has been shown to affect offending outcomes (Hipp et al., 2010; Wallace & Papachristos, 2012), this study supports the importance of ecology for a subset of drug offenders. While they do not account for other potentially important community characteristics such as the availability of drug treatment services and cannot rule out self-selection, they suggest that treatment programs could be improved by preparing users to overcome environmental cues that promote drug use.

Stahler et al. (2013) examine the effect of living in proximity to others who are reoffending. Using data on prisoners released in Philadelphia County in Pennsylvania, recidivism was measured as any re-incarceration within three years of release (whether for a new crime or a technical violation). They found that an increase in the reincarceration rate nearby (the percentage of ex-prisoners within a one mile radius who were reincarcerated) increased the likelihood of reincarceration. This finding was consistent across offenders originally convicted of drug, violent, or other crimes.

GENDERED COMMUNITY EFFECTS ON RECIDIVISM

There is a paucity of studies empirically examining the effect of neighborhood influences on recidivism for female samples. One exception is Huebner, DeJong, and Cobbina (2010) who examined a sample of women released from prison, though they only examine one community-level variable: concentrated disadvantage. When race-specific models were examined, concentrated disadvantage approached significance for minority women, such that non-white women returning to disadvantaged neighborhoods were less likely to fail on parole, an effect unique from white women. Non-white women returned to substantially more disadvantaged neighborhoods and the authors propose that

the race differences may be a result of criminal justice decision-making that is affected by gender, race, and social location or because women of color may retreat from community life when faced with communities of disadvantage and crime. The study is limited, however, as other possible measures of community context (including services in the community) are not available and due to methodological deficiencies. Several of the variables had large amounts of missing data that necessitated imputing values for a substantial portion of the sample; the sample is composed of women only; and the outcome measure is broad and does not include violations that do not end in revocation.

Additional empirical evidence can be drawn from studies that examine offending outcomes other than recidivism. Two studies have examined whether ecological factors differentially impact aggregate-level male and female adult serious crime rates (Lo & Zhong; 2006; Steffensmeier & Haynie, 2000). These studies offer tentative support for the conclusion that men's offending rates are influenced by economic characteristics (such as poverty) more than women's, while women's offending rates are influenced by social characteristics (such as social ties and marriage rates) more than men's. However, many similarities between the effect of local context on offending rates of men and women are also present and the effect is crime-specific.

These two studies (Lo & Zhong; 2006; Steffensmeier & Haynie, 2000) suggest that ecological factors impact men and women similarly for a range of serious crimes, though the strength of the effect may vary across the genders. However, both of these studies examine the impact of limited macro-structural variables on index crime rates, and the applicability of their conclusions for the effect of ecological factors on male and female recidivism and re-entry is unclear. Nonetheless, they do emphasize the importance

of examining gendered effects of the local context. This is especially true given the focus on male offending (or offending rates dominated by male-perpetrated crime) in the existing literature on ecology and crime and the neglect of structural and macro-level effects in explanations for female offending in favor of individual-level biological and psychological explanations (Steffensmeier & Haynie, 2000).

Research that identifies differences in the individual-level predictors of men and women's recidivism and reentry success provides also support for the idea that the community may operate differently for men and women. For example, Benda (2005) and Alarid et al. (2000) found that individual-level social factors were more important to women's recidivism. These social factors include social bonds to partners, family, and children. On the other hand, instrumental factors such as alcohol abuse, education, and job satisfaction were more important for men's recidivism (Benda, 2005) and men had more debt from supervision fees and child support (LaVigne et al., 2009). Additionally, while national samples (dominated by males) have shown that the most effective treatment targets substance abuse and basic education skills[5], a meta-analysis of effective treatment for female offenders showed that treatments which target social factors (family and peer criminogenic needs) were most effective (Dowden & Andrews, 1999). This research on individual-level social ties suggests that the social organization of the neighborhood may be more important for women during reentry, while the economic

[5] Research on the effectiveness of interventions for the general correctional population indicates that most effective interventions are human service focused, target dynamic criminogenic factors, are skill-oriented, are based on cognitive-behavioral or behavioral models, and are multimodal (MacKenzie, 2006). Programs that have been demonstrated to be effective include academic education, vocation education, cognitive-behavioral programs, and drug treatment in the institutional setting as well as in the community (MacKenzie, 2006).

organization of the neighborhood may be more important for men during reentry. An individual's social networks are especially important to women during reentry (Covington & Bloom, 2006; Gonnerman, 2004), and the social structure of the neighborhood may determine the availability of support networks that can offer positive influences and economic support. The economic structure of the neighborhood, on the other hand, may determine the availability of alcohol treatment, education services, and employment services; these resources may be especially important to reduce men's recidivism (Benda, 2005).

On the other hand, there is also reason to believe that the economic structure of the neighborhood may also be more important to women than men during reentry. To the extent that women face greater financial difficulty during reentry, they may rely more on the resources in the community for economic support (Estrada & Milsson, 2012; Heilbrun et al., 2008; LaVigne et al., 2009; Richie, 2001; Spjeldnes & Goodkind, 2009). An analysis of the females in the national 1994 release cohort revealed that women tended to commit non-violent survival crimes linked to economic and emotional struggles, both before and after prison (Deschenes et al., 2007). If women's reoffending is a result of emotional and economic difficulties, then then the community, as far as it provides social and economic support, should be even more important to females' reentry. Experiencing reentry in a disadvantaged community compounds the difficulty of reentry as services are limited by the community and by the woman's offender status. However, services in the community are very important for the numerous, co-occurring needs that women releasees have (Richie, 2001). Because of the lack of services, women

may experience more technical violations during reentry given their greater needs in many areas, even if their criminal offending is not affected.

In addition, as women tend to commit less severe crimes and violations during reentry, they are more likely to be kept in the community setting as they are viewed as less risky. Because they spend more time in the community, the conditions of the neighborhood, including the availability of services, may be even more important for the reentry success of women. While both men and women rely on their families and social ties for tangible resources (though these ties take different forms and result in different resources for men and women), they also relied heavily on services in the community to address their individual needs, especially when their needs cannot be met through social ties. (LaVigne et al., 2009; Scroggins, 2012). Additionally, social ties in disadvantaged areas are less likely to be able to provide resources. An examination of large metropolitan areas in the United States showed that many communities are lacking the types of services that are needed by women reentering the community (Scroggins & Malley, 2010). The community determines the resources of one's social networks and family, people that ex-offenders often rely on. The community also determines the availability of jobs (which play an important role in reentry and desistance), services (such as health care, drug treatment, and other services), and the availability of criminally-involved networks (Cobbina, 2009).

WEAKNESSES OF THE EXISTING LITERATURE

Although the literature on the effect of both individual and ecological factors on recidivism is growing, there are several persistent weaknesses in the literature. First, the

studies cover limited contexts. Many of the studies come from the same place (i.e., Florida) and use the same data (Mears et al., 2008; 2012; Orrick et al., 2011; Reisig et al., 2007; Wang et al., 2010) or the study only covers a very limited context such as one county which limits the contextual variation (e.g. Kubrin & Stewart, 2006; Stahler et al., 2013; Wright & Rodriguez, 2012; Wooditch et al., 2013).

Second, the existing research often examines limited populations. Many studies are restricted to males only (Bellair & Kowalski, 2011; Mears et al., 2008; 2012; Orrick et al., 2011; Reisig et al., 2007; Wang et al., 2010) or only examine blacks and whites (e.g., Bellair & Kowalski, 2011; Mears et al., 2012; Wang et al., 2010). A few have found important race-specific differences regarding the role of economic contexts (e.g., Mears et al., 2012; Reisig et al., 2007; Wang et al., 2010). However, the only study that examined any gender-specific effects (Wright & Rodriguez, 2012) included only juveniles and only examined whether the effect of immigrant concentration varied for white boys, Latino boys, and Latina girls. Even though a large body of literature suggests that gender plays an important role in the reentry process, gender has been largely ignored in the literature regarding the ecological context and recidivism. Females are often dropped from the analysis, and when they are included, gender serves only as a control variable. Only one study examines a sample of females only (Huebner et al., 2010), though measures of the local context are limited to one measure and no males are included from which to examine gender-specific effects. Though important race-specific experiences with ecology and imprisonment and reentry have been identified, the literature has rarely examined potentially important gendered experiences.

Third, the individual controls included in the analyses are often limited in favor of focusing on contextual measures. While basic demographics such as gender, race, age, marital status are commonplace as are some control for criminal history, individual risks and criminogenic needs tend to be excluded when the focus is on ecological effects. This is an important limitation as what appears to be a contextual effect may actually be related to the characteristics of the individuals.

Fourth, the unit of analysis varies and is often less than ideal. The decision regarding the unit of analysis is often determined by the availability of data (e.g., probationers' addresses being only available at the county level) rather than determined by theoretical considerations. When large units of analysis are used, aggregation bias becomes a problem.

Lastly, the prior studies have generally used limited measures of recidivism. Most measure only serious recidivism such as a return to prison (e.g., Hipp et al., 2010; Stahler et al., 2013; Bushway, Weiman, & Stoll., 2007) or a return to prison for a felony conviction (e.g., Bellair & Kowalski, 2011; Mears et al., 2008; 2012; Orrick et al., 2011; Reisig et al., 2007; Wang et al., 2010). Occasionally recidivism is measured as a new arrest (e.g., Kubrin & Stewart, 2011), drug test failure (Wooditch et al., 2013), or an indicator of any commission of a new crime or technical violation (Huebner et al., 2010; Wallace & Papachristos, 2012). The result is that conclusions can only be drawn regarding serious re-offending, not about the re-entry process. More detailed measures including minor offenses, technical violations, and non-sanctioned offending should be examined as part of the re-entry process that may or may not lead to serious re-offending (see Morenoff & Harding, 2011). Just as desistance is best understood as a process rather

than a static trait (Brame, Bushway, & Paternoster, 2002; Bushway et al., 2001; Bushway, Thornberry, & Krohn, 2003), re-entry and recidivism are also processes that are characterized by more than simply whether a parolee is or is not reincarcerated. They are related processes as reintegration may assist with desistance; however, both reintegration and desistance are multi-faceted processes. For example, research on female offenders has shown that not all needs that are generally viewed as criminogenic are actually related to recidivism risk, and women may experience reentry challenges that are not related to their recidivism risk (Holtfreter & Morash, 2003). Further, the lack of detailed data means that researchers can only speculate about the mechanisms involved and there are limited empirical explanations for the ecological effects beyond theoretical postulations.

One recent study does address some of these shortcomings, making it the most detailed study on the topic of ecology and recidivism to date. In an analysis of a population of prisoners released in Michigan, Morenoff and Harding (2011) examined the effect of neighborhood disadvantage, neighborhood affluence, residential mobility, and the neighborhood's age structure on employment outcomes and five recidivism outcomes: arrest for a new offense, recommitment to prison due to any parole violation, recommitment to prison for a new conviction, absconding, and a new felony conviction. Based on analyses of the characteristics of the first neighborhood ex-prisoners returned to as well as on their cumulative exposure to all neighborhoods the ex-prisoners lived in during the follow-up period, the authors concluded that post-prison neighborhood characteristics do significantly predict recidivism outcomes, but the characteristics that make a neighborhood more risky or protective varies by the outcome that is examined

For example younger age composition in ex-prisoners' cumulative exposure to all neighborhoods during the follow-up period significantly increased the risk of a felony conviction, return to prison for a new conviction or a technical violation, and absconding, but not arrest for a new offense. The authors offer the explanation that neighborhood characteristics are more robustly related to outcomes that are influenced by actors of the criminal justice system that are closer to the street (such as parole agents and police) and potentially more influenced themselves by neighborhood factors (i.e., arrest, returning to prison for a technical violation and absconding) compared to those that are influenced by more distant actors such as judges and prosecutors (i.e., felony conviction and returning to prison for a new crime).

Morenoff and Harding (2011) go beyond prior research on the ecology of recidivism in several ways. The authors examine multiple measures of recidivism and they control for the characteristics of the pre-prison neighborhood as well as individual characteristics. The authors also take into account the multiple neighborhoods that parolees may live in during their time on parole rather than limiting the analysis to one neighborhood and assuming that mobility is not present. However, there are many limitations present that leave questions unanswered.

First, while multiple measures of recidivism are examined, the study does not break down violations or crimes into types, so the nature of the recidivism is still unknown as there is still a great deal of heterogeneity within the five recidivism outcomes examined.

Second, violations or offenses that do not lead to a new conviction or return to prison are not examined, though other responses are possible and likely, especially given efforts to divert parolees from prison.

Third, while some of the analyses take into account all of the neighborhoods that parolees reside in during the follow-up period, these analyses are based on a small sub-sample of one sixth of the total sample (1,848 parolees) due to the difficulty of obtaining the data from parole reports. The small sample prevents more detailed analyses from being conducted. In jurisdictions where address data are gathered by parole in a more accessible form, larger samples can be obtained more easily.

Fourth, the variables for several theoretically important mechanisms are not included, such as parole supervision characteristics, ex-prisoner concentration, and the availability of services. Because these mechanisms are not measured, the authors cannot conclude whether they are important intervening variables that link ecological characteristics to recidivism outcomes.

Lastly, the authors mention that it is important for future research to examine moderating effects of individual characteristics (such as gender), as certain types of parolees may be more susceptible to the influence of the ecological setting, though they reject that theoretical arguments for this currently exist. However, this is not true, given the past work that suggests that the effect of the neighborhood context is moderated by race (Huebner et al., 2010; Mears et al., 2012; Reisig et al., 2007; Wang et al., 2010), criminal history (Bushway et al., 2007), and gender (Lo and Zhong, 2006; Steffensmeier & Haynie, 2000; Rountree & Warner, 1999) for theoretically-supported reasons. In the case of gender, it was only used as a control variable and none of the potentially

important moderating effects were examined. By examining gendered community effects and multiple recidivism outcomes that are specific enough to identify the problems parolees encounter during reentry (such as maintaining employment, abstaining from drugs, and refraining from using violence), the how and why communities matter to the many aspects of reentry can be examined.

RESEARCH QUESTIONS AND SUMMARY OF EXPECTATIONS

The current dissertation will address the following four broad research questions.

1. What are the patterns of recidivism (including technical violations) and how do they vary by gender?
2. How do characteristics of the areas parolees are released to affect their recidivism outcomes?[6]
3. To what extent are ecological effects gendered?
4. Are there intra-gender racial differences in the ecological effects?

Several expectations can be drawn from both the theoretical and empirical literatures.

1. While structural conditions are associated with violence among both men and women, the competing demands of femininity, the use of situational avoidance and relational isolation, and the lack of coupling strength and dominance may temper the effect of disadvantage on women's use of violence (Anderson 1995; Collins, 2004; Jones, 2010). Therefore, it is expected that structural disadvantage

[6] For brevity, the outcomes examined will be referred to as recidivism events, even though some of the outcomes (such as minor technical violations) are not criminal offenses and may not generally be thought of as reoffending.

will be associated with greater violence among both men and women, but it will be more strongly related to men's recidivism, especially violent recidivism.

   a. Structural disadvantage should increase recidivism, especially violent recidivism, among Black men and women more than white men and women as the processes related to the Code of the Street have been linked most closely to young, Black men and women (Anderson, 1995; Collins, 2004; Jones, 2008).

2. Structural conditions and gender expectations may be more likely to promote property crime and employment violations for men compared with women. Employment may be an important method of doing gender for men, suggesting that employment can serve to reduce recidivism as it offers another way to earn respect. The pathways literature suggests that men's offending is influenced to a greater extent by work pressures, economic problems, and status frustration linked to a lack of legitimate opportunities. It is expected that men in less disadvantaged areas and areas with more employment opportunity will be more likely to maintain employment during parole, resulting in fewer property crimes, employment violations, and other types of violations closely related to employment. On the other hand, female offenders are more likely to experience exclusion from the labor market and family formation than males (Estrada & Milsson, 2012), suggesting that, even when employment opportunities are available, women may be less likely to be able to take advantage of them. In addition, women with children may qualify for additional forms of welfare support, allowing her to support her family without entering the labor market.

Being less likely to obtain employment, regardless of the opportunities available, women are less likely to receive a violation for being unable to maintain employment. As property crime and prostitution offers women alternative methods for accomplishing femininity (Simpson & Ellis, 1995), disadvantage and few employment opportunities may be more likely to promote these recidivism outcomes for women compared to men.

   a. Research shows that Black job applicants with a criminal record are more likely to be excluded from the labor market compared to whites with a criminal record (Pager, 2003). This suggests that Black men may be less able to ever obtain a job, so disadvantage and employment availability may be less important. Unable to obtain a job, this group is less likely to accrue violations for being unable to maintain employment. On the other hand, the counter-expectation is that Black men, compared to white men, will have a harder time maintaining a job as employers are less likely to be lenient and give chances to these employees with criminal records.

3. It is expected that that the availability of treatment services will reduce the recidivism of both men and women. However, as women have higher rates of substance abuse problems than men and substance abuse and psychological problems are linked to women's pathways of offending more than men's, treatment availability in the community may be even more important for women's recidivism than men's (LaVigne et al., 2009; Spjeldnes & Goodkind, 2009). Service availability may also be important for dealing with female ex-prisoners' abusive relationships that may directly lead to offending as well as addressing

drug addiction which may make drug-related crimes and crimes to finance the addiction more likely.

4. Living in proximity to a greater number of offenders, who may serve as co-offenders, are important for women's and men's pathways (Daly, 1994; Miller, 1986). The availability of offenders in the community is expected to increase recidivism for both genders. However, given that women are more likely than men to offend with family members and intimate partners, the number of offenders in the community may be relatively less important for determining opportunity to engage in crime for women compared to men.
    a. Black women are particularly more likely to offend with family members and intimate partners (Miller, 1986), so the wider availability of offenders in the community may be less important for this group compared to white women, particularly for drug-related recidivism and new crimes.
5. Strong informal ties present in the community are expected to reduce women parolees' offending to a greater extent. For example, stronger ties in the community increase the community's ability to respond to abusive relationships, an important factor in women's offending pathways. In addition, women's offending and crime rates have a stronger empirical relationship with social factors, including aggregate-level and individual-level social ties, possibly because communities are more likely to monitor and disapprove of women's than men's criminal activity as a result of gender expectations. This gender difference is likely to be strongest for non-economic technical violations (such as maintaining a stable residence, attending treatment and abstaining from drugs, and

attending meetings with parole officers) due to expectations resulting from traditionally sex-differentiated economic and cultural roles that are reinforced by the community and criminal justice agents (Kruttschnitt & Green, 1984; Nagel & Hagan, 1983).

CHATPER 3: DATA AND METHODS

This chapter will begin by describing the parole process in Pennsylvania. Then, the data used in this study will be described, including the sample selection, data sources, measures, and measurement issues. Last, the analytic plan and methodology that will be used to analyze the data will be discussed.

THE PAROLE PROCESS

Sentencing and the Parole Decision

The parole process begins at sentencing where the court determines the timing of parole eligibility (Maltz, 1984). Pennsylvania operates under an indeterminate sentencing system (see Figure 3.1 for an illustration of the parole process in Pennsylvania). Under this system, a judge may impose a maximum term up to the statutory maximum for the offense that is established by the state sentencing guidelines (42 Pa.C.S. §2154). Pennsylvania's sentencing guidelines, like most states' guidelines, recommends a range of minimum sentence length based on the seriousness of the offense and the offender's prior criminal history. By setting the minimum and maximum sentence lengths, the court determines when the offender is eligible for parole (Maltz, 1984). A prisoner becomes eligible for parole once they have served the minimum sentence. When paroled, the offender serves the remainder of their sentence under parole supervision (PBPP 2013C).

Parole in Pennsylvania is not guaranteed as the state operates under discretionary release. This means that prisoners become eligible after they serve the minimum sentence, but must be approved for parole by the Parole Board or sentencing judge. To be considered for parole, inmates must have a reentry plan which includes a plan for where

to live (either a private residence, a Community Corrections Center[7], or be on the waiting list for a treatment bed in a community facility) and a plan to secure employment or a job offer (www.pbpp.state.pa.us).

The Pennsylvania Parole Board uses the Parole Decisional Instrument to advise the decision to grant parole, but it is not binding and the Parole Board still retains discretion. The Parole Decisional Instrument considers four primary factors: likelihood of violence, risk/needs assessment (based on the LSI-R and Static 99—a risk assessment instrument for sex offenders), completion of institutional risk reduction programming, and institutional behavior. A structured discretionary interview is also conducted. In order to be released, an inmate must also have their living arrangements approved by the Board[8]. Based on the score received from the Parole Decisional Instrument, reports and recommendations on file, and the interview, the Parole Board votes whether to grant or refuse parole.

Unconditional vs. Conditional Release

Discretionary parole release is one of the conditional release mechanisms. Other types of conditional release include discretionary parole, mandatory parole, and post-custody probation (Carson & Sabol, 2012). In 2011, conditional releases accounted for 69% of all prison releases in the United States and 74.9% of all state prison releases in

[7] Community corrections centers (CCCs) are halfway houses through which released prisoners transition. These secure centers provide monitored contact with jobs and educational opportunities. Residents of CCs are allowed to leave the centers under limited conditions other than for employment. This includes limited times and required approval and documentation of their destination.

[8] After an inmate has been granted parole, they must meet several additional requirements before they are released. This includes drug screening, submission of a DNA sample if applicable, payment of all victim fees, registration under Megan's Law if applicable, completion of a Victim Impact Education Program for violent offenders, and the development of a reentry plan for where to live and work.

the United States. Some states, operating under determinate sentencing statutes in which parole is guaranteed after a certain length of time, may grant supervised mandatory releases (Carson & Sabol, 2012). As Pennsylvania operates under a discretionary release system, not all inmates are released to parole or conditional release. While about 80% of prisoners in Pennsylvania are released to parole (Kramer et al., 2008), the rest serve their maximum sentence in prison and are released unconditionally. These inmates are said to have "maxed-out". They max out because they "opt out" of parole or because the PBPP decides that the offender has not earned release or should not be released because they are a risk to the public (Kramer et al., 2008). The important distinction between those who max out and who are released to parole in Pennsylvania is that those who max out are not subject to parole or supervision when they are released.

Mechanisms of Return to Prison

Inmates who are released unconditionally by maxing out their sentence can only return to prison after they are arrested for a new crime and convicted and sentenced through the courts (Carson & Golinelli, 2013). For inmates who are paroled, however, there are additional mechanisms to reincarceration (see Figure 3.2 for an illustration). This includes technical parole violations, a convicted parole violation, or a new court commitment. As mentioned earlier, a technical parole violation occurs when a parolee violates a parole condition that is not necessarily illegal. For example, not reporting to a parole agent is a technical parole violation. A convicted parole violation occurs when a parolee violates a parole condition that is also illegal. An example of this is using illegal drugs (PADOC, 2013). While some parolees must abide by special parole conditions, all

parolees must abide by the general conditions of parole. These conditions include requirements for initial and subsequent reporting; change of residence; notifying parole about arrests, summons or citations, and changes in status of employment, training and education; complying with criminal statutes; possession, sale, and use of controlled substances; possessing or owning a firearm or weapon; assaultive behavior; and payment of fines, costs, and restitution[9].

SAMPLE

The sample used in this project contains all prisoners released from a Pennsylvania state prison to parole for the first time between March 13th, 2006 (when reliable, computerized data began to be recorded by PBPP) and December 31st, 2008. The total sample size is 10,883. There were several reasons for selecting first time releasees

[9] § 63.4. General conditions of parole.
If parole is granted, the parolee shall be subject to the following conditions:
(1) Report in person or in writing within 48 hours to the district office or suboffice specified by the Board and not leave that district without prior written permission of the parole supervision staff.
(2) Live at the residence approved by the Board at release and not change residence without the written permission of the parole supervision staff.
(3) Maintain regular contact with the parole supervision staff by:
(i) Reporting regularly as instructed and following written instructions of the Board or the parole supervision staff.
(ii) Notifying the parole supervision staff within 72 hours of one of the following:
(A) Arrest.
(B) Receipt of a summons or citation for an offense punishable by imprisonment upon conviction.
(iii) Notifying the parole supervision staff within 72 hours of a change in status including but not limited to employment, on the job training and education.
(4) Comply with municipal, county, State and Federal criminal statutes, as well as the Vehicle Code and the Liquor Code (47 P. S. § § 1-101—9-902).
(5) Additionally:
(i) Abstain from the unlawful possession or sale of narcotics and dangerous drugs and abstain from the use of controlled substances within the meaning of The Controlled Substance, Drug, Device and Cosmetic Act (35 P. S. § § 780-101—780-144) without a valid prescription.
(ii) Refrain from owning or possessing firearms or other weapons.
(iii) Refrain from an assaultive behavior.
(6) Pay fines, costs and restitution imposed by the sentencing court in accordance with the instructions contained in the Conditions Governing Parole/Reparole form.

from state prisons. First, as this group was incarcerated for a substantial length of time (the mean length of incarceration is 1,009 days, or 2.7 years), this group has been removed from the community from a meaningful length of time and experiences the reentry process upon release. Additionally, this group does not have prior imprisonment (at least in Pennsylvania), reducing the possibility that past reentry experiences, which are not included in the analysis, are affecting the current reentry period.

The sample includes only individuals who are released to parole because inmates who are released unconditionally are not subject to the same recidivism risks as parolees. As previously indicated, unconditional releases cannot commit technical offenses and can only be reincarcerated after a new criminal conviction. In addition, reliable address information is only collected for parolees—an important consideration given the community focus of this research. Finally, unconditional releases represents a small portion of releasees as the large majority (approximately 80 percent) of the inmates released for the first time between 2006 and 2008 from Pennsylvania state prisons were released to parole. Parolees are an important group to study as the current size of the prison population has been greatly increased by the reincarceration of parolees. Nationally and in Pennsylvania, parole revocations accounted for about a third of prison admissions in 2011 (Carson & Sabol, 2012). Sex offenders were also excluded from the analysis as they are subject to unique conditions and processes during the sentencing, corrections, and parole processes and are not likely to be comparable to the general parolee population. In addition, the main analysis only includes the communities where parolees lived in a private residence, not a community corrections center (CCC). The

parolees in this sample spent over 80% of their days at private residences (see appendix A). This issues is discussed in more detail below.

Sample Selection

The decision to focus only on first time releasees to parole produced a sample of 14,691 parolees during the target period. Missing neighborhood information reduced the sample by 2,876. Missing data can be problematic if the loss of cases either inflates or deflates the effect of neighborhood characteristics on parole violations. Careful examination of the missing cases revealed that neighborhood data are missing because: 1) the parolee had no address data reported by PBPP (as a result of being an absconder, moving out of state, or being transferred to serve another sentence or supervised in another state) [923 parolees]; 2) the parolee had no days living at a residential address in PA that could be geocoded [197 parolees]; or 3) s/he had no days living at a private residential address in the state of Pennsylvania (versus a correctional institution or community corrections center) [1,766 parolees]. The result of these exclusions is that the findings from this dissertation can only be generalized to individuals who spend time in the community under parole supervision within the state of Pennsylvania after release from prison. This is not problematic as individuals who do not spend time in the community in Pennsylvania after release (such as those who are moved to another institution or are transferred out of state) would not be affected by changes in community characteristics within the state. The majority of the 2,876 individuals were dropped because they do not have private residential address (all but 197 of the individuals), were dropped because they do not spend time at private residences in Pennsylvania after

release from prison. For this group, the community effects found for the rest of the parolee sample would not apply.

An additional 350 parolees were excluded as they were convicted of a sex offense; 300 were dropped because they were missing parole supervision information (and were unlikely to be supervised by PA state parole); 224 were excluded because they were missing drug or alcohol assessment information; and an additional 362 were omitted as they were missing information for some other variable, such as LSI-R information. The result is a sample size of 10,579. Without knowing the reasons for these pieces of missing data, it is difficult to estimate the effect of excluding these individuals from the sample. However, many of these individuals (with the exception of the 300 who were missing parole supervision information) were likely living in communities and should be affected by the characteristics of those communities.

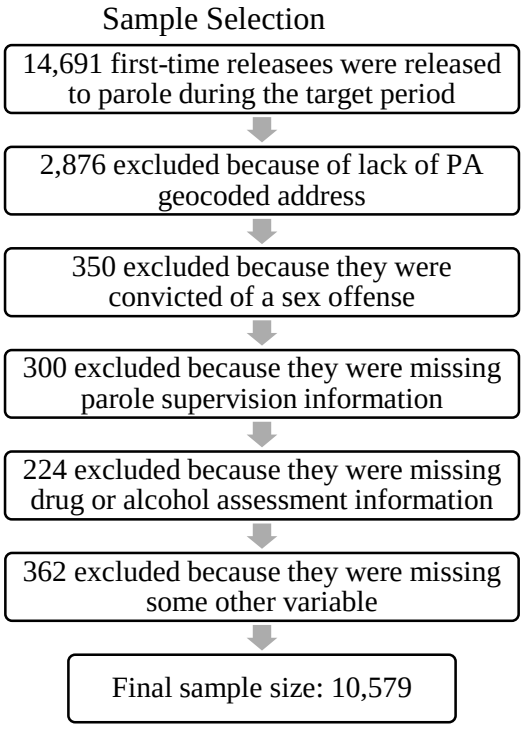
The 2,876 parolees who were excluded from the sample because of missing neighborhood data was compared to the rest of the sample and were more likely to be male, more likely to be non-white, were slightly younger, were incarcerated for longer, were less likely to have an arrest history that included property or public order offenses, more likely to have moved often prior to incarceration, less likely to have each type of technical violation except residence-related violations which they were more likely to have, were more likely to have non-public order re-arrests and less likely to have public order re-arrests, and were more likely to be reincarcerated during the follow-up period[10]. Many of these differences are logical: parolees who are missing address information may be spending time in other correctional facilities during the follow-up period and

[10] There were no differences in terms of prior violent or drug-related arrests or whether they were released to the street or a community corrections center.

consequently be less likely to accrue technical violations and more likely to be reincarcerated. They may also be absconding, leading to the greater likelihood of accruing residence-related arrests.

Compared to the retained sample, the remaining 1,236 parolees who were excluded for other reasons were more likely to be male, more likely to be white, more likely to be a race/ethnicity other than Black or white, less likely to be married, were older, were less likely to have had a prior property, drug, or public order arrest, were incarcerated for a longer period, were more likely to have been released to the street versus a CCC, had a higher supervision level on parole, and had a shorter follow-up period[11]. This group appears to have fewer risk factors for offending and a shorter offending history. However, their current crime may have been more serious, given their longer incarceration period and higher supervision level. It may be that this group has a lower risk of recidivism compared to the retained sample, and given that they have more resources and are less likely to offend, heir recidivism may be influence less by the characteristics of the community. This supports the speculation that excluding this group may increase the community effects found in this analysis.

[11] They were also were less likely to have been recently or chronically unemployed, were more likely to have been recently employed, were less likely to have had financial problems, were more likely to have had mental health treatment, and were less likely to have had substance abuse problems.



FOLLOW-UP PERIOD

The follow up period for police arrest ("rap sheets", or lists of charges maintained by the State Police), reincarceration, and parole violations began at release and ended on May 18th, 2012 or reincarceration in a Pennsylvania state prison, whichever came first. For individuals who are not reincarcerated in a state prison, the minimum follow up time is over three years (approximately 40.5 months) from December 31st, 2008 to May 18th, 2012. The maximum follow up time (for those released on March 13th, 2006) is over six years (approximately 74 months).

ADDRESSES

An important and novel feature of this data is that it includes all addresses recorded by parole, including residential addresses and treatment centers. This means that often multiple addresses are recorded for each parolee, along with the date that the

address was reported to parole[12]. As a condition of parole, parolees must report any address changes to their parole officer. Rather than assuming that parolees reside at a single address while on parole, these data capture parolee mobility. This information was provided by the PBPP, anonymized to the block level (e.g., 312 Main St was reported as 300 Main St). During the follow up period, there are between 1 and 45 address entries for each parolee. The median number of entries is three per parolee. These addresses were geocoded to allow community level information to be linked at the census tract level (see figure 3.3)[13].

There are two issues related to the use of the entire address history. The first issue is that parolees may reside at either a residential address or in a community corrections center (CCC), a non-secure facility where they receive treatment. The parolees in this sample spent over 80% of their days at private residences (see appendix A). Type of residence is related to recidivism as inmates who are paroled to a CCC in Pennsylvania have a slightly lower rate of rearrest but a higher rate of incarceration (PADOC, 2013). Parolees who are residing in a CCC may be less influenced by the community as they spend less time in the community, their lives are structured by the CCC to a greater extent, and their needs are met by the CCC rather than by other resources in the

[12] Most parolees (over 99%) are released to parole in Pennsylvania and remain in Pennsylvania through the follow up time. However, less than one percent do transfer their parole to another state, which is possible though the Interstate Compact for Adult Offender Supervision (ICAOS), an agreement between all 50 states, Puerto Rico, and the U.S. Virgin Islands. To apply to live in another state, parolees must submit a transfer application with an applications fee and a home plan from the person in the other state attesting that they assume financial responsibility and will provide for the parolee's food and housing until the parolee can provide for himself or herself. As the number of parolees who live out of state is very small, the analysis will focus on addresses within the state of Pennsylvania.

[13] The parolees accumulated 50,376 addresses during the follow-up period. Over 93% (46,890) of the addresses could be geocoded and 3,486 were unable to be located using multiple methods. Some of these addresses (373) were out of state addresses and another 2,851 contained a street address listed as "Unknown". This left 262 addresses (0.56%) that were not "Unknown" and were within the state of Pennsylvania that were unable to be geocoded. All community-level analyses are based on the geocoded addresses as these addresses are able to be placed geographically.

community. PADOC records whether an inmate is released to a CCC or to a residential address. In addition, the list of CCC addresses are matched against the parolee addresses in order to identify which addresses are CCC locations rather than residential addresses[14].

The second issue is related to the fact that the parolees often move and may be exposed to different types of communities. In order to account for these two issues, community-level variables will be calculated using only residential addresses. The community-level variables will then be weighed by the percentage of the time the individual resides at that location[15].

DATA AND VARIABLES

The data for this project come from numerous sources. This includes the Pennsylvania Department of Correction (PADOC), the Pennsylvania Board of Probation and Parole (PBPP), the Pennsylvania State Police (PSP), the UCR, and the US Census. An advantage of combining data from multiple sources is that recidivism outcomes are more likely to be captured in the data. For example, both police arrests and parole officer arrests are included. Below, each of the variables that will be used in the analysis are

[14] There are two ways to define time spent in the community: 1) only time spent living in the community at a private residence or 2) time spent living in the community at a private residence or a community corrections center (CCC). It is expected that community influences will be muted during time spent living in the community in a CCC since movement is greatly restricted and the CCC may be the primary community rather than the neighborhood. However, it is recognized that the community may still have some effect on parolees living at a CCC. To address this, the community variables will be constructed based on time spent at only residential addresses (which encompasses the large majority of time during the follow-up period), with controls for release to street vs. CCC and time living at a residence in the community. A sensitivity analysis examined community variables weighted by time spent at residential and CCC addresses and is shown in Appendix C.

[15] When time spent in the community includes time spent in community corrections centers, 1,177 additional individuals are included in the sample. From the original sample of 14,691 parolees, 403 parolees were excluded as they were convicted of a sex offense; 341 were excluded because they were missing parole supervision information (and were unlikely to be supervised by PA state parole); 255 were excluded because they were missing drug or alcohol assessment information; and 463 were excluded because they were missing some other variable. The result is a sample size of 11,756.

described along with relevant measurement issues or concerns. There are important differences in who collects the data and what the resulting biases of the data are. As the primary focus of the analysis is on the effect of census tract-level community-level variables, individual characteristics will be treated as controls. These individual characteristics include demographic information, prison and parole information, and assessment data from risk assessments and substance abuse assessments. These control variables were selected because they have been found to be important predictors of recidivism in the prior literature.

Individual-Level Controls

Demographics

These demographic variables are recorded by PADOC.

- **Gender**: The variable is recorded by DOC at admission.
- **Race/Ethnicity**: The sample includes sizeable populations that are Black, white, and Latino/a, while less than one percent of the sample is another race such as Asian, American Indian, or another unlisted race. As such, race will be coded into three groups: Black, white, and other[16].
- **Marital status**: This is recorded by PADOC and is reflects marital status at the time of admission to prison.
- **Age at release**: This is calculated by subtracting the parolee's birthday from their date of release from prison

[16]The possibility of errors in the coding of race/ethnicity is recognized as Hispanics are sometimes categorized as Black or white and this can affect their treatment by the criminal justice system (Steffensmeier & Demuth, 2000). Unfortunately, race and ethnicity are not measured separately so it is not possible to disentangle whether Hispanics are lumped into other groups.

- **Education**: Education will be measured as whether the parolee has received a high school diploma at the time of incarceration.[17]

Prison Information

- **Arrest History**: Arrest history will be measured by a series of dichotomous variables based on PA State Police arrest history. Criminal history categories are based on the full history of charges (violent, property, drug, and public order arrests) which indicate whether the individual has ever had a violent arrest, ever had a property arrest, ever had a drug arrest, or ever had a public order arrest[18]. Each arrest event may include multiple charges, so it is possible that a single arrest can include charges in multiple categories.
- **Number of prior arrests:** The number of prior arrests is measured by the number of unique arrest dates in the PA State Police rap sheets that occurred before the date of initial incarceration.
- **Length of time served in prison**: This variable is calculated from the date of admission to prison to the date of release. The number of days in prison reflects

[17] The education data was provided by DOC and its validity was verified against a similar measure captured by the LSI-R which indicates whether the inmate has less than a 12th grade education. About 76% of time, the two measures matched. In 92% of the instances where they did not match, the DOC measure indicated that the inmate had graduated high school while the LSI-R indicated that the inmate had less than a regular 12th grade education. This is likely due to the fact that the LSI-R only considers regular academic or technical high school programs and does not consider upgrading, equivalency, or correspondence programs.

[18] Arrest history is a more preferable measure than the commitment offense for which the inmates were incarcerated for as it is more inclusive and more likely to represent the prior offending patterns. As expected, the commitment offense is generally part of the arrest history, although some variation is expected due to the fact that an individual may be convicted and incarcerated for a different offense than they are arrested for. Over 96% of individuals convicted of and incarcerated for a violent crime had a prior violent arrest, over 97% of individuals convicted of and incarcerated for a property crime had a property arrest, over 98% of individuals convicted of and incarcerated for a drug offense had a drug arrest, and over 91% of individuals convicted of and incarcerated for a public order offense had a public order arrest. In addition, arrest history is more strongly correlated with the recidivism measures compared to conviction offense.

time out of the community and greater time away which may mean that the parolee faces greater reintegration challenges. In addition, length of time served is related to offense seriousness. The length of time served in prison is only weakly negatively correlated with the number of prior arrests, suggesting that the seriousness of the conviction crime is important in explaining the variation in sentence length.

- **Prison misconducts**: Prison misconducts may be related to future criminal behavior (DeLisi, 2003; Huebner & Berg, 2011; Trulson, DeLisi, & Marquart, 2011) and performance while under community supervision as it reflects the level of adjustment under correctional supervision. This variable is measured by PADOC and is a count of the number of misconducts[19].

Parole Information

- **Release type**: This variable indicates whether the inmate is released to a CCC versus a residential address. Parolees who are released to a center receive additional supervision and treatment initially after release and have been shown to have higher recidivism rates compared to those who are released to a residential address (PADOC, 2013).

[19] An alternative to this measure is a dichotomous variable recorded from the LSI-R which indicated whether the individual has ever been punished for institutional misconduct and the number of times this has happened. However, the number recorded directly by PADOC should be more accurate as it is updated more often. While this variable was measured using the DOC data, the validity of the DOC measure was checked against the LSI-R measure in the assessment conducted most recently before release from prison. It is expected that there will be some differences as the LSI-R only records punished misconducts and may not be updated to include very recent misconducts. Also, the LSI-R may capture misconducts that occurred in jail, which would be captured in the LSI-R but not in the DOC data. Comparing whether both measures indicate any prior prison misconducts, 82% of the individuals who do not have any DOC-recorded misconducts do not have any recorded by the LSI-R. Over 83% of the individuals with at least one DOC-recorded misconduct also have one recorded by the LSI-R.

- **Initial supervision grade**: There are several levels of parole supervision which entail different amounts of supervision. The categories, from most to least intense, are enhanced, maximum, medium, minimum, and other (administrative, monitored, and special circumstance). These are the same categories that are used for reporting purposes by the PBPP. Though the supervision grade can change over time, the first grade will be used as, since recidivism is highest soon after release, the level of supervision at this time is expected to be the most important.
- **Follow-up period**: The calculation of the follow-up period, measured in days, is described above. This serves as an important control variable to control for time at risk of recidivism.

Assessment Information:

Many types of assessments that are gathered during incarceration are potentially relevant for this project, including LSI-R[20] and drug and alcohol assessments. As the LSI-R and drug and alcohol assessments are often repeated, the most assessment with the most theoretically-appropriate timing will be used. Measures that should be static (such as early arrest, financial problems before incarceration, mobility before incarceration, and employment before incarceration) will be taken from the initial assessment closest to admission to prison to avoid problems associated with recall. Measures that likely change over time and are important at the time of release will be taken from the last assessment

[20] The Level of Service Inventory-Revised (LSI-R) is an assessment tool for determining an offender's risk of future criminal behavior and their criminogenic needs that should be addressed in order to reduce risk (Andrews & Bonta, 2006; Gendreau et al., 1996). It consists of 54 items within 10 domains and is completed from a semi-structured interview with the offender. The information is collected by DOC employees and entered into a score sheet. Many of the items involve self-response from the prisoner or the discretion of the person administering the assessment. While the main purpose of the LSI-R is to determine risk and treatment, it has often been used in research to measure risk. However, prior research has tended to use the overall LSI-R score rather than examine specific elements of the assessment.

before release (such as having a criminal family or spouse, relationship satisfaction, having criminal friends or acquaintances, and having a history of mental health treatment)[21]. All of the assessment information comes from the LSI-R with the exception of the drug/alcohol measures.

- **Early arrest**: One item in the LSI-R measures whether the individual was arrested before age 16. Early onset of offending is related to a longer length of offending and more serious offending.
- **Employment history**: There are two items in the LSI-R that relate to unemployment history while in the community: whether the individual has been employed less than fifty percent of the twelve months prior to incarceration and whether the individual has never been employed in the community for a continuous twelve months. The first item related to recent unemployment while the latter relates to chronic unemployment, both of which may be important for employment opportunities after release. Three categories of employment history will be used: recent employment and no chronic unemployment, recent unemployment but no chronic unemployment, and both recent unemployment and chronic unemployment. Poor employment history may indicate that the parolee would benefit more from employment services in the community, may be unlikely to gain employment and will be unaffected by the employment level in the community, or may be more likely to accrue employment-related recidivism events.

[21] As part of a sensitivity analysis, models using measures from the initial assessment and models using measures from the last assessment will be run to examine whether there are any substantive differences when different timing of assessments is used.

- **Financial situation**: There are two categories: long-standing pattern of effective financial management/no current financial difficulties and minor to severe difficulties. This measure requires the administrator to use some degree of discretion in deciding whether financial problems are an obstacle or a hindrance. The parolee's financial situation is indicative of their reliance on community services or support and their risk of accruing recidivism events related to financial difficulties.
- **Criminal family or spouse**: Familial and spousal criminality is important for offending patterns, with much of the literature on this topic focusing on female offenders. This variable is measured dichotomously and indicates whether a parent, sibling, spouse, or close relative has a criminal record.
- **Relationship satisfaction**: Intimate partner relationships have important implications for both men and women's criminality, though it may operate differently. This measure is a four point scale that ranges from high (a highly rewarding, caring relationship, or is satisfied with being single and unattached) to low (unpleasant, uncaring, hostile, and/or indifferent relationship that may involve violence or is unsatisfied with being single).
- **History of mobility**: Parolees who moved often prior to incarceration are likely to have high mobility after release. This variable measures whether the individual had three or more residential moves in the year prior to incarceration.
- **Criminal friends or acquaintances**: This variable measures whether the individual has friends or acquaintances prior to incarceration who are involved in criminal activities. Prior research suggests that peer criminality is an important

predictor of offending and that this relationship may be even more salient for men.

- **Mental health**: This variable is measured dichotomously, indicating whether the individual has received or is currently receiving mental health treatment. This may indicate increased need of mental health treatment after release. Using a treatment measure instead is preferable as the alternative, the administrator's discretionary scoring of whether the individual displays moderate or severe emotional interference may not be as accurate at capturing the need for mental health treatment as treatment history.
- **Drug/alcohol problems**: This variable is measured using the drug- and alcohol-specific assessments conducted by PADOC during incarceration at intake which indicate whether the inmate has any drug or alcohol abuse problems[22]. The initial assessment information will be used, as it is the most reflective of the individual's substance abuse in the community, reflecting the individuals' susceptibility to substance abuse in the community.

Community-Level Variables

As mentioned, all census variables are measured at the census tract level. They come from the 2010 American Community Survey (ACS) five year estimates which

[22] While this variable was measured using the DOC data, the validity of the DOC measure was checked by comparing it to the LSI-R assessment just prior to release which measures whether the individual reported currently or ever being a heavy user of alcohol or drugs that is deemed problematic based on the discretion of the administrator. These indicators matched for about 83% of the sample. In 82% of the instances where there was not a match, the LSI-R indicated a drug or alcohol problem and the DOC assessment did not. Many of these discrepancies are likely due to the fact that the LSI-R captures past substance abuse problems that were not present recently, and so are not captured during the DOC assessment.

contain data from 2005-2009, aligning with the follow-up period. The ACS, which replaced the long-form census, is conducted yearly. Multi-year estimates are available for smaller geographic areas. For example, census tract level data can be obtained from five year aggregation. These variables from the ACS were standardized and combined to make the summative scales as described below.

- **Disadvantage:** Like prior studies (e.g., Kubrin & Stewart, 2006), disadvantage will be measured by a factor of the following census variables: percent receiving public assistance, percent below the poverty line, percent unemployed, percent black, and percent employed in service occupations (alpha=0.8561, indicating a high level of internal consistency). Each of these variables were standardized and added together to create a disadvantage scale.
- **Employment:** In addition to the disadvantage scale, the opportunity for employment in the community is also of unique interest. Employment opportunity is measured by the percent of people in the census tract who are employed and can be examined as an alternative to the disadvantage scale.
- **Immigration:** Prior research indicates that the level of immigration in a community may affect offending and recidivism (e.g., Lee & Martinez; 2002; Martinez et al.; 2010; Ousey & Kubrin, 2009; Tillyer & Vose, 2011; Wright & Rodriguez, 2012). Immigration is measured by a factor comprised of percent Hispanic, percent foreign born, and percent who speak a language other than English at home (alpha=0.8535) (Tillyer & Vose, 2011).
- **Informal Social Ties:** Mobility and family structure may indicate weaker bonds present in the community. Informal social ties are measured by a factor comprised

of percent living in the same house as one year ago, percent owner-occupied housing units, percent non-family households, and percent of families with a married couple (alpha=0.8901).

- **Offender concentration:** The proximity of other offenders may increase the opportunity for offending. This is measured by a proxy that is operationalized two ways: 1) the number of days other parolees in the sample lived in the census tract and 2) the number of other parolees in the sample who lived in the census tract. The first operationalization was calculated by adding the cumulative number of days all parolees spent in the tract and, for each parolee, subtracting one's own days spent in that tract. The second operationalization was calculated by counting the number of parolees who lived in that census tract for at least one day and subtracting one[23].
- **Service providers**: A list of service providers was compiled from county lists of service providers that were provided by PADOC. While these lists likely do not include every service provider in the state, they do include those that corrections and parole connect offenders with and are likely a good representation of the services parolees are likely to have access to. These services include those related to drug and alcohol treatment, employment and vocational guidance, financial aid/insurance/medical assistance, food assistance, housing and transportation

[23] For analyses where the definition of living in a community is restricted to living in the community at a private residence, the availability of co-offenders proxy is also measured using parolees who lived in a community at a private residential address. For analyses where the definition of living in a community is expanded to also include residing at a CCC, the availability of co-offenders proxy is also measured using parolees who lived in a community at either a private residence or a CCC. One weakness of this measure is that it does not include the entire population of parolees as it is only based on the sample of first-time releases. However, short of obtaining locations for every released prisoner in the state, this measure serves as a reasonable proxy for where other offenders are concentrated.

assistance, and parenting services/education. Additionally, a list of one stop service providers, places parolees can go to be referred to other services, was obtained from PADOC. These service providers may be uniquely important as they serve as the gatekeepers to connect parolees to services. Availability of service providers is measured as the number of providers within two miles of where the parolee resides[24]. Availability of one-stop service providers is measured as the number of one-stop service providers within two miles of where the parolee resides. Availability of drug/alcohol service providers is measured as the number of service providers offering drug or alcohol treatment (a subset of all service providers) within two miles of where the parolee resides. Like the other community variables, this will be weighted by the amount of time the parolee resides at each address.

Outcomes

The outcomes of interest are specific recidivism events, which are operationalized by whether a specific type of recidivism outcome ever occurred during the follow up period. Given that there is a large number of possible types of technical violations, categories of violations are formed by grouping similar types of violations together that are expected to be similarly affected by community characteristics, gender, and other individual characteristics, based on theoretical considerations. These groupings also correspond with groups of behaviors that are similar and likely to be addressed by similar policy changes. For example, each of the violations under the category of treatment

[24] A two-mile radius is consistent with the prior literature (Allard, 2004; Allard, Tolman, & Rosen, 2003; Hipp et al., 2010) and represents a reasonable distance to travel.

violations (failure to complete treatment; failure to participate/attend treatment; and failure to take prescribed medication as prescribed by MD) are likely caused by similar circumstances and could reasonably be addressed by similar policies. While these decisions of how to operationalize recidivism will likely shape the results, there is little prior research to draw on which examines categories of technical violations. Only parole violations and police arrests are included in the recidivism outcomes as parole sanctions, parole arrests, or incarcerations[25] are responses to recorded violations. Police arrests are considered violations rather than a response as direct offense information is not available, and arrests are the best available proxy for the offense committed. Some violations could be inferred from recorded sanctions. For example, placement in drug and alcohol treatment may signal that there is a problem related to substance abuse that triggered this sanction. However, a prior drug/alcohol violation should be recorded in the parole data and this is a more reliable measure of drug or alcohol use. Given that some violations give little insight into what the rule-breaking behavior actually entailed (e.g., Failure to Abide by Board Imposed Special Conditions) and that these types of violations tend to be accompanied by other violation entries that are more descriptive[26], the categorization of the violation types is not exhaustive. Eleven recidivism categories will be examined and are listed below along with the specific recorded violations of which the groupings are composed:

1. Absconding violations

[25] Parole sanctions include things like written warnings, administrative conferences, changes in supervision levels, or additional parole conditions. Parole arrests indicate that a parole officer has initiated a detainment of the parolee. Incarcerations indicate that the parolee was returned to prison.
[26] Parole officers must enter information about all violations charged and sanctions imposed, even if there were multiple violations and sanctions associated with a single event.

- Absconding
- Failure to Report as Instructed
- Failure to Report Upon Release

2. Drug-related violations
    - Failure to Provide Urine
    - Positive Urinalysis/Use of Alcohol (Previous History)
    - Positive Urinalysis/Use of Drugs (No History)
    - Positive Urinalysis/Use of Drugs (Previous History)
3. Employment-related violations
    - Changing Employment Without Agent Notification/Permission
    - Failure to Maintain Employment
    - Failure to Participate in Community Service
4. Monetary violations
    - Failure to Pay Restitution and/or Other Court Ordered Fee
    - Failure to Pay Supervision Fee
    - Failure to Pay Urinalysis Fee
    - Failure to Support Dependent
5. Residence violations
    - Changing Residence without Permission
6. Treatment violations
    - Failure to Complete Treatment
    - Failure to Participate/Attend Treatment
    - Failure to Take Prescribed Medication as Prescribed by MD

7. Violent violations
    - Assaultive Behavior
8. Drug-related police arrests[27]
9. Property-related police arrests
10. Violent-related police arrests
11. Public order police arrests

In addition, broader measures of recidivism, which approximate the outcomes used in prior studies, will be examined by combining some of the eleven categories as described above, in order to reduce the number of outcomes examined and to examine whether the more granular measures show a unique pattern from the aggregated measures. The analysis will begin with the broadest outcome measures and move to the more granular measures. In addition to the eleven outcomes listed above, the combined recidivism outcomes are listed below:

1. Any recidivism events (includes all of the eleven categories)
2. Any police arrest
3. Any technical violation (includes all of the seven categories of technical violations)

ANALYSIS AND METHODOLOGY

Given that little is known about parolees' communities or their technical violations, the analysis begins with detailed descriptives of the individual characteristics

[27] Arrest categories were developed using the Association of State Correctional Administrators (ASCA) offense categories as a starting point and edited based on theoretical considerations. ASCA categories are also used by the PADOC. Charges that did not have an ASCA category associated with them were also coded based on the statue associated with the charge code.

of the parolees, the characteristics of the areas where the parolees live and their mobility patterns, and the rates and patterns of recidivism events.

Important consideration also must be given to how to address the spatial dependence and measures of community relevant for this project. First, the individuals in the data are clustered in communities, though the primary interest in this study is the effect of the community characteristics on the individuals. The dependence of the observations due to the geographic clustering should be accounted for (or the standard errors will be biased downwards). A popular choice in the prior literature is to use multi-level models to adjust for observation dependence, clustering to adjust for this lack of independence is a better fit for the research questions currently being examined. Like multi-level models, clustering observations based on their shared geographic locations adjusts the standard errors as a result of the dependence of observations due to spatial dependence. Multi-level models would answer the additional question of whether there is variation in reentry patterns across communities, but the focus of the present study is how the community impacts reentry patterns rather than whether they vary across the communities. However, since the parolees move between comminutes, the spatial dependence is not as straightforward as individuals clustered within a single spatial unit. To address this, sensitivity analyses will be run to examine whether spatial dependence is biasing the results. First, models with unclustered observations will be run. Then, the observations will be clustered by the census tract the parolee lived in the longest. Next, the observations will be clustered by county combinations (e.g., , all parolees who lived in just county A will form one cluster, all parolees who lived in county A and county B will form another cluster, etc.). As parolees move between communities, all community

variables are weighted by the amount of time during the follow-up that was spent in each community[28].

A related consideration is the appropriate unit of analysis, as the community has been operationalized numerous different ways (Sampson et al., 2002). Based on the available data, there are several possibilities. Offender addresses are available at the block level and can be aggregated to any census-based community definition. Most service providers have a street address and are able to be aggregated to any level as well. Census data are available at the county, zip code, census tract, and census block levels. From a theoretical perspective, the meaningful community that impacts the ex-prisoner's daily lives is likely smaller than the county level. For example, though a service provider may theoretically serve an entire county, a parolee who lives in the county fifteen miles from the service provider may be less likely to use those services than a service provider that is only located a mile from his or her residence (Hipp et al., 2010).

Although using census boundaries to define neighborhood geography may not reflect constraints on social processes that are present as a result of the physical street layout or residents' cognition of neighborhood boundaries (Sampson et al., 2002), census boundaries do represent meaningful boundaries. Census tracts, for example, are commonly used in the neighborhood effects literature and possess stable boundaries. They are also designed to be relatively homogenous in terms of population characteristics, economic status, and living conditions (Kubrin & Stewart, 2006). It is likely that an ex-prisoner's daily life is largely shaped by the services, features, and

[28] As the timing of recidivism is not the focus (it is only possible to determine when the recidivism was recorded, not when it actually occurred), the timing of the community characteristics is not linked to recidivism events occurring during residence in that community. Rather, the focus is on how the overall, average neighborhood experience affects recidivism.

opportunities available within his or her census tract. With these considerations, analyses are performed using the census tract as the operationalized definition of community.

The primary method used to examine the predictors of the recidivism categories is logistic regression. Logistic regressions are used to predict each of the recidivism outcomes as described above, including the combined outcomes and the eleven granular categories. As I am interested in how the community predictors are gendered, separate models are run for men and women and the coefficients are compared to avoid the problems associated with a large number of interactions. Various sensitivity analyses, as described above (spatial dependence, time spent at a CCC, etc.), are also conducted. In addition, in order to test the race-specific expectations, gender-specific models with interactions between race and the relevant community-level variable are be conducted.

CHAPTER 4: DESCRIPTIVES

Descriptive statistics for all variables are presented in Table 4.1[29]. In Table 4.2, the variables are broken-down by gender. In this chapter, I first describe the overall characteristics of the sample and then compare the similarities and differences between the men and women.

DEMOGRAPHICS

As shown in Table 4.1, only a small percent of the sample (11.67%) is female. The proportion of females in this sample is higher than the proportion nationally (6.7%) or state-wide (5.3%) (Carson & Sabol, 2012) due to the fact that the sample is composed of individuals being released from their first prison sentence in Pennsylvania. The higher proportion of women in this sample reflects women's recent increasing rates of imprisonment and their lower likelihood of being reincarcerated. There is a similar proportion of Black and white parolees (about forty percent of the sample each). The large majority, 86.40% of the sample, is unmarried. At release, the mean age of the prisoners was 33 years old and the median age was 30. Nationally, the median age of prisoners is in the late thirties; the younger age of this sample reflects their first-time prisoner status. Over sixty percent of the sample has at least a high school education.

Demographics by Gender

The female sample is more likely to be white and less likely to be Black compared to the male sample (64.62% vs. 44.32% white and 24.13% vs.42.86% black,

[29] Descriptives presented in Table 4.1 are based on time spent at private residential addresses only. Descriptives for the expanded community definition which includes time spent in at private residential addresses or a community corrections center are presented in Appendix A.

respectively). Men and women have a similar likelihood of being married. The women are also older at release on average (36 years old) than the men (32 years old). Men and women have similar likelihoods of being a high school graduate.

PRISON AND ARREST HISTORY

Prior arrests of all types were common among the sample. 62.64% had a violent arrest prior to their current incarceration, 73.05% had a property arrest, 66.52% had a drug arrest, and 82.09% had an arrest for a public order crime. The average length of incarceration was 939 days (just over 2.5 years). Misconduct while institutionalized was also fairly typical. On average, each person had 1.2 prison misconducts (about 35% of the sample had no recorded prison misconducts).

Prison and Arrest History by Gender

While the men and women in the sample have similar probabilities of having a prior property crime arrest, the women are significantly less likely than men to have had a violent, drug, or public order arrest. The women were also incarcerated for shorter terms, serving an average of 704 days (just under 2 years) while men served an average of 970 days (2.6 years). Women also had fewer prison misconducts than men (about half, on average).

PAROLE VARIABLES

Nearly half of the sample (43.62%) was released to the street rather than a community corrections center. Approximately 90% of the time the parolee resided in the community, the parolee lived at a private residence rather than a CCC. The most common initial supervision grade was maximum grade supervision with over half of the sample

initially assigned to this level. On average, the follow-up period lasted for about 1,218 days (3.3 years).

Parole Variables by Gender

The men in the sample are less likely (43.20% vs. 46.80%) to be paroled to a private residential address versus a community correction center (CCC). Females spend a significantly larger proportion of time at a private residence versus a CCC (92.88% vs. 90.42%). The men also have a higher maximum supervision level while on parole. The average follow-up time is shorter for the men (1,187 days) compared to the women (1,452 days), reflecting their higher rates of reincarceration.

ASSESSMENT INFORMATION

About thirty percent of the sample was first arrested before age 16, according to the LSI-R. About forty percent of the sample was chronically unemployed in the community, while a similar proportion was recently employed before incarceration. Over half of the sample (53.30%) indicated that they have financial problems on the LSI-R. Nearly one third of the sample (31.61%) indicated that they were dissatisfied with their relationship (scoring a 0 or 1) while 68.39% of the sample was satisfied with their relationship (scoring a 2 or 3). Nearly half of the sample has a criminally-involved spouse or close family member while the majority, 91.55%, reported having a criminally-involved friend or acquaintance. A small portion of the sample reported very high mobility with 7.69% reporting that they have moved three or more times in the year prior to incarceration. Just over half (51.09%) has a history of mental health problems. Substance abuse rates are high; 71.01% of the sample was determined to have a drug

dependency problem according to PADOC, while 79.57% has either a drug or alcohol dependency problem.

Assessment Information by Gender

The women in the sample are less than half as likely as the men to have been arrested before they were 16 (14.41% vs. 31.67%). They are more likely to have been chronically unemployed in the community, and are less likely to have been recently (but not chronically) unemployed or recently employed compared to the men. However, men and women have similar likelihoods of having a history of financial problems. Women are also more likely to have a criminal spouse or family member and are about three times as likely to have moved often before incarceration. On the other hand, women are less likely to have a criminal friend or acquaintance and are significantly more satisfied with their relationship. The women in the sample are also significantly more likely to have received mental health treatment (69.23%) compared to the men (48.69%) and are more likely to have substance abuse problems compared to the men, consistent with the prior literature.

COMMUNITY VARIABLES

On average, the parolees live in areas that have higher than average levels of low social ties, immigration concentration, disadvantage, and unemployment. Figures 3.4-3.6 display the spatial distributions of these four variables. On average, the parolees live in areas with higher than average levels of disadvantage, unemployment, and immigration and lower than average levels of social ties. This supports previous research which has found that ex-prisoners return to relatively disadvantaged areas. On average, there are over 23 other individuals in the sample residing in the same census tract, indicating that

ex-prisoners are likely to live around other ex-prisoners. Because the measure of ex-prisoner concentration only captures residents in this sample, this is likely an underestimation of the actual number of ex-prisoners in the census tracts. However, even this conservative estimate suggests that parolees commonly live in communities with other ex-offenders. The map of the parolees' locations, displayed in Figure 3.3, shows that the parolees are concentrated in the same areas, particularly around the large cities. There is an average of three one-stop service providers within two miles of the parolees, 32 service providers of any type, and almost four drug or alcohol treatment service providers. There is a significant, positive correlation between each of the measures of the number of services a parolee lives near and the number of other parolees the parolee lives near, suggesting that service providers are located in areas with high parolee concentration. The locations of these service providers are presented in Figures 3.7-3.9.

Community Variables by Gender

The women in the sample live in areas with lower levels of social ties, on average, compared to the men. On the other hand, the areas where the women live have lower average levels of immigration concentration, lower levels of disadvantage, and lower levels of unemployment. Men and women live in areas with similar levels of potential co-offenders. While the number of total service providers is insignificantly higher in the areas where the women in the sample live, there are significantly greater numbers of one stop service providers and drug/alcohol treatment providers in the women's communities.

RECIDIVISM OUTCOMES

Nearly 74% of the sample has at least one of the eleven types of recidivism during the follow-up period (75% of men and 63% of women). Nearly forty-six percent of the

sample was reincarcerated in a Pennsylvania prison during the follow-up period, including 26% of women and 48% of men. Of the eleven categories of recidivism, the most common type is drug-related violations with 36.55% of the sample accruing at least one during the follow-up period. The other categories of recidivism, from most to least common, are public order arrests, (35.03%) drug arrests (25.34%), property arrests (24.04%), violent arrests (19.57%), absconding (14.06%), monetary violations (12.17%), residence violations (10.12%), treatment violations (5.71%), employment violations (4.68%), and violent violations (3.07%)[30].

Recidivism Outcomes by Gender

The men and women in the sample have similar probabilities of accruing a treatment or residence-related technical violation. Women are less likely to accrue an absconding violation, drug-related violation, employment-related violation, or violence-related violation. On the other hand, women are more likely than men to accrue a monetary-related technical violation. In addition, the women in the sample are significantly less likely to accrue any drug, violent, or public order rearrests, while they have a similar likelihood as the men of being rearrested for a property crime.

Table 4.3 presents the probabilities of each type of recidivism outcome conditional on having another type of recidivism event. These probabilities are presented for males and females. The first column presents the unconditional probabilities for each type of recidivism outcome, the second column presents the probabilities conditional on having an absconding violation, the third column presents the probabilities conditional on

[30] Due to the large sample size, insufficient statistical power or variation is not expected to be a problem in this analysis. However, the one exception is violent violations which, for women, are rare. Therefore, the findings for women's violent violations should be interpreted with caution. See table 4.3 for the number of men and women with each recidivism outcome.

having a drug violation, etc. A few patterns stand out. First, while the likelihood of having an absconding violation is 0.09 and 0.15 for women and men, respectively, among parolees who have a residence-related violation, these probabilities increase to 0.50 and 0.58 for women and men, respectively. This suggests that lacking a stable residence and failure to report are behaviors that often occur together.

Another interesting pattern is that those with non-drug-related technical violations tend to be more likely to have drug-related technical violations. For men, parolees who have any of the types of technical violations other than drug violations (absconding, employment, monetary, residence, treatment, or violent violations) have a 50 percent chance or greater of having a drug violation. For women, the pattern is similar but slightly more varied. Conditional on having a residence-related violation, the probability of having a drug violation is especially high for women (70.09%), suggesting that drug use and housing instability may be closely linked. At the lower end, conditional on having a monetary violation, women's probability of having a drug-related violation is 43.62%, slightly lower than the probability among men (53.32%).

Monetary violations and employment violations also seem more likely to co-occur. For men who have an employment violation, their probability of having a monetary violation is 33.19%. For women, the probability is 35.29%. Among men who have a monetary violation, 13.92% have an employment violation (compared to only 4.93% for the unconditional probability). Among women, the probability is 6.38% (compared to 2.75% for the unconditional probability). This suggests that while men and women with problems maintaining employment may be similarly susceptible to being unable to pay fees (p=0.8016; two-tailed), women with monetary violations are

significantly less likely to also have problems maintaining employment (p=0.0043; two-tailed). Further, among both men and women, the probability of having a treatment-related violation is highest when one also has an employment-related violation, suggesting that the ability to maintain a job and a treatment program may be related, though the relationship is stronger for women (p=0.0395; two-tailed). Women with an employment-related violation have a 32.35% probability of also having a treatment violation while men with an employment-related violation have an 18% probability of also having a treatment violation.

Findings in Table 4.3 also indicate that parole authorities and police are not identifying similar types of recidivism, such as drug use, violence, or financial problems. For example, among men and women who have a drug arrest, the probability of also having a drug violation is 40.99% and 50.60%, respectively, suggesting that drug violations may lead to revocation before the parolee is arrested by the police for a drug charge. Among men and women who have a violence-related arrest, the probability of also having a violent violation is 6.40% and 2.94%, respectively. Among parolees who are rearrested for a drug-related crime, women are more likely to also have a drug-related violation (50.60% vs. 40.99%; p=0.0144 two tailed), suggesting that women may be less likely to be reincarcerated by parole revocation due to a drug-related violation and are able to remain on the street until the reach the attention of the police. On the other hand, women with a violent rearrest are not significantly less likely than men to have a violence-related technical violation (2.94% for women vs. 6.40% for men; p=0.1585; two-tailed), suggesting that chivalry does not extend to violent women. Lastly, among parolees that have a monetary-related violation, the probability of also having a property

arrest is slightly lower than the unconditional probability of having a property arrest for both men and women, suggesting that the inability to pay fines is not strongly related to committing property crimes. On the other hand, similarly for both men and women, the probability of being arrested for a property crime increases from the unconditional probability when the parolee also has an employment-related violation (24.95% and 32.35%, respectively; p=0.3386; two-tailed), suggesting that being unable to maintain employment is related to committing property crimes for men and women. Women who are having trouble maintaining employment are insignificantly more likely to commit property crimes than men.

CHAPTER 5: RESULTS

OVERVIEW

This study used a series of logistic regressions to examine the effect of community-level characteristics on a variety of recidivism outcomes. The analyses presented here include separate models for men and women in order to test for gender-specific effects. In addition, extensive individual-level controls, based on prior research on offending and recidivism, are included in the models to assess whether the community-level effects persist after controlling for an individual's risk of recidivism. As described in the previous chapter, many variations of the models were run, including using measures of the community-level variables, using only time spent at a residential address as well as including time spent at a Community Corrections Center (CCC), and multiple forms of clustering of the observations (see appendix B for the different iterations of variables included in the models; models marked with an asterisk are presented in the dissertation). From this wide range of preliminary models, final models were selected based on the ones that provided the strongest measurement. For example, offender concentration could be measured by the number of other parolees who live in the same census tract, or it could be measured by the number of days other parolees spend in the census tract. The measure based on the number of parolees was chosen over the measure based on the number of days, as having one other parolee live in the same census tract for 100 days versus 10 days is unlikely to have the same effect as 10 parolees living in the same census tract for 10 days versus one day each. That is, living near a greater *number* of other parolees is likely to have a greater impact on recidivism. Additionally, the measure based on the number of days may be related to the recidivism of the other offenders who live nearby as those who do not recidivate are more likely to

live in the census tract for a long time. Therefore, living near other parolees who do not recidivate and live in the community for a long time are less likely to serve as co-offenders compared to other parolees who are criminally involved and recidivate quickly, removing them from the community.

Because parolees' unrestricted time in the community varies as a function of whether they are in a private residence or in a CCC, the reported models only include community characteristics captured during time spent at a private residence. For comparison purposes, results when community characteristics during time spent at a CCC are taken into account are summarized in appendix C. In addition, the models presented here include observations clustered by the combination of census tracts the parolee lived in to account for potential spatial dependence. Additional models were run to include observations clustered by counties, but as there is likely to be a great deal of variation within each county, the tract-level clustering method was selected as the best measure.

The organization of the rest of the chapter is as followed. First, the analytic plan is reviewed. Next, the charts and graphs of the findings are explained. Then, the findings for each set of expectations are presented.

REVIEW OF THE ANALYTIC PLAN

The full list of variations of the models are presented in the table in appendix B. The models described in this chapter were created in the following manner: First, models without controls for individual-level characteristics were run for men and women separately to examine the effect of the community-level variables on the different recidivism outcomes. These findings are presented in Appendix D. Next, all of the

community-level variables were included in one model and, to avoid problems of multi-collinearity, variations were run with each measure of service providers (one-stop service providers, total service providers, and drug/alcohol service providers). In addition, the level of unemployment in the community was substituted for the level of disadvantage in one variation of the model. Finally, the individual-level controls were added to see if the gender differences and community effects persist once individual characteristics were included in the model. These models, examining the effect of the community-level variables while controlling for individual characteristics, are presented in this chapter.

Both the aggregated and disaggregated recidivism outcomes are examined. By aggregated I mean, 1) any recidivism event (having any of the eleven types of arrests or technical violations), 2) any police arrests, or 3) any technical violations, collectively. Then, each of the eleven disaggregated recidivism measures are analyzed (absconding violations, drug violations, employment violations, monetary violations, residence violations, treatment violations, violent violations, drug-related police arrests, property-related police arrests, violent-related police arrests, and public order police arrests). To test for race-specific expectations, gender-specific models with interactions between race and the relevant community-level variable are conducted. These models include all of the individual-level controls that were included in the main models, with the exception of race.

Table 5.1, panels A to H, presents the results of the models examining the effect of the community-level variables while controlling for individual characteristics. Corresponding tables for the models without individual controls are presented in Appendix D. Consistent with the anticipated relationships specified in Chapter 2, the

results are organized by the key community-level independent variable expected to produce distinct gender and/or race patterns of violations (disadvantage, unemployment, one stop service providers, total service providers, drug/alcohol service providers, offender concentration, informal social ties, and immigration concentration). Recall from the previous chapter that disadvantage, informal social ties, and immigration concentration are based on scales constructed from census variables. The level of unemployment is constructed from a single census measure. The number of service providers are based on information provided from PADOC. Offender concentration is measured by the number of other individuals in the sample who live in the same census tract. Since the parolee may move within census tracts, all of these community-level variables are weighted based on the percent of the follow-up period that was spent in that tract.

In Table 5.1, the odds ratios for each recidivism measure are presented for both men and women. The 95% confidence intervals are given, and if the confidence intervals do not cross 1, the result is significant at this level as indicated by an asterisk. Additionally, the confidence intervals for the models for men and women can be compared and, if they do not overlap, the conclusions can be drawn that the effects for men and women are significantly different using 95% confidence intervals.

Another way to compare the effect for men and women is presented in Figures 5.1-5.7. The Y-axis displays the odds ratios and the different recidivism outcomes are displayed across the X-axis. Similar to the tables, these Figures display the upper and lower bounds of the 95% confidence intervals for men and women and give a visual depiction of when the confidence intervals cross 1 or when the confidence intervals for

men and women overlap. Corresponding figures for the models without individual controls are presented in Appendix D. The statistically significant gendered interactions between race and community characteristics are graphically depicted in Figure 5.8 with the odds ratios shown on the X-axis.

FINDINGS

First, it is important to note the relative contribution of the community-level variables compared to the individual level variables in explaining the recidivism outcomes. R-squared values were obtained by running linear regression models and compared between models with individual-level variables only and models with the community-level variables added. These values are presented in Appendix E. Overall, the addition of the community variables increased the explained variance by one to two percent at most. The individual controls, on the other hand, explained from 1.4% of the variance (men's violent violation) at the low end to 23.5% of the variance (men's police arrests) at the high end. On average, the individual controls explained 9.8% of the variance across the two outcomes for men and women. When the community-level variables are included, the average explained variance increases to 10.4%. The explanatory power of the community-level variables is small; however, for many of the outcomes, the explanatory power of the individual controls is also relatively small.

Disadvantage/Unemployment and Violence/Economic-Related Recidivism

The first two expectations relate to the influence of disadvantage and unemployment in the community on recidivism. First, it was expected that structural disadvantage would increase recidivism and the effects would be stronger for males than females, especially for violent outcomes. I also expected disadvantage and

unemployment to be more salient for men's economic-related recidivism compared to women, although a counter expectation was that disadvantage and unemployment would be more strongly related to women's economic-related recidivism outcomes. This counter expectation was made because there were theoretical reasons for expecting disadvantage to be more important for men's economic-related recidivism (i.e., that employment is an important method of doing gender for men) as well as theoretical reasons for expecting it to be more important for women's economic-related recidivism (i.e., that women are more likely to be excluded from the labor market).

Arrests

Examining the aggregated measures first, we see in Table 5.1 Panel A Section 1 that, as expected, disadvantage is associated with higher odds of aggregated arrests for men (OR=1.02). However, it also is associated with lower odds of any technical violations (OR=0.967). The effects fail to reach significance for the female sample, but the coefficients for men and women are not significantly different. When unemployment is examined instead of the disadvantage scale, unemployment increases the odds of a re-arrest for men while it decreases the odds for women. The finding that disadvantage is associated with lower rates of technical violations, at least for men, is also counter-intuitive. One explanation is that, since police presence is higher and arrests are more likely, men in these areas have less opportunity to accrue technical violations. Indeed, there is a significant negative correlation (r= -0.0219; p=0.03) between disadvantage and follow-up time for men, supporting this explanation (while there is a positive, insignificant correlation for females). These findings offer some support for the expectation that unemployment increases men's recidivism (police arrests) more than

women's and also suggests that disadvantage increases men's likelihood of arrests while decreasing their likelihood of technical violations.

Breaking down the types of arrests, the results show that disadvantage is associated with higher odds of drug (OR=1.03) arrests for men, supporting the expectations that community characteristics—especially those associated with disarticulation negatively affect parole success. It is likely that police presence is higher in more disadvantaged areas, increasing the likelihood of an arrest, at least for certain types of crimes. It is also possible that drug markets are more likely to be present in these areas, and drug market activity would be associated with offenses in this category.

Community effects on parolee arrests appear to be gendered. Unemployment is associated with lower odds of property arrest for women (while the effect fails to reach significance for men). This result runs counter to the idea that, when legitimate employment opportunities which offer opportunities to gain success are lacking, property crime offers women one alternative method for succeeding, providing for themselves and others, and accomplishing femininity (Arnold, 1995; Simpson & Ellis, 1995). Instead, in areas with higher levels of unemployment, women may be able to benefit from other forms of support such as welfare. The fact that this pattern shows up only when a simple measure of unemployment is examined rather than the full disadvantage scale suggests that there may be something unique about unemployment that is masked by the other elements of the disadvantage scale. Perhaps areas with high levels of unemployment, but not necessarily other elements of disadvantage such as poverty or high minority concentration, are not the same as areas marked by the type of concentrated disadvantage described by Anderson (1999). While the communities described by Anderson are

associated with isolation from more advantaged areas and mistrust in the criminal justice system, areas that simply have higher levels of unemployment reflect an community in which individuals who had employment in the past have become unemployed due to external factors which have reduced the availability of jobs (such as business closings). Unlike the communities described by Anderson, these areas may lack a culture which promotes the use of property crime as a method of success, particularly for women. Another explanation is, when employment is higher, property crimes are more common as more people are away from their homes due to work and, with greater prosperity, there is more available to steal.

Violations

Focusing on technical violations, we can see a different pattern. For most other types of technical violations, disadvantage is associated with lower odds of each type of technical violation for men. The only exceptions are violent violations, treatment violations, and employment violations which fail to reach significance.

Race-Specific Effects on Violent Recidivism

Race-specific effects were expected for several of the community variables. Specifically, I anticipated that disadvantage would increase recidivism, especially violence-related recidivism, among Black men and women more than among non-Black men and women. The results do not support this, as shown in Figure 5.8, graphs A-H. In fact, it seems that disadvantage increases recidivism less among Black men for many of the violence-related outcomes. That is, disadvantage greatly reduces the odds of violent violations for Black men, while it actually increases the odds for non-Black men. Graph E shows the substantial difference in the effect of disadvantage on violent violations for Black men and non-Black men. For many types of technical violations, disadvantage

decreases recidivism for Black men slightly more than non-Black men including any violations (graph A) and drug violations (graph B). While disadvantage was associated with higher odds of drug arrests in the main model, the interactions show that disadvantage increases drug arrests for non-Black men more than for Black men (graph F). Additionally, while disadvantage increased the odds of violent arrests in the main models without individual-level controls, in the interactions models, disadvantage has little effect for Black men while it greatly increases the odds of violent arrests for non-Black men (graph G).

Similarly, for women, living in an area with higher rates of unemployment may be less of a risk factor for Black women's violent violations compared to white women, counter to the expectation (graph K). That is, at high levels of unemployment in the community, non-Black women have higher odds of violent violations than Black women, though the odds of violent violations for all women are quite low. These unexpected race-specific effects on violent recidivism may be explained by the fact that Black ex-prisoners are more heavily concentrated in disadvantaged areas, such that increasing disadvantage for Black offenders does not reflect the same environment as increasing disadvantage for white offenders for whom there is wider variation in the level of disadvantage. Indeed, for both men and women, Black parolees reside in much more disadvantaged communities compared to white parolees and this may account for some of the unanticipated relationships.

Race-Specific Effects on Economic-Related Recidivism

The second race-specific expectation was that disadvantage and unemployment in the community would be less important to employment-related outcomes (including employment violations, monetary violations, and property crimes) for Black men given

that they are more likely to be excluded from the labor force due to racial discrimination in addition to their criminal record. The counter-expectation was that, as less desirable employees, those that do obtain a job will receive less lenient treatment from employers which may increase employment violations for Black men, particularly when they live in less disadvantaged areas with more employment opportunities. The results offer some support for the main expectation as disadvantage is shown to decrease employment violations for Black men while it increases employment violations for non-Black men. The dramatic difference in the effects of disadvantage on employment violations can be seen in graph C. At low levels of disadvantage in the community, Black men have higher rates of employment violations than non-Black men. But, at very high levels of disadvantage, non-Black men have higher odds than Black men. Although not predicted, a similar pattern was found for women; living in a neighborhood with greater disadvantage or unemployment is less of a risk factor for monetary violations for Black women compared to non-Black women (graphs H and J). That is, disadvantage and unemployment increases monetary violations for non-Black women and decreases violations among Black women such that, at low levels of disadvantage and unemployment, Black women have higher odds of these types of recidivism than non-Black women. But, at high levels of disadvantage and unemployment, Black women's odds of recidivism is lower than non-Black women's. This may suggest that fewer fines and fees are imposed on Black women who live in disadvantaged communities, as it is recognized that they do not have the resources to pay them. Or, another explanation is that other forms of assistance are available through service providers and welfare

programs which compensate for the lack of resources otherwise available in disadvantaged communities.

Treatment Services

Arrests

It was expected that the availability of treatment services in the community would reduce the recidivism of both men and women, though, due to women's unique needs (such as greater drug dependency, less employment readiness, and need for services associated with childcare), services may be even more important for women's recidivism than men's. However, for the three measures of service providers (one-stop service providers, total number of service providers, and drug/alcohol service providers), there is little effect on arrest outcomes for men or women (Table 5.1, panels C-E, and Figures 5.2-5.4). The effect of drug/alcohol service providers on drug arrests fails to reach significance for men, (p=0.165), and this effect is reduced further once individual-level controls are added (p= 0.141). Similarly, for drug violations, the effect fails to reach significance for men (p= 0.116), and adding individual-level controls further reduces the effect (p= 0.289).

Violations

Although community services had little effect on recidivism for both males and females, we see a different pattern for the likelihood of violations (Table 5.1, panels C-E Section 3 and Figures 5.2-5.4). The most consistent effect was found for employment violations. For all three types of service providers (one-stop service providers, total number of service providers, and drug/alcohol service providers), greater availability of services was associated with higher odds of employment violations for women (the odds ratios are 1.16, 1.01, and 1.10, respectively). One-stop service providers (OR=0.95) and

drug/alcohol service providers (OR=0.97) were associated with lower odds of employment violations for men. For all three measures of service providers, the effect for men and women is statistically different, as the 95% confidence intervals do not overlap. So, living in a community with one additional one-stop service provider increases the odds of employment violations by 16% for women and decreases the odds by 5% for men. These results seem to suggest that service providers play a different role for men and women in terms of maintaining employment (a parolee must be employed in order to receive a violation for not maintaining a job). If female ex-offenders are more likely to be excluded from the labor market and are more likely to be responsible for dependent children and thus unable to work, connecting them to service providers may connect them with jobs, opening them to the possibility of accruing an employment violation by failing to maintain a job. Women who are not connected to jobs through service providers may be less likely to enter the labor market and, as a consequence, be unable to have a job to lose in order to receive a violation. On the other hand, for men, service providers do assist in maintaining a job that would be less likely to be sustained without the presence of one-stop service providers or drug/alcohol service providers. For example, the service providers may reduce chemical dependency, provide transportation, provide housing, and provide medical assistance, all of which help the parolee maintain employment.

The other outcome for which service providers appear to have a significant effect is for monetary violations, related to the inability to pay fees or fines. The number of total service providers nearby significantly increases the odds of accruing a monetary violation for men, regardless of whether controls are added. Similarly, for women, the number of total service providers nearby also significantly increases the odds of accruing a monetary

violation. A comparable, though less strong, pattern is found for the number of drug/alcohol service providers and one-stop service providers. While the coefficients are positive for both men and women, the estimates fail to reach significance. It may be that the relationship is spurious and the effect of the number of drug/alcohol service providers is a result of their correlation with the number of total service providers, as it is really some other type of service providers that are leading to the greater odds of monetary violations (most drug/alcohol service providers that offenders are connected to do not require fees for services). These findings suggest that having a large number of unique service providers, as captured through the measure of the total number of service providers nearby, can result in greater burdens of financial payments being placed on the parolees as some services do require payment from the parolee. Being involved with many different service providers may be helpful to address the problems the service provider targets (e.g., drug use, for which there is a marginally significant effect), but they also may increase the likelihood that the parolee will be unable to pay the fees associated with the service for both men and women. These results hold even when community-level disadvantage and individual-level financial difficulties are controlled for.

Overall, there is limited support for the expectation that treatment services reduce drug-related recidivism but this may be a measurement issue as the data do not capture actual use of treatment services or capacity at the service providers. Additionally, the expectation that treatment services would be especially important for addressing women's needs after prison was not supported. In fact, availability of treatment services

was associated with higher likelihoods of employment and monetary violations among women, suggesting that treatment services may have unintended negative effects.

Offender concentration

Another anticipated community-level effect on recidivism was the level of offender concentration. Living in proximity to a greater number of offenders was expected to increase offending for both genders, though the effect should be stronger for men than for women. Results that examine these expectations are described below.

Arrests

Counter to expectations, higher rates of offender concentration are associated with lower odds of any arrest, arrest for a drug offense, or arrest for a public order offense for men, though only after the inclusion of individual-level controls (Table 5.1, panel F and Figure 5.5). One explanation is that, given the fixed level of police capacity, a higher number of offenders in the area reduces the chance a parolee will be apprehended by the police. There appear to be no meaningful relationships between offender concentration and arrests for women, with or without the individual-level controls.

Violations

Offender concentration is associated with higher odds of absconding, residence violations, and treatment violations for men (the odds ratios are 1.003, 1.007, and 1.002, respectively), supporting the expectation. So, living near ten additional parolees increases men's odds of absconding by 3%, of residence violations by 7%, and treatment violations by 2%. In contrast, offender concentration is associated with lower odds of treatment violations for females (OR=0.984), suggesting that living near ten additional parolees decreases women's odds of treatment violations by 16%. For residence and treatment violations, there is evidence that offender concentration increases recidivism for men

more than for women. It is possible that offender concentration is more risky for some types of technical violations for men because they are more susceptible to peer influences while women are more susceptible to the influences of family members and intimate partners. Thus, being around other offenders may encourage male parolees to abscond, move residences without permission, and not complete treatment as they are drawn to street life.

The finding that offender concentration reduces the odds of treatment violations for females is counter-intuitive. One possible explanation is that women in these high crime areas surrounded by many offenders are more likely to withdraw from street life and be invested in treatment. Or, it may be that these women are drawn to the street and are less likely to be enrolled in treatment programs, making it more difficult to accrue a violation for failing to complete treatment. A final explanation is that women who live in these areas were originally drawn to crime because of the availability of street life, and they return to similar areas. As they offend because of the community organization and not because of substance abuse or psychological problems, they are less likely to be involved in treatment when they are released to these areas. Correlations show that women with a history of mental health treatment and drug abuse are more likely to live in areas with high offender concentration. For men, similar correlations are present, though the correlation between offender concentration and mental health treatment is not significant[31].

[31] When offender concentration is measured by the number of days that other offenders live nearby rather than the number of people, the results are not substantively different.

Race-Specific Effects of Offender Concentration

The research literature revealed that Black women are particularly more likely to offend with family members and intimate partners, suggesting that the wider availability of offenders in the community may be less important for this group compared to non-Black women, particularly for drug-related recidivism and criminal behavior, as co-offending with family and intimate partners has been identified for these behaviors. This expectation was tested, but supported only for monetary violations (graph N). Living in an area with greater offender concentration increased monetary violations for non-Black women while it decreased monetary violations for Black women. The race difference is greatest at higher levels of offender concentration, as the odds of monetary violations are very low for Black women. On the other hand, living in an area with greater offender concentration increased some types of technical rule violations, including treatment violations and violent violations more for Black women than non-Black women (graphs O and P). For these outcomes, at high levels of offender concentration, the odds of recidivism are very low for non-Black women. These findings may indicate that offender concentration in the community is a proxy for having more criminally-involved family members and intimate partners with whom to offend. This situation would provide Black women more opportunity to offend with family members who themselves are more likely to be violent and commit some types of rule infractions. Although these are interesting possibilities, I am unable to assess these interpretations empirically.

Informal Social Ties and Immigration Concentration

The last set of community effects examined in the dissertation focus on informal social ties and immigration. It was expected that *stronger* informal ties present in the

community and *greater* immigration concentration would decrease women parolees' offending to a greater extent than for males, though it may also decrease offending among men. This gender difference was anticipated to be strongest for non-economic technical violations (such as maintaining a stable residence, attending treatment and abstaining from drugs, and attending meetings with parole officers).

Arrests

The results do not suggest that there is a strong relationship between informal social ties and arrest outcomes for men or women (Table 5.1, panel G and Figure 5.6). The significant effect of immigration concentration on arrest outcomes does not remain after individual characteristics are controlled in the models suggesting that the effect of immigration concentration can be explained by characteristics of the individual parolee.

Looking at the disaggregated arrest measures, the results suggest that, for several measures, immigration concentration is associated with lower odds of recidivism for men, though this relationship does not remain once individual-level controls are added. This pattern holds for violent arrests, property arrests, and public order arrests.

Violations

Supporting the expectation, for both men and women, lower levels of informal social ties in the community are associated with higher rates of many of the violation outcomes (Figure 5.6). Living in an area with lower levels of social ties is associated with higher odds of having any type of technical violation as indicated by the aggregated measures, and this holds for both genders (OR=1.03 males; OR=1.02 females).

Turning to the specific types of technical violations, while lower social bonds are associated with higher odds of the aggregated technical violation, the pattern holds across all of the specific types of technical violations for men. For women, on the other hand,

lower social ties are associated with higher odds of absconding, drug violations, and residence violations. Additionally, for women, when individual level controls are not included, lower levels of social ties are associated with higher odds of treatment violations, violent violations, and violent arrests.

However, counter to the expectation, there are no significant differences in the effect of social bonds for men and women for any of the recidivism outcomes, suggesting that social bonds in the community have a similar effect on men and women's recidivism, though theoretical perspectives suggest that the mechanisms through which this process occurs may differ. The results also suggest that the level of social bonds in the community is a more consistent predictor of technical violations compared to police arrests.

Immigration concentration, as expected, is associated with lower odds of some types of violations, at least for men, including treatment violations and employment violations.

For women, immigration concentration is associated with lower odds of treatment and absconding violations. However, the inclusion of individual-level controls mediates most of the effects and, counter to the expectation, the coefficients are not significantly different for males and females for any of the outcomes. After controlling for individual-level characteristics, the negative effect of immigration concentration on men's treatment violations persists (OR=0.97). On the other hand, immigration concentration is also associated with *higher* odds of monetary violations for men (OR=1.03), though again the effect is not significantly different than that for females.

These findings support the propositions suggested by the immigration revitalization perspective that immigration can serve as a protective factor for crime and the level of immigration concentration in the community is significantly and positively correlated with the level of social ties. The fact that this negative relationship is found for violent, public order, and property arrests, but not drug arrests, suggests that the strengths that recent immigrants bring to a community serve as protection again some behaviors, such as violence (supporting prior research on the immigration revitalization perspective; c.f., Lee & Martinez; 2002; Martinez et al.; 2010; Ousey & Kubrin, 2009), but not drug crimes—at least those recorded by the police. Though no significant effect is found for drug arrests, immigration concentration is associated with lower rates of drug violations for women (albeit mediated by the inclusion of individual controls). Immigration may also serve as protection against drug use (as most drug violations are the result of failed drug tests), even if it does not protect against involvement in drug distribution and drug markets (as most drug arrests are related to possession and sale of drugs rather than actual use). Additionally, though no effect is found for property arrest, immigration concentration is associated with higher rates of monetary violations for men. The higher rates of monetary violations may be explained by the disadvantage that is present in these areas and the resulting ability to pay. It may also be explained by the lack of faith in and feelings of legitimacy towards the criminal justice system in areas with greater concentrations of immigrants, shaped by experiences both in their home countries and in the US (Menjivar & Bejarano, 2004).

CHAPTER 6: CONCLUSIONS AND DISCUSSION

IMPORTANCE AND GOALS OF THE PROJECT

Given the large parole population in the United States and their high rate of parole violations, rearrests, and reincarceration, this is a group that needs more research attention. Women have been hit especially hard by the trend of mass imprisonment, but they are often neglected in correctional research as they comprise a relatively small proportion of the correctional population. Thus, specifically focusing on the unique needs and experiences of men and women on parole is required to improve their reentry outcomes.

The goal of this dissertation was to examine a promising new avenue for improving reentry success by providing a deeper understanding of the impact of the community on recidivism among parolees after release from prison in Pennsylvania, including how gender interacts with the community setting to produce recidivism outcomes. This project improved on prior studies by presenting a detailed look at specific types of technical violations and arrests, including those that do not result in parole revocation, as they can serve as indicators of the difficulties parolees encounter after prison such as substance abuse and employment difficulties. Additionally, drawing on the theoretical and empirical literature which draws distinctions between men's and women's offending, reentry, and experiences in their communities, this project aimed to examine whether the community's influences on recidivism are gendered.

CONTRIBUTIONS

Prior empirical research has linked disadvantage to recidivism. Some of these links are supported in this project, while other more nuanced findings emerge from the analysis. For example, Kubrin and Stewart (2006) found that disadvantage was related to higher rates of rearrest for a combined sample of men and women. Like Kubrin and Stewart (2006), this study found that disadvantage was associated with higher odds of arrests, at least for males, a nuance that is likely obscured when women are included in a largely male sample. However, disadvantage was also associated with lower odds of technical violation, suggesting that community disadvantage does not have the same effect on police outcomes as technical parole outcomes. This may be due to the fact that more disadvantaged areas receive greater police attention, and parolees are more likely to be arrested and removed from being at risk of a technical violation. Additionally, Mears et al. (2008) and Orrick et al. (2011) found that, among a male sample, disadvantage was related to higher odds of reconviction for a violent crime and lower odds for a drug crime. Unlike these prior studies, this analysis did not find an effect of disadvantage on violent arrests or technical violations. Additionally, disadvantage was actually associated with higher odds of drug rearrests for men and lower odds of drug violations for men.

Supporting the findings of Reisig et al. (2007) which suggested that disadvantage lowered the risk of felony reconviction for black men, disadvantage in this sample is associated with a greater decrease in the risk of many recidivism outcomes for Black men compared to non-Black men. While Huebner et al. (2010) found that non-white women returning to disadvantaged neighborhoods were less likely to fail on parole and that this effect was unique from white women, the only race-specific effect of disadvantage for

women was found for monetary violations; disadvantage decreased the odds of monetary violations for Black women more than for non-Black women.

Tillyer and Vose (2011) do not find a relationship between immigration concentration and reconviction among a combined sample of men and women, while Wright and Rodriguez (2012) find that immigration concentration was not a significant predictor of recidivism for White boys or Latino boys, but Latina girls who lived in high immigrant communities were less likely to recidivate. While the Hispanic, female sample in this study was too small to parse out, the results do suggest that immigration concentration is associated with lower odds of some types of recidivism for men including employment and treatment violations, but higher odds of monetary violations.

Tillver and Vose (2011) also found that greater residential stability was associated with lower recidivism. Supporting this finding, this analysis found that weaker social bonds in the community were associated with higher odds of any recidivism and higher odds of any technical violation for men and women as well as higher odds of property arrests for men. It seems that informal social ties in the community are important for men's and women's recidivism, though more so for technical violations rather than police arrests. It may be that informal social ties in the community provide parolees with resources that aid their reintegration, such as providing stable housing, stable neighbors, and friendships. The extant theory also suggests that social ties may be particularly important for women's offending and re-entry by providing resources and support (Alarid et al., 2000; Benda, 2005; Covington & Bloom, 2006; Gonnerman, 2004) and by exerting more social control on women and girls than men and boys in the community (Simmons & Blyth, 1987; Steffensmeier & Allan, 1996). However, counter to this pattern, this

analysis did not find any significant differences in the effect of informal social ties for men and women for any of the recidivism outcomes.

While previous studies such as Hipp et al. (2010) have found that the availability of service providers is associated with lower odds of return to prison, this analysis showed little effect of treatment availability on recidivism for men or women. The measures of treatment availability may be weakened because they do not measure actual use of treatment services or the capacity of the treatment services, only that there are service providers available in the community. Additionally, the assumption was made that the list of service providers maintained by the PADOC accurately represents that services available to parolees.

On the other hand, two unintended effects of treatment availability emerged. First, greater availability of services was associated with higher odds of employment violations for women and lower odds for men. While service providers may increase job stability for men by connecting them to good job opportunities, reduce chemical dependency, provide transportation, provide housing, and provide medical assistance, they seem to increase opportunities for accruing violations for women. Women may rely more heavily on service providers in the community to obtain employment compared to men. Greater availability of services, while perhaps connecting women parolees to jobs and providing other benefits, may have the unintended effect of putting them at risk to be punished for not keeping the job, creating a net-widening effect. Another explanation for this unanticipated effect on women parolees is that service providers place additional demands on the parolees (e.g., attending treatment or educational programs) which conflict with the demands of maintaining a job. It is unclear why a similar effect would

not be found for men, however, unless women on parole are more likely to use services that place additional demands on their times such as treatment and educational services. Alternatively, it may be that services provide women parolees with resources and, given the competing demands they face such as childcare, when these resources are available from service providers, women parolees are less likely to maintain employment.

The second unintended effect was that service providers were related to increased inability to pay fees or fines, as manifested in monetary violations, for both men and women. This was particularly true for the total number of service providers, suggesting that a greater number of services available places financial strains on parolees. Some support for a similar pattern also existed for drug/alcohol treatment availability, suggesting that these services either require payment that directly places financial strain on parolees or they take away from time the parolee could be working, reducing their income and indirectly creating financial strains.

Prior research has suggested that drug availability may increase drug test failures (Wooditch et al., 2013) and that living near other recidivists increases the odds of recidivism (Stahler et al., 2013). For some recidivism outcomes, this study did find a positive link between offender concentration and recidivism, including absconding, residence violations, and treatment violations for men and drug arrests for females. However, counter to the prior research, offender concentration was associated with lower odds of any arrest, arrest for a drug offense, or arrest for a public order offense for men and lower odds of treatment violations for women. A clear explanation for these findings is made more difficult by the fact that it is unclear exactly what offender concentration is measuring; it may be measuring available co-offenders and increased opportunity, it may

be measuring the likelihood of having criminally-involved family members, it may be measuring some aspect of culture that is unique in these high offender areas, or it may be measuring some unique criminal justice response for parolees who live in high offender areas.

Overall, these findings support the importance of several community characteristics that have been implicated in prior research. However, many of these prior studies are based on sample of men only or mixed-gender samples with a small percentage of females. Given the gender-specific effects found in this analysis, findings from male-only or male-dominated samples should not be generalized to females. Given the race-specific effects that were also uncovered, it may be helpful to adopt an intersectional approach which recognizes the unique effect of the intersection of multiple characteristics on recidivism. Overall, these findings also suggest that generalizing the results from past studies (which largely use arrest, conviction, or incarceration as the outcome of interest) to other definitions of recidivism including various technical violations and arrests for specific types of crimes may be problematic. The community may exert unique effects on property arrests versus drug arrests versus drug violations, and generalizing across all of these types of recidivism can be misleading.

THEORETICAL IMPLICATIONS

The finding that community characteristics help explain recidivism among parolees suggest that community-based explanations offer important insight into post-prison offending. Community characteristics, in addition to characteristics of the individual, have their place in theories of recidivism. Ex-prisoners are heavily reliant on their communities, given the needs that existed before prison as well as the ones created

by the experience of prison. For example, as prior theoretical perspectives suggest, weak social bonds and structural disadvantage in a community can promote offending and immigration concentration can serve as a protective factor. However, these findings are sensitive to how recidivism is measured. For example, disadvantage increases the odds of some forms of recidivism, but lowers the odds for others. This suggests that community effects may be more nuanced than previous theories have suggested and that characteristics which have traditionally been seen as a risk factor for offending, such as disadvantage, may not increase the risk of all types of recidivism. In addition, the finding that some of the community effects are gender-specific highlights the importance of integrating explanations that take into account gendered experiences and intersectionality. Just as patterns of offending and victimization are affected by the intersection of gender, race, and class, the intersection of gender, race, and the community results in unique patterns of recidivism. Additionally, within the community, multiple pathways of recidivism may be present, in part distinguished by individual characteristics such as one's gender. Additionally, pathways, such as Salisbury and Van Voorhis' (2009) pathways of women's recidivism among felony probationers, may be shaped by the structure of the communities in which individuals live. For example, the community shapes the availability of employment and the level of economic marginality. While employment availability and financial problems may increase recidivism for both men and women, these factors may affect women through additional mechanisms, such as diminished self-efficacy or a lack of support in romantic and familial relationships. Although these mechanisms are not tested in this analysis, it possible that even when a

similar relationship is found between community features and recidivism for men and women, the mechanisms involved are unique.

However, theoretical explanations of general offending cannot be blindly applied to recidivism among parolees as there are unique considerations which must be taken into account; namely offending among the general population is not defined the same way as offending among parolees given the different expectations and supervision that parolees are subject to. For example, parolees are able to recidivate along an additional pathway that is not available to the general population: technical violations. Technical violations are shaped by the level of criminal justice supervision and the formal social control exerted by police, parole officers, and parole boards. The decisions made by criminal justice officials determines what violations parolees are at risk of accruing, how closely they are supervised (by both the police and parole officers), how long they are supervised, who receives community supervision, and whether an individual is reincarcerated after recidivating or remains in the community at risk for further recidivism. These are all important forces that shape how recidivism is defined. Further, while social services available in a community may benefit the population that is not under criminal justice supervision, they may be punitive for parolees by causing financial strain when imposed on the parolee.

Additionally, the finding that community effects and gender (and gender/race) differences vary among specific types of recidivism suggests that a useful question to ask is, "what does recidivism mean?" Rather than theorizing about "recidivism" broadly, results from this dissertation suggest that it is important to specify exactly what that recidivism entails. By recognizing that recidivism is a complex phenomenon with

intersectional variation, theory can better accommodate this diversity by linking specific mechanisms to outcomes. For example, disadvantage seems to be associated with higher odds of police arrests, but lower odds of many types of technical violations. Offender concentration may increase men's odds of absconding and residence violations, but not other types of technical violations.

POLICY IMPLICATIONS

The findings that parolees' communities impact their recidivism in ways often unique to the parolee's gender and race, and that the community has unique effects on different recidivism outcomes has numerous implications for parole practices. First, it suggests that investing in the communities that parolees live in can aid offender reintegration and reduce recidivism. Given that prisoners return to a small number of neighborhoods, these efforts could be concentrated in these locations. For example, given the protective effect of informal social bonds, efforts to promote stability in the community (such as increasing neighborhood involvement, homeownership, and satisfaction within the neighborhood) may benefit parolees who return to these communities. To put this effect in perspective, an average male parolee who lives in a community which has an average level of informal social ties among the sample has a 53% probability of having any of the types of technical violation. However, if this average male parolee lives in a community which has a one standard deviation higher level of informal social ties than the average has only a 42% probability of having any other types of technical violations. For the average woman in the sample, the probability is reduced from 46% to 39%. Additionally, during reentry planning, where possible,

corrections officials should assist prisoners in returning to communities that offer fewer risks and more resources to aid reintegration. For example, housing for parolees could be made available in less disadvantaged, more stable areas. However, while an average male parolee in the sample who lives in a community that has an average level of disadvantage among the sample has a 57% probability of being re-arrested, simply living in a community with a one standard deviation lower level of disadvantage decreases the probability of being re-arrested by 1%. This effect is not substantively large. Relatedly, risk assessments used during parole should more systematically incorporate community characteristics in addition to individual characteristics. Beyond individual risk factors, community characteristics contribute to risk of recidivism as well. Two parolees may have similar levels of risk based on individual propensity, but when the community is also taken into account, the parolee who lives in the more stable community with higher levels of informal social ties may actually have lower risk of recidivism. While community characteristics do not increase the explained variance by a large amount, their contribution is greater when explaining technical violations versus police arrests.

Further, the findings from this project suggest the need to avoid practices that unintentionally increase recidivism and punitiveness for parolees. For example, services that require payment by parolees may increase financial strain and result in technical violations for non-payment of fees. Additionally, for women, availability of services may inadvertently increase punitiveness through a net widening effect by increasing their risk of receiving a technical violation for not maintaining employment.

As a whole, these findings suggest taking into account a wide range of individual and community characteristics in order to reduce specific recidivism outcomes. Instead of

general policies that aim to reduce recidivism broadly, this project suggests that there are unique risk factors for a variety of recidivism outcomes. This strategy of focusing on specific, well-defined behaviors and investigating the specific risk factors parolees' possess is not unlike problem-oriented policing. Problem-oriented policing is a widely used strategy and has received a large amount of empirical support (Weisburd et al., 2010). This policing strategy was first introduced by Goldstein (1979) who described the approach as entailing "identifying these problems in more precise terms, researching each problem, documenting the nature of the current police response, assessing its adequacy and the adequacy of existing authority and resources, engaging in a broad exploration of alternatives to the existing responses, weighing the merits of these alternatives, and choosing from among them" (p. 236). Goldstein also suggested that "attacking police problems under a categorical heading—'crime' or 'disorder,' 'delinquency,' or even 'violence'—is bound to be futile" (p. 244). Instead, police need to understand the specific problem they would like to address, and these problems may go beyond what is traditionally considered "crime" such as forms of disorder.

During parole, parole officers are faced with similar predicaments. Recidivism entails a wide range of behaviors, including the commission of new crimes and rule-breaking technical violations, and attacking "recidivism" broadly entails a similar problem of non-specificity as police attempting to combat "crime" broadly. Rather, focusing on specific problems, such as non-payment of fees and fines or violent behavior, which have different risk factors, may be an effective tool for parole officers. Another element of a problem-oriented approach involves researching the specific problem. This may be done for an individual parolee by taking stock of their individual risk factors and

the risks and resources present in their community, or for a group of parolees that reside in the same community. Indeed, problem-oriented parole has been suggested in the literature previously, and has focused on the benefits resulting from reducing opportunities to recidivate.

For example, Cullen, Eck, and Lowenkamp (2002) employ the term "environmental corrections" and propose that probation and parole officers' functions should include not only watching and punishing offenders, but also problem solving. The main focus of this problem solving should be to reduce offenders' access to criminal opportunities. They suggest strategies such as preventing parolees from associating with high-risk individuals, encouraging participation in pro-social activities, and identifying handlers, guardians, and place managers (including friends, family, and law enforcement) in the community.

Byrne (1989) adopts the term "community oriented probation and parole" and suggests that community supervision should include "(1) the coordination and development of community resources to assist offenders with problems in the areas of substance abuse, employment/ education, and marital/family relations; (2) the generation of support for the de-escalation of both community-based and institution-based sanctions; (3) a focus on the problems and needs of communities as well as offenders; and (4) the direct placement of probation officer teams in neighborhoods, with responsibility for resource development (as well as offender control) within a specific geographic area" (p. 474-475).

Klingle, Scott, and Dickey (2010) posit that the criminal justice system should mobilize assets within the community in order to promote public safety, emphasizing the

importance of the community in criminal justice, including community supervision. Dickey and Klingle (2004) suggest that the offender should not be the sole focus of release planning as risk is not just a quality of the offender, but rather is a result of the interaction of both individual propensities and the environment in which those propensities may or may not lead to criminal offending. They provide an example of a solution for a crime hotspot where police identified over half of the offenders as being under correctional supervision. To address this crime problem, environmental changes were made to disrupt the hotspot (including changing the area of a bus depot and tearing down an abandoned warehouse) and a single parole officer was assigned to actively monitor the parolees living in the neighborhood.

All of these strategies suggest ways in which parole could and should address the community as well as the parolee. Like problem-oriented policing, problem-oriented parole entails adopting creative approaches to reducing a specific problem. By understanding both individual and community risks that may promote different forms of recidivism, parole officers can increase their available tools and act as problem solvers. As mentioned above, the discussion of what "recidivism" means is one worth having. A parole department concerned with reducing police arrests would need to adopt different strategies from one concerned with reducing technical violations just as one concerned with reducing employment violations would need to adopt a different strategy from one concerned with reducing drug violations, or one concerned with reducing monetary violations. This decision may be shaped by the goals of the parole agency. An agency's primary concern may be public safety, and consequently behaviors that pose a direct risk to the public such as new crimes and violence or drug use. Or, an agency's primary

concern may be rehabilitation and reintegration, and consequently be concerned with a wider definition of recidivism including employment, housing, and monetary violations.

For example, in filling the roles of both a supervisor and a problem solver, parole officers who want to reduce drug violations (the most common form of recidivism in this sample) could not only conduct drug tests and carry out rewards and sanctions based on the testing, but could also investigate how to mediate the risks that living in an community with low informal social bonds brings about. This could be done by matching the parolee with a mentor in the community or working with local service providers to ensure that the parolee has safe, stable housing, even if mobility is high in the community. A parole officer, recognizing that disadvantage increases the risks of police arrests and lowers the likelihood that the parolee will remain on parole long enough to accrue technical violations, could work with local police to assign an officer to that community who is in contact with the parole officers and understands the conditions and requirements of the parolees' supervision.

An additional benefit from increased understanding of the specific parolees' circumstances and communities may be to increase parolees' perceptions of the legitimacy, or procedural justice, of parole. "Procedural justice theories argue that experiencing fair procedures leads offenders to view the law and legal authorities as legitimate, leading to enhanced commitment to obey the law" (Tyler et al., 2007, p. 556). Procedural justice has been identified as an important determinate in the effectiveness of the criminal justice system. When parolees feel that the parole officer understands their unique circumstance, shaped by elements such as their gender, race, and community,

procedural justice can be increased, and parolees may be more motivated to comply with the parole officers.

Additionally, parole agencies can use data on the most common types of recidivism to target the most problematic behaviors and, by understanding which types of recidivism are likely to occur together, can target multiple problems at the same time. For example, drug violations are the most common form of recidivism in this sample. In addition, parolees with non-drug-related technical violations tend to be more likely to have drug-related technical violations, suggesting that drug use is closely related to other difficulties during re-entry. This is especially true for men as male parolees who have any of the types of technical violations other than drug violations (absconding, employment, monetary, residence, treatment, or violent violations) have a 50 percent chance or greater of having a drug violation. For women, the pattern is similar but slightly more varied, though women with a residence-related violation are especially likely to have a drug violation. This suggests that drug use among parolees may need to be addressed as it relates to other problematic behaviors. Additionally, monetary violations and employment violations tend to occur together, suggesting some underlying financial difficulty which could be addressed by parole through connecting the parolee with services, assisting with finding employment, or refraining from imposing fees and fines on parolees who do not have the ability to pay.

LIMITATIONS

While this project makes several contributions to the literature, there are also important limitations. First, the research relies on repurposed administrative data.

Administrative data are not collected for research purposes and therefore are limited in the type and quality of information available. In addition, the content is shaped by policies and practices in place at the agencies. For example, only recorded recidivism events are captured in the data, and recording practices may be shaped by the policies and practices in place in the parole agencies. Relatedly, out of state arrests are not captured and the small percentage of parolees who move out of state during parole are not included in the analysis[32]. It is also recognized that the data may not be completely accurate. There may be errors in the recording of information or data may be missing. Where possible, efforts were taken to check the reliability and validity of the data used in this analysis, but some errors likely exist. As the sample is composed of first time prisoners released in Pennsylvania, it unclear to what extent the results generalize to other populations. More specifically, the findings can only be generalized to individuals who spend time at private residences in the community under parole supervision within the state of Pennsylvania after release from prison. They cannot be generalized to individuals who are immediately re-incarcerated, who spend the entire follow-up period at non-residential addresses, or who are not supervised by PBPP after release. However, community characteristics would have no effect on recidivism for individuals who never live in a community after release and it does not make sense to generalize the findings to this group.

Additionally, there are several limitation of the analysis. Because the analysis is not longitudinal, casual ordering cannot be determined. The analysis examines whether the average neighborhood experience for the parolee is related to recidivism at any point

[32] A BJS study of 30 states found that 10.9% of released prisoners were arrested in a state other than the one that released them within five years (Durose, Cooper, & Snyder, 2014).

during the follow up period, but it may be that the community average includes communities that were not experienced until after a recidivism event. The ability to conduct a longitudinal analyses is limited by the data as it is only known when a violation is recorded, not when the violation actually occurred. If parole visits are infrequent, there may be a large gap between when the behavior occurs and when it is captured. It may also be the case that a violation is not recorded every time it occurs, and the recording of the violation is not the first instance of that behavior. In this way, the data are similar to crimes known to police. The decision of how to group the recidivism outcomes into a manageable number of categories may also affect the results, and other ways of operationalizing the recidivism outcomes should be examined. Due to small sample sizes when the sample was separated by race and gender, race-specific models for additional races/ethnicities were not able to be examined. Lastly, unexamined heterogeneity between jurisdictions may exist as parole practices may be unique to each count, office, or officer.

FUTURE RESEARCH

Future research should examine the timing of recidivism to establish casual ordering between the community context and recidivism. In order to do this, reliable data are needed on the date of residential moves and the date of violation behaviors. Relatedly, future research should qualitatively examine the data collection processes of the different administrative agencies for whom it is gathered. By understanding data recording practices and recording decisions, the strengths and weaknesses of this type of data can be better understood. Additionally, future research should examine the role of the parole

board in shaping recidivism by setting the conditions of community supervision. While this dissertation recognized the possibility of numerous pathways of recidivism, it did not explicitly test for these pathways. Future research should test for these pathways and examine how the community context shapes the distribution of these pathways among the parolees within the community. In addition, the finding that some of the community effects are explained by individual-level controls should be explored further to learn which individual characteristics mediate the effect of the community. Gendered community characteristics could also be examined; for example, instead of overall rates of unemployment, separate measures of male and female unemployment could be used. Similar gendered measures could be constructed for informal social ties, disadvantage, immigration concentration, and offender concentration.

Table 4.1. Descriptive statistics for entire sample

	Private Residential Addresses Only (n=10,579)			
Variable	**Mean**	**Std. Dev.**	**Min**	**Max**
Demographics				
Gender: Female	0.1167	0.32	0	1
Race: Black	0.4067	0.49	0	1
Race: White	0.4669	0.50	0	1
Race: Other	0.1264	0.33	0	1
Unmarried	0.8640	0.34	0	1
Age at Release	33.1430	9.81	17.44	79.32
High School Grad	0.6220	0.48	0	1
Prison and Arrest History				
Prior Violent Arrest	0.6364	0.48	0	1
Prior Property Arrest	0.7305	0.44	0	1
Prior Drug Arrest	0.6752	0.47	0	1
Prior Public Order Arrest	0.8209	0.38	0	1
Length of Incarceration (Days)	939.0065	866.95	76	9723
Number of Prison Misconducts	1.2281	3.72	0	173
Parole				
Released to Street vs. Center	0.4362	0.50	0	1
Proportion of Days at Private Residence	0.9071	0.19	0.00	1
Initial Supervision Level[33]	2.7619	0.72	0	4
Days in Follow-up	1218.054	666.42	4	2255
Assessment				
Arrested before 16	0.2965	0.46	0	1
Chronic Unemployment	0.4167	0.49	0	1
Recent Unemployment	0.1744	0.38	0	1
Recent Employment	0.4089	0.49	0	1
Has Financial Problems	0.5330	0.50	0	1
Relationship Satisfaction	1.7028	0.82	0	3
Criminal Spouse/Family	0.4630	0.50	0	1
Moved Often	0.0820	0.27	0	1
Criminal Friend/Acquaintance	0.9155	0.28	0	1
History of Mental Health Treatment	0.5109	0.50	0	1
Drug Dependency	0.7101	0.45	0	1
Drug OR Alcohol Dependency	0.7957	0.40	0	1
Community				
Low Social Ties Scale[34]	9.0791	15.00	-53.70	290.65

[33] Higher values indicate a higher level of supervision

[34] Values greater than zero for the community scales indicate higher than average levels of low social ties, immigration, disadvantage, and unemployment, respectively.

Immigration Scale	1.4074	4.00	-2.18	16.49
Disadvantage Scale	3.5372	4.91	-5.46	17.98
Unemployment Scale	0.6855	1.23	-1.70	5.97
Co-offenders (days)	12616.86	14783.44	0	109636
Co-offenders (count)	23.5518	33.45	0	254
One Stop Service Providers	3.3458	3.32	0	18
All Service Providers	32.5332	34.17	0	174.48
Drug/Alcohol Treatment Providers	3.9010	4.18	0	20
Recidivism Outcomes				
Aggregated Outcomes				
Any Recidivism	0.7389	0.44	0	1
Any Technical Violation	0.5121	0.50	0	1
Any Police Arrest	0.5334	0.50	0	1
Disaggregated Outcomes				
Absconding Violations	0.1406	0.35	0	1
Drug-related Violations	0.3630	0.48	0	1
Employment Violations	0.0468	0.21	0	1
Monetary Violations	0.1217	0.33	0	1
Residence Violations	0.1012	0.30	0	1
Treatment Violations	0.0571	0.23	0	1
Violent Violations	0.0307	0.17	0	1
Drug Arrests	0.2534	0.43	0	1
Property Arrests	0.2404	0.43	0	1
Violent Arrests	0.1957	0.40	0	1
Public Order Arrests	0.3503	0.48	0	1

Table 4.2. Descriptive statistics by Gender.

	Women (n=1,235)				Men (n=9,344)			
Variable	**Mean**	**Std. Dev.**	**Min**	**Max**	**Mean**	**Std. Dev.**	**Min**	**Max**
Demographics								
**Race: Black	0.2413	0.43	0	1	0.4286	0.49	0	1
**Race: White	0.6462	0.48	0	1	0.4432	0.50	0	1
Race: Other	0.1126	0.32	0	1	0.1282	0.33	0	1
Unmarried	0.8494	0.36	0	1	0.8659	0.34	0	1
**Age at Release	36.4050	9.88	19.54	75.08	32.7118	9.72	17.44	79.32
High School Grad	0.6429	0.48	0	1	0.6192	0.49	0	1
Prison/ Arrest History								
**Prior Violent Arrest	0.4583	0.50	0	1	0.6600	0.47	0	1
Prior Property Arrest	0.7109	0.45	0	1	0.7331	0.44	0	1
**Prior Drug Arrest	0.5870	0.49	0	1	0.6869	0.46	0	1
**Prior Public Order Arrest	0.7150	0.45	0	1	0.8349	0.37	0	1
**Length of Incarceration	704.4332	604.17	150	5366	970.0102	891.35	76	9723
**Prison Misconducts	0.6923	1.93	0	27	1.2989	3.89	0	173
Parole								
*Released to Street vs. Center	0.4680	0.50	0	1	0.4320	0.50	0	1
**Proportion of Days at Private Residence	0.9288	0.16	0.02	1	0.9042	0.19	0.00053	1
**Initial Supervision Level	2.6040	0.74	0	4	2.7827	0.72	1	4
**Days in Follow-up	1451.902	594.79	19	2251	1187.146	669.26	4	2255
Assessment								
**Arrested before 16	0.1441	0.35	0	1	0.3167	0.47	0	1
**Chronic Unemployment	0.4923	0.50	0	1	0.4067	0.49	0	1
**Recent Unemployment	0.1506	0.36	0	1	0.1775	0.38	0	1
**Recent Employment	0.3571	0.48	0	1	0.4158	0.49	0	1
Has Financial Problems	0.5247	0.50	0	1	0.5341	0.50	0	1
**Relationship Satisfaction	1.8769	0.03	0	3	1.6798	0.01	0	3
**Criminal Spouse/Family	0.5514	0.50	0	1	0.4513	0.50	0	1
**Moved Often	0.1846	0.39	0	1	0.0684	0.25	0	1
**Criminal Friend/Acquaintance	0.8259	0.38	0	1	0.9273	0.26	0	1
**History of Mental Health Treatment	0.6923	0.46	0	1	0.4869	0.50	0	1
**Drug Dependency	0.7449	0.44	0	1	0.7055	0.46	0	1
*Drug OR Alcohol Dependency	0.8170	0.39	0	1	0.7929	0.41	0	1
Community								

**Low Social Ties Scale	10.5265	16.64	-32.56	158.57	8.8878	14.76	-53.70	290.65
Immigration Scale	1.2206	4.00	-2.14	16.49	1.4321	4.00	-2.18	16.49
**Disadvantage Scale	2.8241	4.58	-4.80	16.97	3.6314	4.95	-5.46	17.98
**Unemployment Scale	0.5967	1.17	-1.42	5.97	0.6972	1.23	-1.70	5.97
Co-offenders (days)	12726.52	15894	0	108310	12602.36	14631	0	109636
Co-offenders (count)	21.9985	28.11	0	181	23.7571	34.09	0	254
One Stop Service Providers	3.4060	3.25	0	18	3.3379	3.33	0	18
**All Service Providers	35.8237	37.12	0	174.48	32.0982	33.74	0	173.00
**Drug/Alcohol Treatment Providers	4.2960	4.61	0	20	3.8487	4.12	0	19.71
Recidivism Outcomes								
Aggregated Outcomes								
**Any Recidivism	0.6308	0.48	0	1	0.7532	0.43	0	1
**Any Technical Violation	0.4704	0.50	0	1	0.5176	0.50	0	1
**Any Police Arrest	0.3862	0.49	0	1	0.5529	0.50	0	1
Disaggregated Outcomes								
**Absconding Violations	0.0883	0.28	0	1	0.1475	0.35	0	1
*Drug-related Violations	0.3312	0.47	0	1	0.3672	0.48	0	1
**Employment Violations	0.0275	0.16	0	1	0.0493	0.22	0	1
**Monetary Violations	0.1522	0.36	0	1	0.1176	0.32	0	1
Residence Violations	0.0947	0.29	0	1	0.1021	0.30	0	1
Treatment Violations	0.0559	0.23	0	1	0.0573	0.23	0	1
**Violent Violations	0.0146	0.12	0	1	0.0329	0.18	0	1
**Drug Arrests	0.1360	0.34	0	1	0.2689	0.44	0	1
Property Arrests	0.2283	0.42	0	1	0.2420	0.43	0	1
**Violent Arrests	0.0826	0.28	0	1	0.2106	0.41	0	1
**Public Order Arrests	0.2130	0.41	0	1	0.3685	0.48	0	1

*T-tests of means for gender differences: **p≤.01; *p≤.05 (two-tailed)*

Table 4.3. Conditional probabilities of recidivism outcomes by gender

A. Females Conditional on having a violation of this type:

	N	Unconditional Probability	Absconding	Drug Violation	Employment Violation	Monetary Violation	Residence Violation	Treatment Violation	Violent Violation	Drug Arrest	Property Arrest	Violent Arrest	Public Order Arrest
Absconding	109	0.0883		0.1687	0.2059	0.1117	0.5128	0.2319	0.0556	0.1310	0.1489	0.0980	0.1293
Drug Violation	409	0.3312	0.6330		0.5588	0.4362	0.7009	0.6377	0.5556	0.5060	0.4149	0.3824	0.4373
Employment Violation	34	0.0275	0.0642	0.0465		0.0638	0.1026	0.1594	0.0000	0.0298	0.0390	0.0392	0.0342
Monetary Violation	188	0.1522	0.1927	0.2005	0.3529		0.2821	0.3333	0.2222	0.1012	0.1277	0.0882	0.1331
Residence Violation	117	0.0947	0.5505	0.2005	0.3529	0.1755		0.2609	0.2222	0.1488	0.1844	0.1275	0.1445
Treatment Violation	69	0.0559	0.1468	0.1076	0.3235	0.1223	0.1538		0.1667	0.0952	0.0709	0.0588	0.0837
Violent Violation	18	0.0146	0.0092	0.0244	0.0000	0.0213	0.0342	0.0435		0.0119	0.0142	0.0294	0.0228
Drug Arrest	168	0.1360	0.2018	0.2078	0.1471	0.0904	0.2137	0.2319	0.1111		0.2837	0.2451	0.3536
Property Arrest	282	0.2283	0.3853	0.2861	0.3235	0.1915	0.4444	0.2899	0.2222	0.4762		0.5000	0.4943
Violent Arrest	102	0.0826	0.0917	0.0954	0.1176	0.0479	0.1111	0.0870	0.1667	0.1488	0.1809		0.2586
Public Order Arrest	263	0.2130	0.3119	0.2812	0.2647	0.1862	0.3248	0.3188	0.3333	0.5536	0.4610	0.6667	

B. Males Conditional on having a violation of this type:

	N	Unconditional Probability	Absconding	Drug Violation	Employment Violation	Monetary Violation	Residence Violation	Treatment Violation	Violent Violation	Drug Arrest	Property Arrest	Violent Arrest	Public Order Arrest
Absconding	1,378	0.1475		0.2410	0.3297	0.2111	0.5818	0.3495	0.1629	0.1850	0.2282	0.1799	0.1772
Drug Violation	3,431	0.3672	0.6001		0.5857	0.5332	0.5597	0.6879	0.5049	0.4099	0.4370	0.3725	0.4124
Employment Violation	461	0.0493	0.1103	0.0787		0.1392	0.1174	0.1551	0.0977	0.0553	0.0509	0.0635	0.0537
Monetary Violation	1,099	0.1176	0.1684	0.1708	0.3319		0.1824	0.2449	0.1401	0.0883	0.0982	0.0904	0.1025
Residence Violation	954	0.1021	0.4028	0.1556	0.2430	0.1583		0.2673	0.1433	0.1150	0.1495	0.1138	0.1141
Treatment Violation	535	0.0573	0.1357	0.1073	0.1800	0.1192	0.1499		0.1140	0.0625	0.0761	0.0589	0.0587
Violent Violation	307	0.0329	0.0363	0.0452	0.0651	0.0391	0.0461	0.0654		0.0283	0.0438	0.0640	0.0430
Drug Arrest	2,513	0.2689	0.3374	0.3002	0.3015	0.2020	0.3029	0.2935	0.2313		0.4126	0.3572	0.4336
Property Arrest	2,261	0.2420	0.3745	0.2880	0.2495	0.2020	0.3543	0.3215	0.3225	0.3713		0.4863	0.4432
Violent Arrest	1,968	0.2106	0.2569	0.2136	0.2711	0.1620	0.2348	0.2168	0.4104	0.2797	0.4233		0.4670
Public Order Arrest	3,443	0.3685	0.4427	0.4139	0.4013	0.3212	0.4119	0.3776	0.4821	0.5941	0.6749	0.8171	

Table 5.1. Results of Logistic Regression Models (with Individual-Level Controls)

A. IV: Disadvantage[1]

		Men					Women				
	With Individual-Level Controls	**Odds Ratio**	**Std Err**	**Confidence Intervals**			**Odds Ratio**	**Std Err**	**Confidence Intervals**		
1	Any Arrest	1.0218	0.0076	1.0073	1.0362	*	0.9990	0.0239	0.9520	1.0459	
	Any Recidivism	0.9859	0.0077	0.9706	1.0013		1.0144	0.0235	0.9689	1.0598	
	Any Technical Violation	0.9617	0.0065	0.9485	0.9750	*	0.9860	0.0197	0.9467	1.0252	
2	Violent Arrest	1.0047	0.0067	0.9917	1.0177		0.9878	0.0334	0.9215	1.0541	
	Property Arrest	1.0035	0.0072	0.9895	1.0175		0.9905	0.0233	0.9443	1.0366	
	Drug Arrest	1.0305	0.0087	1.0140	1.0471	*	1.0141	0.0354	0.9457	1.0825	
	Public Order Arrest	1.0049	0.0065	0.9922	1.0175		0.9989	0.0220	0.9558	1.0421	
3	Absconding	0.9791	0.0086	0.9619	0.9963	*	0.9863	0.0294	0.9278	1.0448	
	Drug Violation	0.9822	0.0081	0.9661	0.9983	*	0.9962	0.0217	0.9536	1.0389	
	Employment Violation	0.9947	0.0154	0.9643	1.0251		0.9495	0.0579	0.8300	1.0690	
	Monetary Violation	0.9606	0.0100	0.9402	0.9810	*	0.9885	0.0231	0.9426	1.0343	
	Residence Violation	0.9544	0.0090	0.9360	0.9727	*	0.9800	0.0307	0.9186	1.0415	
	Treatment Violation	0.9934	0.0123	0.9691	1.0177		1.0482	0.0525	0.9500	1.1465	
	Violent Violation	0.9780	0.0148	0.9483	1.0076		1.0480	0.0464	0.9612	1.1347	

B. IV: Unemployment

		Men					Women				
	With Individual-Level Controls	**Odds Ratio**	**Std Err**	**Confidence Intervals**			**Odds Ratio**	**Std Err**	**Confidence Intervals**		
1	Any Arrest	1.0935	0.0245	1.0496	1.1374	*	0.8542	0.0606	0.7153	0.9932	*
	Any Recidivism	1.0130	0.0223	0.9697	1.0562		0.9883	0.0668	0.8558	1.1208	
	Any Technical Violation	0.8950	0.0204	0.8503	0.9397	*	1.0344	0.0647	0.9119	1.1569	
2	Violent Arrest	1.0977	0.0258	1.0517	1.1438	*	1.0277	0.1291	0.7815	1.2738	
	Property Arrest	0.9815	0.0225	0.9365	1.0264		0.7992	0.0601	0.6519	0.9465	*
	Drug Arrest	1.1771	0.0289	1.1290	1.2252	*	0.8595	0.0938	0.6456	1.0733	
	Public Order Arrest	1.0674	0.0209	1.0290	1.1058	*	0.8228	0.0634	0.6717	0.9738	*
3	Absconding	0.9885	0.0298	0.9295	1.0475		1.0496	0.1003	0.8622	1.2370	
	Drug Violation	0.9191	0.0242	0.8675	0.9707	*	1.0292	0.0680	0.8997	1.1588	
	Employment Violation	1.1082	0.0556	1.0098	1.2065	*	0.7136	0.1289	0.3596	1.0677	
	Monetary Violation	0.9782	0.0336	0.9109	1.0455		1.1286	0.0864	0.9785	1.2787	
	Residence Violation	0.9003	0.0332	0.8281	0.9725	*	0.9644	0.1070	0.7469	1.1819	
	Treatment Violation	0.8785	0.0389	0.7916	0.9653	*	0.9790	0.1256	0.7275	1.2306	
	Violent Violation	0.9687	0.0520	0.8636	1.0738		1.1821	0.2526	0.7632	1.6009	

		C. IV: One Stop Service Providers[2]								
		Men					Women			
	With Individual-Level Controls	Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals	
1	Any Arrest	1.0118	0.0098	0.9928	1.0308		1.0205	0.0293	0.9642	1.0769
	Any Recidivism	0.9998	0.0108	0.9787	1.0209		0.9995	0.0316	0.9375	1.0614
	Any Technical Violation	0.9904	0.0092	0.9721	1.0086		0.9997	0.0284	0.9439	1.0554
2	Violent Arrest	1.0026	0.0086	0.9858	1.0193		1.0001	0.0432	0.9153	1.0848
	Property Arrest	1.0069	0.0086	0.9901	1.0237		1.0173	0.0298	0.9598	1.0747
	Drug Arrest	1.0028	0.0108	0.9817	1.0239		0.9809	0.0386	0.9037	1.0581
	Public Order Arrest	1.0056	0.0083	0.9894	1.0217		0.9939	0.0313	0.9322	1.0556
3	Absconding	0.9971	0.0094	0.9786	1.0155		1.0202	0.0465	0.9308	1.1096
	Drug Violation	0.9799	0.0108	0.9583	1.0016		1.0116	0.0298	0.9539	1.0693
	Employment Violation	0.9540	0.0182	0.9165	0.9915	*	1.1580	0.0713	1.0374	1.2787	*
	Monetary Violation	1.0178	0.0146	0.9896	1.0459		1.0167	0.0373	0.9449	1.0886
	Residence Violation	0.9916	0.0116	0.9688	1.0144		0.9963	0.0414	0.9149	1.0777
	Treatment Violation	0.9758	0.0149	0.9459	1.0056		1.0615	0.0512	0.9669	1.1561
	Violent Violation	0.9763	0.0191	0.9379	1.0147		0.8836	0.0809	0.7042	1.0629

		D. IV: Total Service Providers								
		Men					Women			
	With Individual-Level Controls	Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals	
1	Any Arrest	1.0008	0.0010	0.9989	1.0027		0.9966	0.0022	0.9923	1.0010
	Any Recidivism	1.0008	0.0011	0.9986	1.0029		1.0007	0.0026	0.9956	1.0058
	Any Technical Violation	1.0005	0.0009	0.9988	1.0022		1.0037	0.0024	0.9989	1.0084
2	Violent Arrest	1.0026	0.0086	0.9858	1.0193		1.0001	0.0432	0.9153	1.0848
	Property Arrest	1.0069	0.0086	0.9901	1.0237		1.0173	0.0298	0.9598	1.0747
	Drug Arrest	1.0028	0.0108	0.9817	1.0239		0.9809	0.0386	0.9037	1.0581
	Public Order Arrest	1.0056	0.0083	0.9894	1.0217		0.9939	0.0313	0.9322	1.0556
3	Absconding	1.0000	0.0008	0.9985	1.0016		0.9934	0.0036	0.9864	1.0004
	Drug Violation	0.9990	0.0010	0.9970	1.0010		1.0015	0.0023	0.9970	1.0060
	Employment Violation	0.9977	0.0017	0.9944	1.0009		1.0122	0.0053	1.0019	1.0226	*
	Monetary Violation	1.0028	0.0013	1.0003	1.0054	*	1.0054	0.0026	1.0003	1.0104	*
	Residence Violation	1.0010	0.0012	0.9987	1.0032		0.9949	0.0032	0.9887	1.0012
	Treatment Violation	1.0016	0.0014	0.9989	1.0043		1.0052	0.0044	0.9966	1.0137
	Violent Violation	1.0009	0.0018	0.9974	1.0045		1.0040	0.0080	0.9884	1.0197

E. IV: Drug/Alcohol Service Providers

	With Individual-Level Controls	Men: Odds Ratio	Men: Std Err	Men: Confidence Intervals			Women: Odds Ratio	Women: Std Err	Women: Confidence Intervals		
1	Any Arrest	1.0078	0.0083	0.9917	1.0240		0.9854	0.0191	0.9474	1.0233	
	Any Recidivism	1.0032	0.0099	0.9837	1.0226		1.0072	0.0225	0.9635	1.0509	
	Any Technical Violation	0.9995	0.0076	0.9847	1.0143		1.0199	0.0212	0.9791	1.0606	
2	Violent Arrest	1.0086	0.0074	0.9943	1.0230		0.9869	0.0283	0.9306	1.0432	
	Property Arrest	1.0105	0.0078	0.9954	1.0255		1.0053	0.0192	0.9679	1.0428	
	Drug Arrest	0.9871	0.0087	0.9697	1.0044		0.9903	0.0268	0.9371	1.0434	
	Public Order Arrest	1.0015	0.0071	0.9876	1.0153		0.9893	0.0211	0.9475	1.0312	
3	Absconding	1.0061	0.0071	0.9924	1.0199		0.9437	0.0275	0.8866	1.0008	
	Drug Violation	0.9918	0.0077	0.9765	1.0070		0.9992	0.0203	0.9594	1.0390	
	Employment Violation	0.9662	0.0140	0.9377	0.9947	*	1.1014	0.0500	1.0124	1.1904	*
	Monetary Violation	1.0147	0.0120	0.9915	1.0380		1.0362	0.0241	0.9907	1.0818	
	Residence Violation	1.0112	0.0106	0.9907	1.0318		0.9638	0.0249	0.9132	1.0143	
	Treatment Violation	1.0047	0.0123	0.9806	1.0287		1.0449	0.0379	0.9738	1.1160	
	Violent Violation	0.9917	0.0161	0.9598	1.0235		0.9891	0.0710	0.8483	1.1298	

F. IV: Offender Concentration[3]

	With Individual-Level Controls	Men: Odds Ratio	Men: Std Err	Men: Confidence Intervals			Women: Odds Ratio	Women: Std Err	Women: Confidence Intervals		
1	Any Arrest	0.9969	0.0011	0.9948	0.9990	*	1.0014	0.0037	0.9942	1.0086	
	Any Recidivism	0.9981	0.0010	0.9961	1.0000		1.0015	0.0027	0.9962	1.0068	
	Any Technical Violation	1.0009	0.0008	0.9994	1.0024		0.9985	0.0022	0.9941	1.0029	
2	Violent Arrest	0.9998	0.0008	0.9983	1.0013		0.9908	0.0068	0.9773	1.0044	
	Property Arrest	1.0006	0.0009	0.9989	1.0024		0.9978	0.0030	0.9919	1.0038	
	Drug Arrest	0.9973	0.0010	0.9954	0.9992	*	1.0063	0.0042	0.9982	1.0145	
	Public Order Arrest	0.9971	0.0008	0.9955	0.9987	*	1.0033	0.0036	0.9962	1.0104	
3	Absconding	1.0038	0.0006	1.0027	1.0050	*	1.0005	0.0034	0.9939	1.0072	
	Drug Violation	0.9969	0.0010	0.9948	0.9989	*	0.9973	0.0029	0.9917	1.0030	
	Employment Violation	1.0007	0.0016	0.9975	1.0038		0.9882	0.0093	0.9697	1.0067	
	Monetary Violation	0.9985	0.0017	0.9953	1.0018		0.9993	0.0038	0.9919	1.0068	
	Residence Violation	1.0068	0.0008	1.0052	1.0084	*	0.9933	0.0038	0.9859	1.0008	
	Treatment Violation	1.0023	0.0007	1.0008	1.0037	*	0.9837	0.0082	0.9674	0.9999	*
	Violent Violation	0.9990	0.0016	0.9959	1.0020		0.9999	0.0083	0.9836	1.0162	

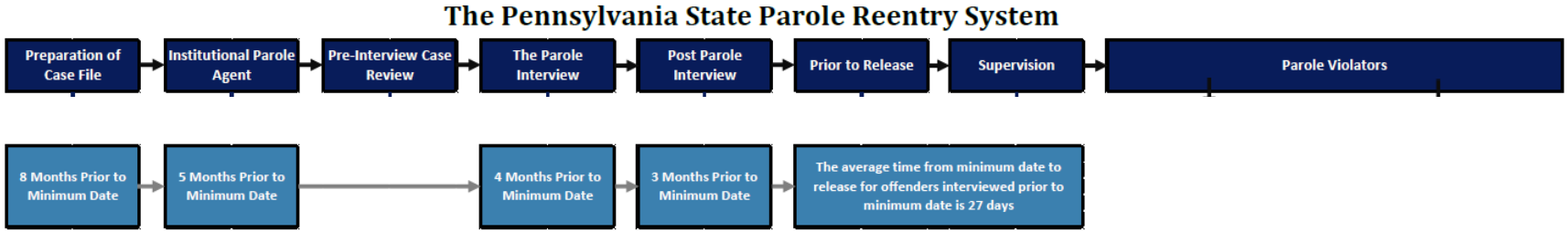
		G. IV: Low Informal Social Ties[4]									
		Men					Women				
	With Individual-Level Controls	Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	1.0016	0.0020	0.9976	1.0056		1.0000	0.0041	0.9920	1.0081	
	Any Recidivism	1.0292	0.0030	1.0235	1.0348	*	1.0179	0.0064	1.0056	1.0302	*
	Any Technical Violation	1.0288	0.0025	1.0240	1.0335	*	1.0203	0.0048	1.0112	1.0295	*
2	Violent Arrest	1.0028	0.0020	0.9988	1.0068		1.0092	0.0060	0.9975	1.0209	
	Property Arrest	1.0031	0.0017	0.9997	1.0064		1.0008	0.0050	0.9910	1.0106	
	Drug Arrest	0.9991	0.0022	0.9948	1.0034		1.0035	0.0050	0.9937	1.0132	
	Public Order Arrest	0.9999	0.0018	0.9964	1.0035		1.0024	0.0048	0.9929	1.0118	
3	Absconding	1.0159	0.0024	1.0113	1.0205	*	1.0120	0.0056	1.0011	1.0228	*
	Drug Violation	1.0211	0.0024	1.0166	1.0256	*	1.0177	0.0041	1.0097	1.0257	*
	Employment Violation	1.0173	0.0029	1.0116	1.0229	*	1.0062	0.0110	0.9848	1.0277	
	Monetary Violation	1.0121	0.0024	1.0076	1.0167	*	1.0002	0.0056	0.9892	1.0113	
	Residence Violation	1.0177	0.0026	1.0126	1.0228	*	1.0182	0.0057	1.0073	1.0292	*
	Treatment Violation	1.0086	0.0026	1.0035	1.0137	*	1.0092	0.0071	0.9955	1.0229	
	Violent Violation	1.0087	0.0033	1.0024	1.0151	*	1.0105	0.0120	0.9873	1.0337	

		H. IV: Immigration Concentration[5]									
		Men					Women				
	With Individual-Level Controls	Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	0.9972	0.0080	0.9814	1.0130		0.9856	0.0261	0.9338	1.0375	
	Any Recidivism	0.9935	0.0096	0.9746	1.0125		0.9651	0.0217	0.9210	1.0091	
	Any Technical Violation	0.9942	0.0074	0.9797	1.0087		0.9804	0.0188	0.9427	1.0180	
2	Absconding	1.0021	0.0097	0.9832	1.0210		0.9865	0.0345	0.9179	1.0551	
	Drug Violation	0.9944	0.0072	0.9802	1.0085		0.9769	0.0203	0.9361	1.0176	
	Employment Violation	0.9755	0.0165	0.9423	1.0087		0.9319	0.0597	0.8063	1.0576	
	Monetary Violation	1.0265	0.0125	1.0027	1.0502	*	0.9988	0.0278	0.9442	1.0535	
3	Residence Violation	1.0076	0.0109	0.9864	1.0288		1.0519	0.0308	0.9945	1.1093	
	Treatment Violation	0.9680	0.0119	0.9439	0.9921	*	0.9300	0.0482	0.8283	1.0317	
	Violent Violation	0.9957	0.0151	0.9660	1.0255		0.9848	0.0848	0.8159	1.1536	
	Violent Arrest	0.9892	0.0085	0.9724	1.0060		0.9821	0.0373	0.9077	1.0566	
	Property Arrest	0.9988	0.0079	0.9834	1.0143		0.9856	0.0288	0.9283	1.0429	
	Drug Arrest	1.0093	0.0086	0.9925	1.0260		0.9950	0.0346	0.9268	1.0632	
	Public Order Arrest	0.9895	0.0069	0.9759	1.0032		0.9914	0.0278	0.9365	1.0463	

[1]Disadvantage was measured by a factor or the following variables: percent receiving public assistance, percent below the poverty line, percent unemployed, percent black, and percent employed in service occupations (alpha=0.8561).
[2]Service providers were measured by the number of providers within two miles of the parolee's address.
[3]Offender concentration was measured by the number of other parolees in the sample who lived in the census tract.

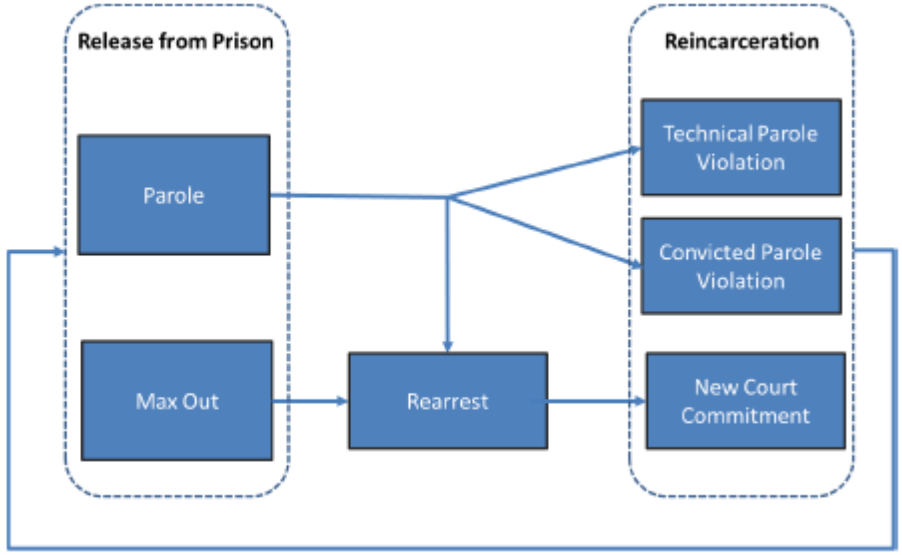
[4]Low informal social ties was measured by a factor of the following variables: percent living in the same house as one year ago, percent owner-occupied housing units, percent non-family households, and percent of families with a married couple (alpha=0.8901).
[5]Immigration concentration was measured by a factor comprised of percent Hispanic, percent foreign born, and percent who speak a language other than English at home (alpha=0.8535).
[6]All observations are clustered by the combination of census tracts the parolee lived in.

Figure 3.1. The Pennsylvania parole process



Source: adopted from
http://www.portal.state.pa.us/portal/server.pt/document/1321904/final_parole_reentry_system_flowchart_02_2013_pdf

Figure 3.2. Mechanisms of return to prison in Pennsylvania



(Source: PADOC, 2013)

Figure 3.3. Locations of parolees after release

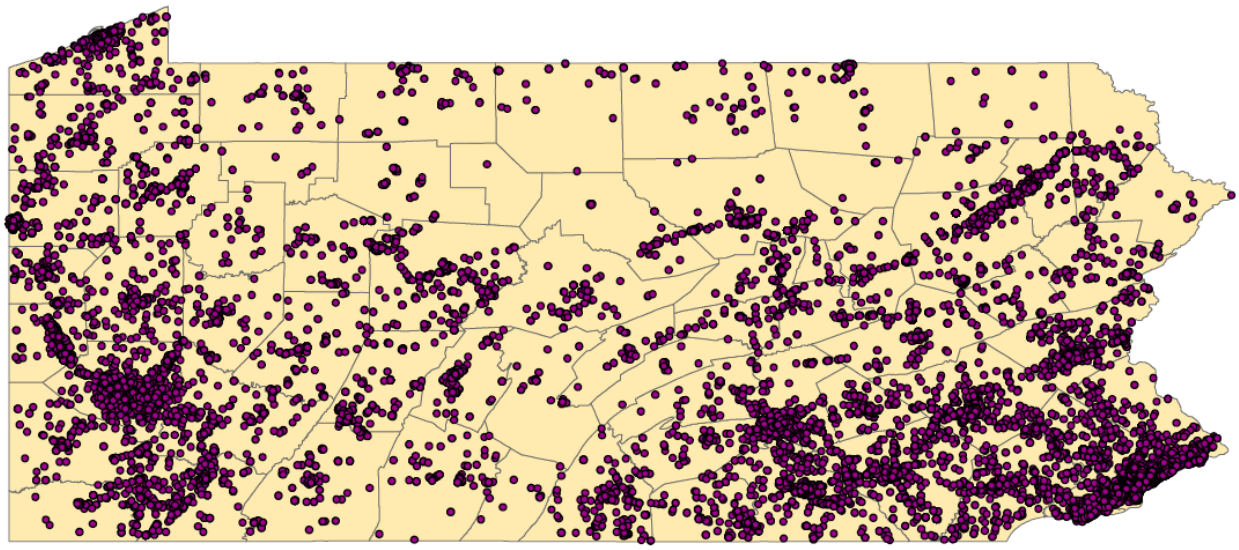


Figure 3.4. Levels of informal social ties
(Darker shading indicates fewer ties)

Figure 3.5. Levels of immigration
(Darker shading indicates greater immigration concentration)

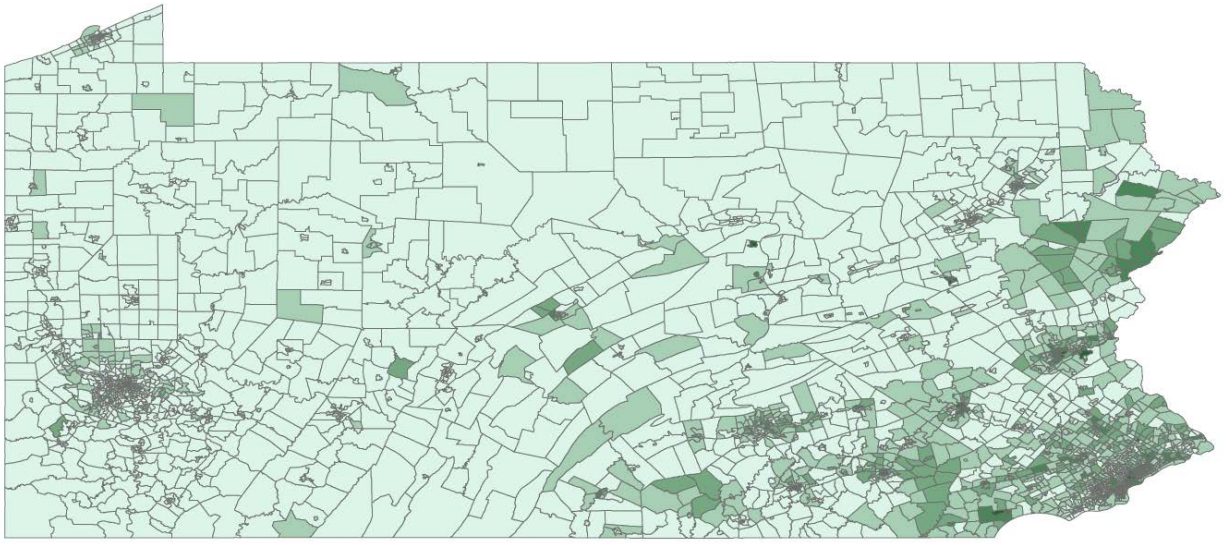


Figure 3.6. Levels of disadvantage
(Darker shading indicates greater disadvantage)

Figure 3.7. Locations of all service providers

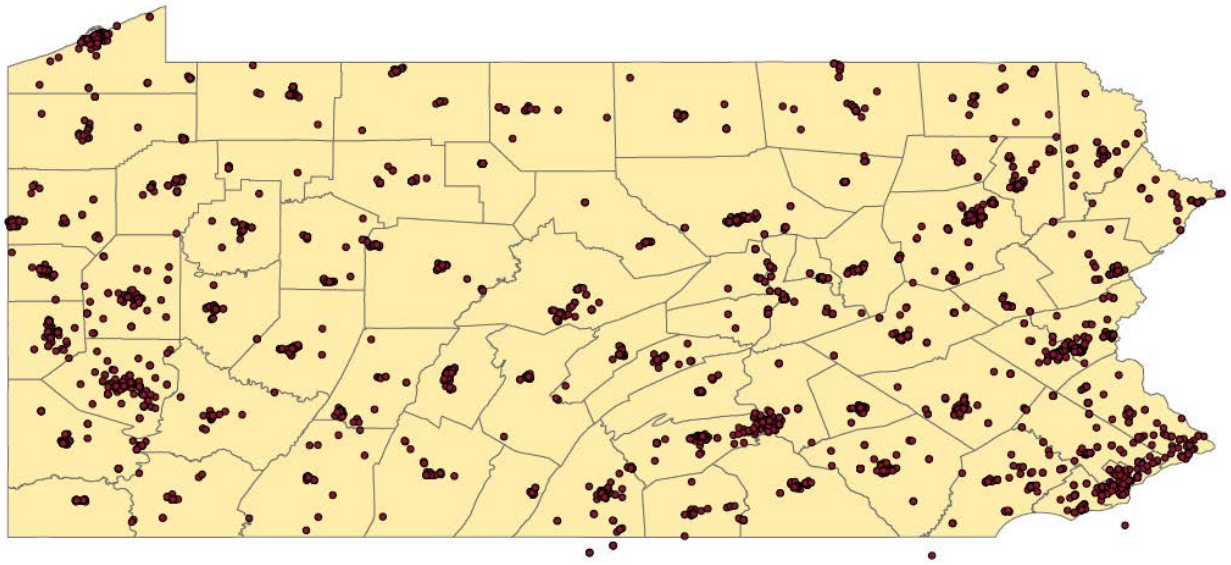


Figure 3.8. Locations of drug/alcohol treatment providers

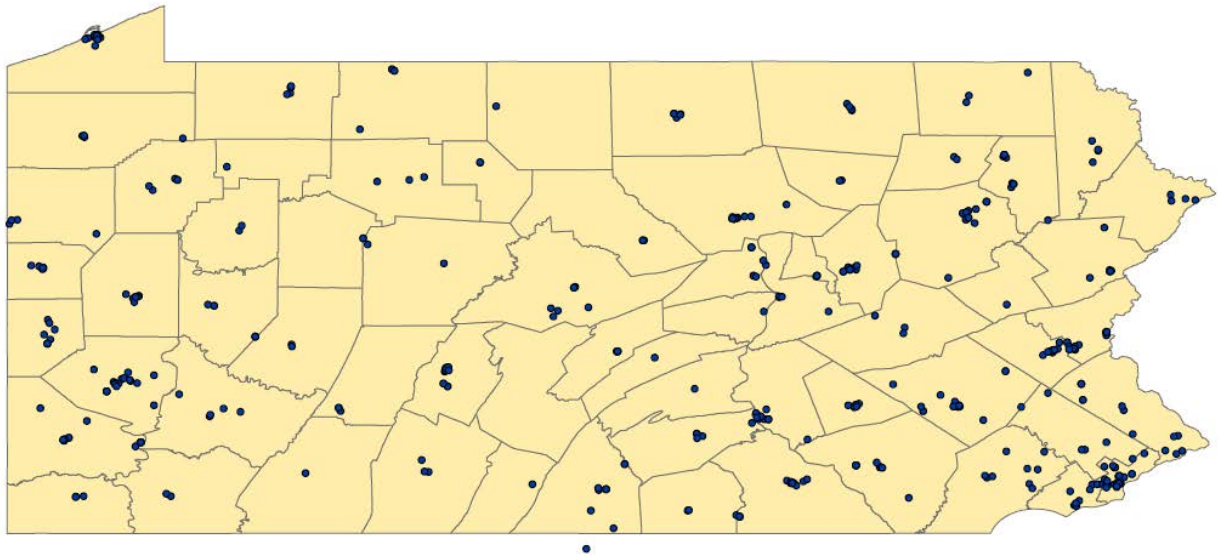


Figure 3.9. Locations of one stop service providers

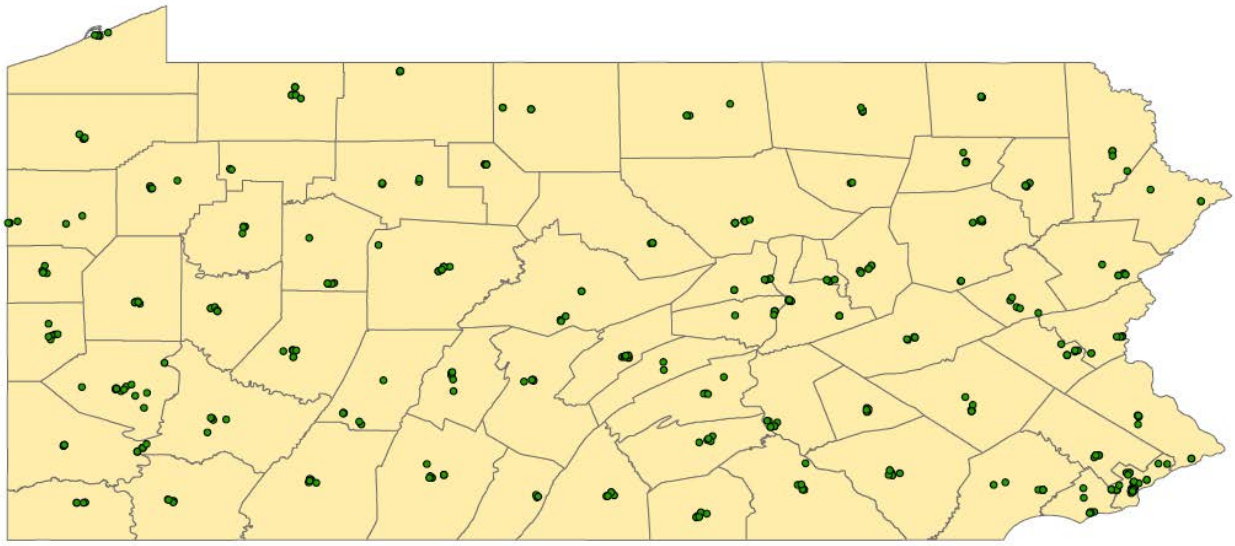


Figure 5.1: Upper and Lower Bounds for Disadvantage
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

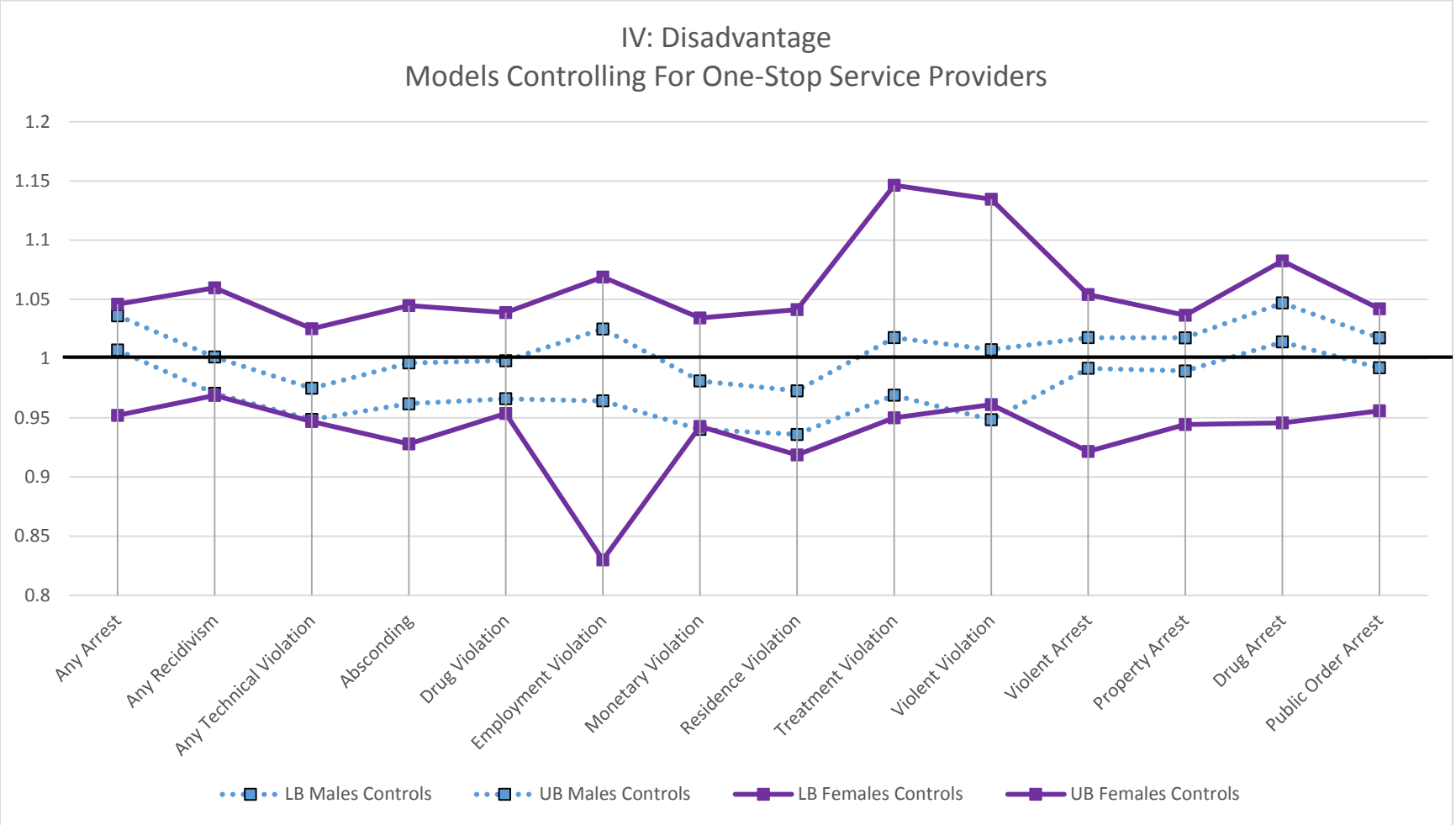


Figure 5.2: Upper and Lower Bounds for One-Stop Service Providers
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

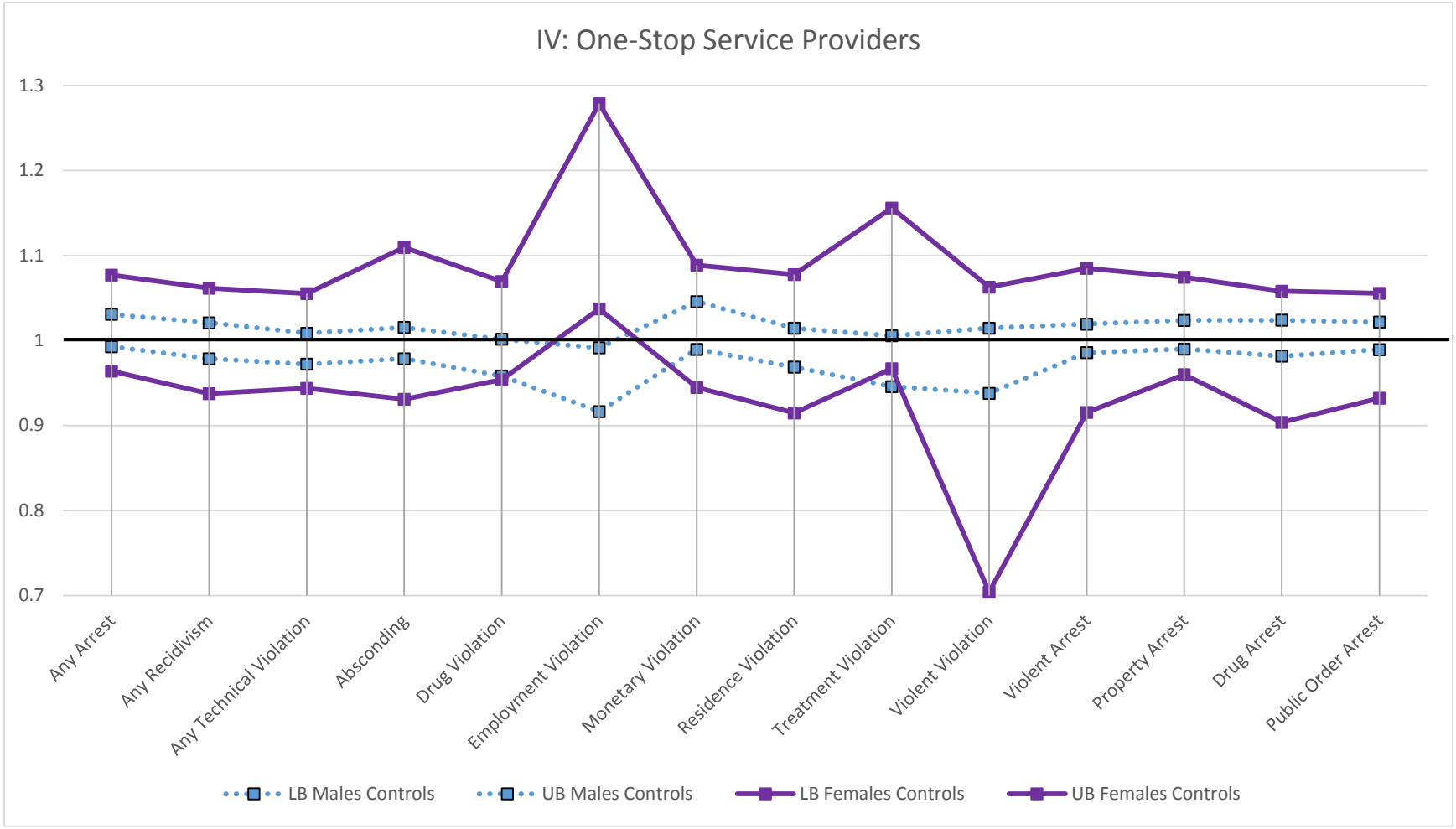


Figure 5.3: Upper and Lower Bounds for Total Service Providers
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

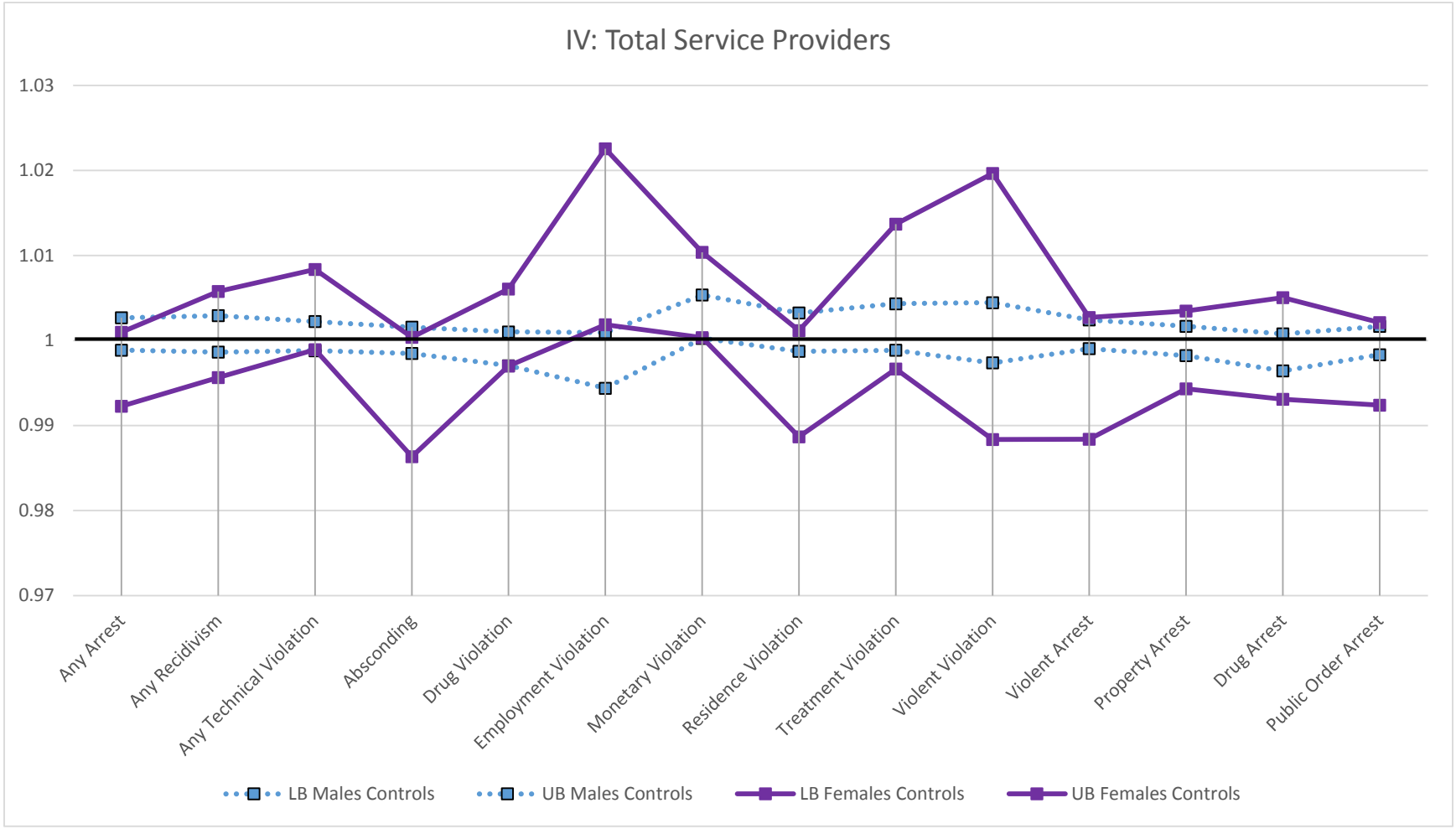


Figure 5.4: Upper and Lower Bounds for Drug/Alcohol Service Providers
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

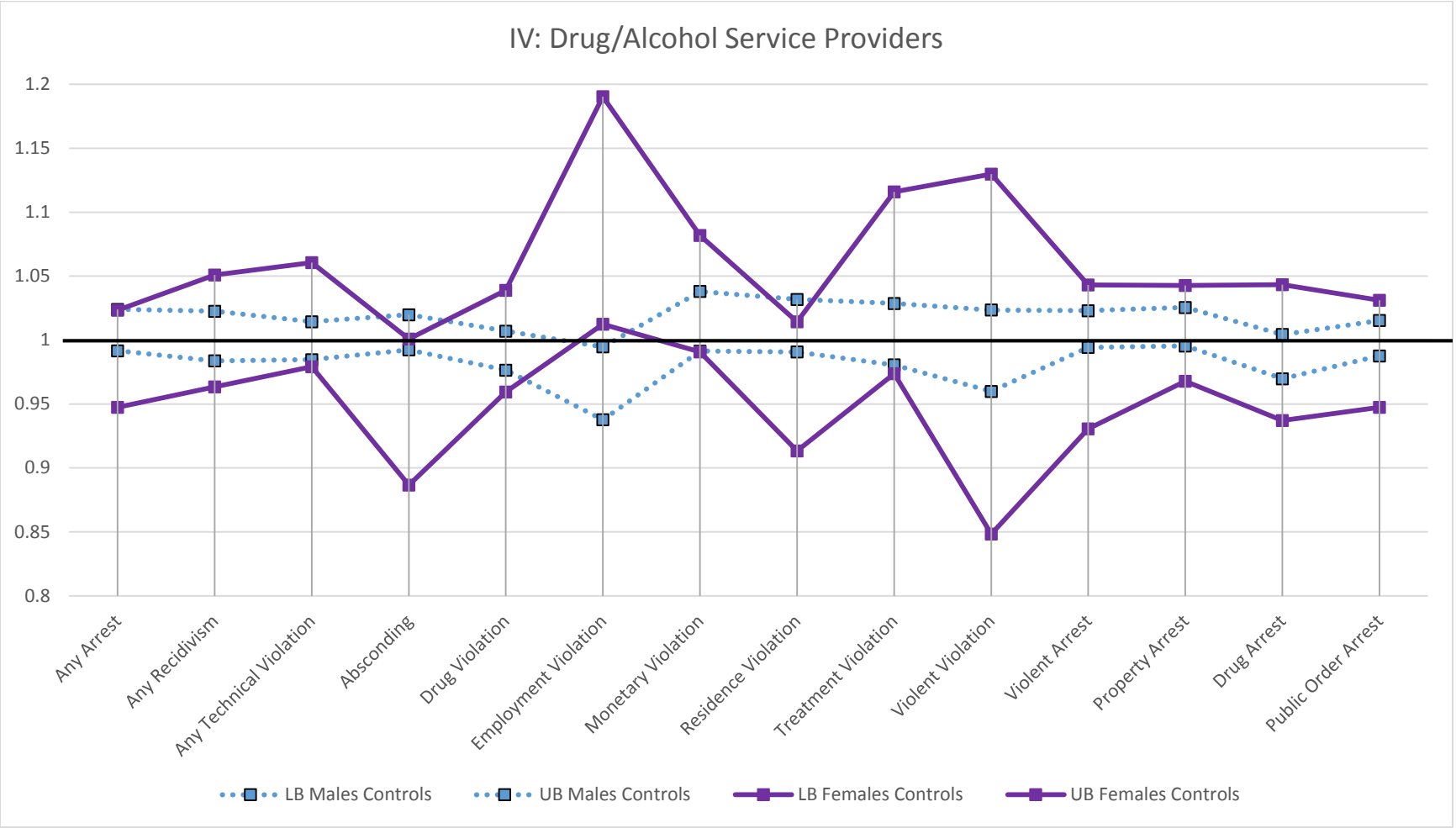


Figure 5.5: Upper and Lower Bounds for Offender Concentration
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

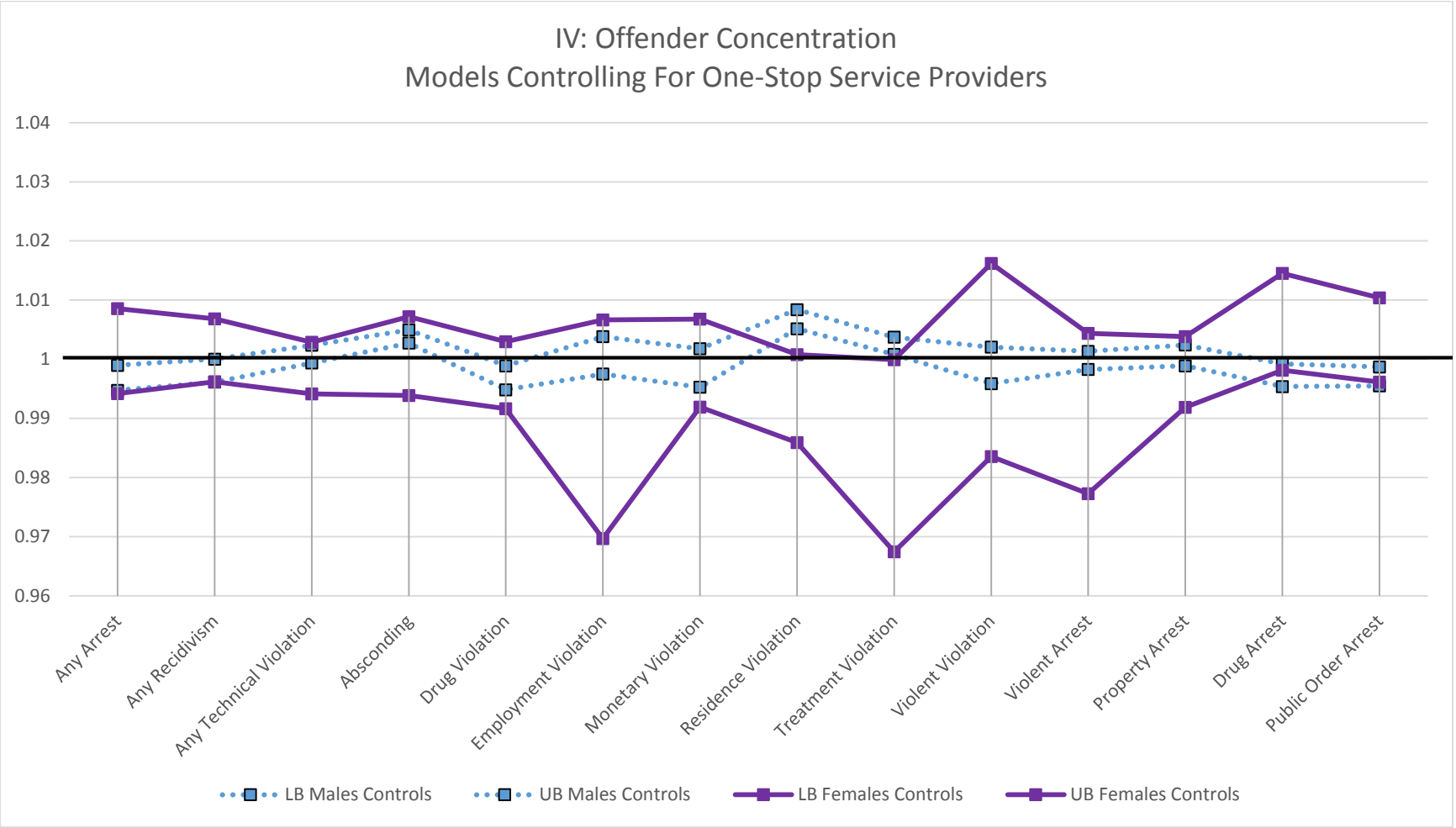


Figure 5.6: Upper and Lower Bounds for Lack of Informal Social Ties
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

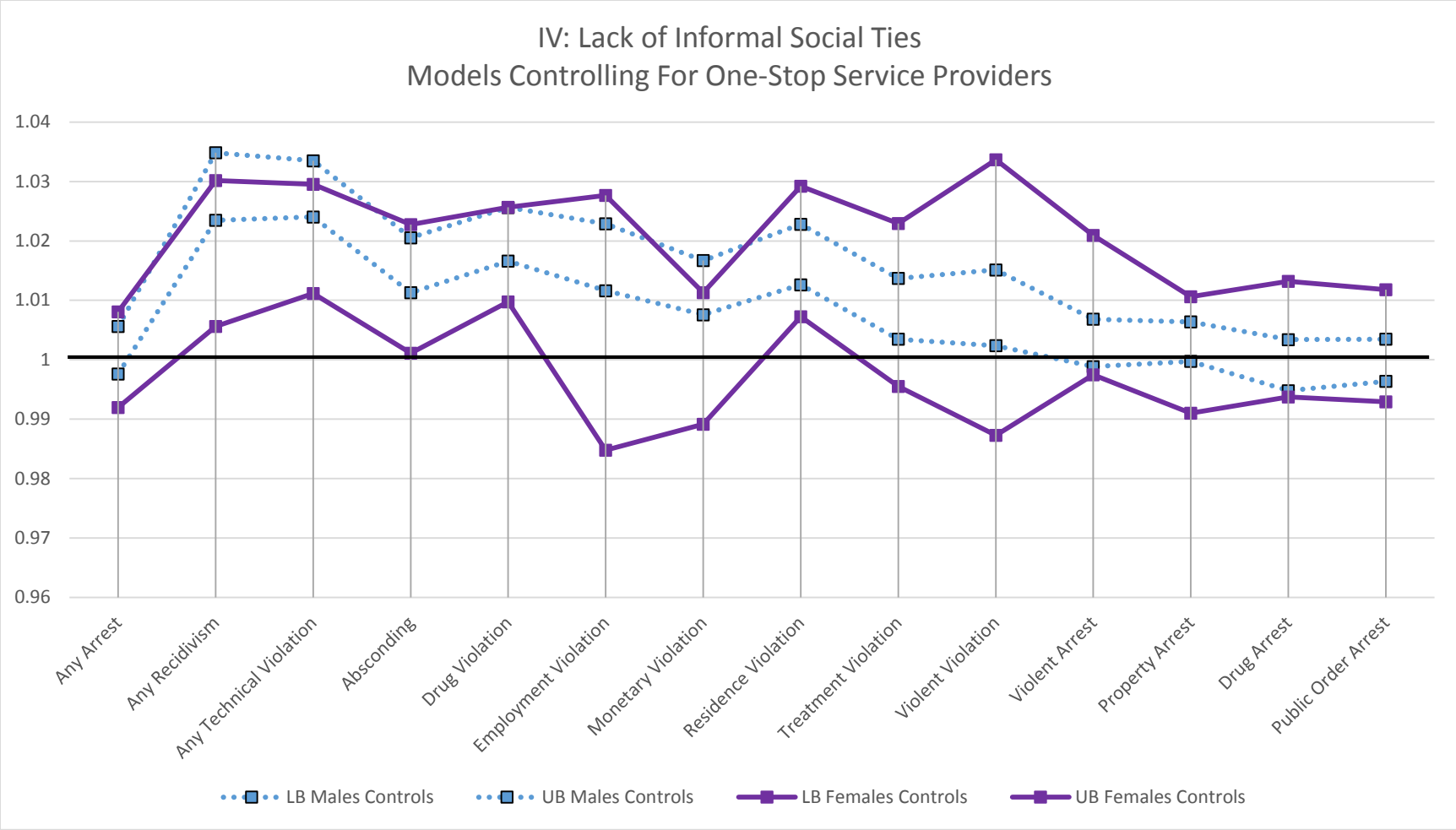


Figure 5.7: Upper and Lower Bounds for Immigration Concentration
(Residential models only with observations clustered by census tract; based on 95% confidence intervals)

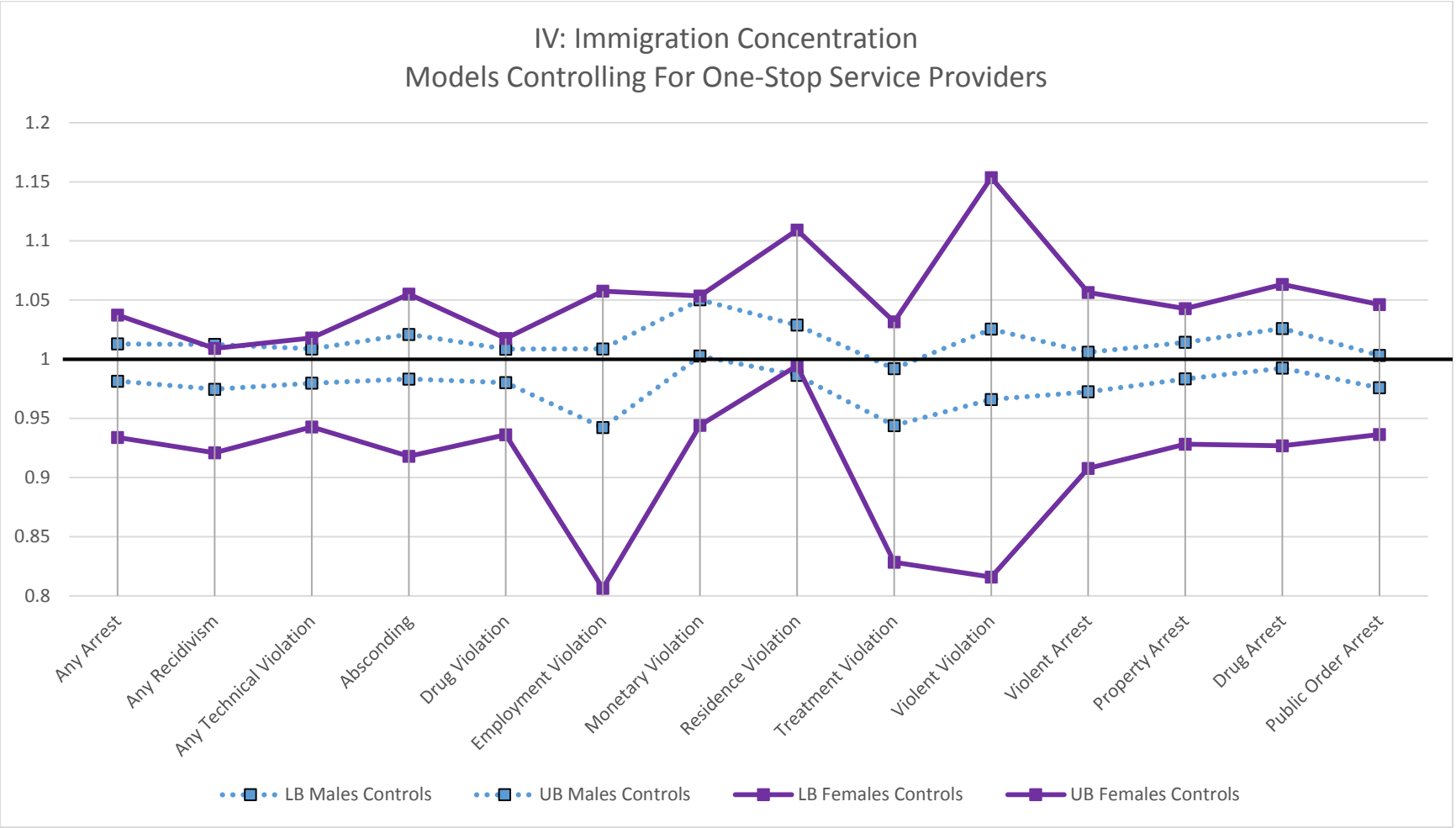
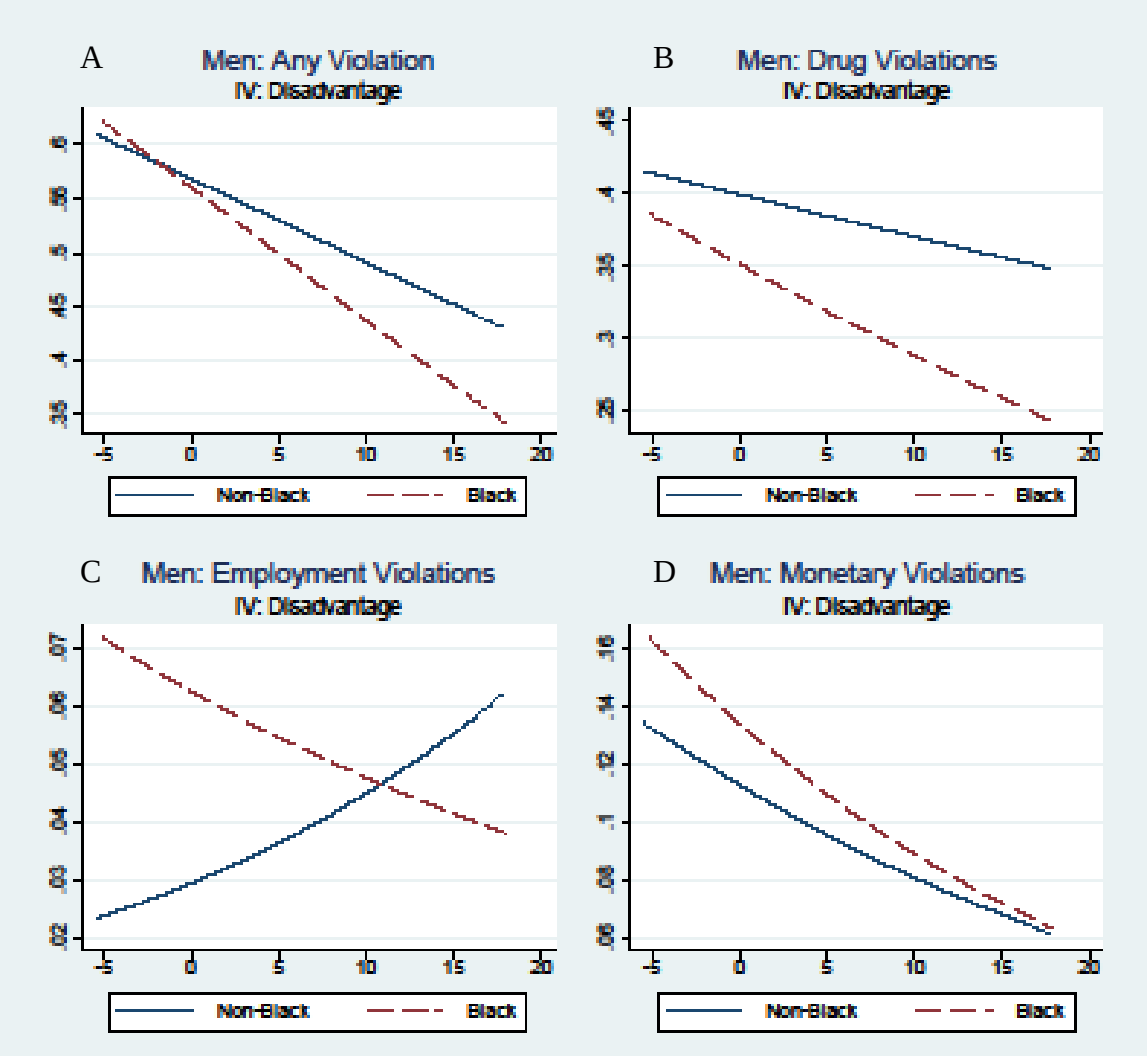
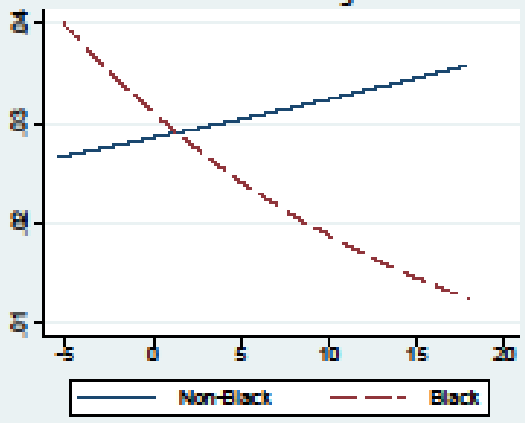


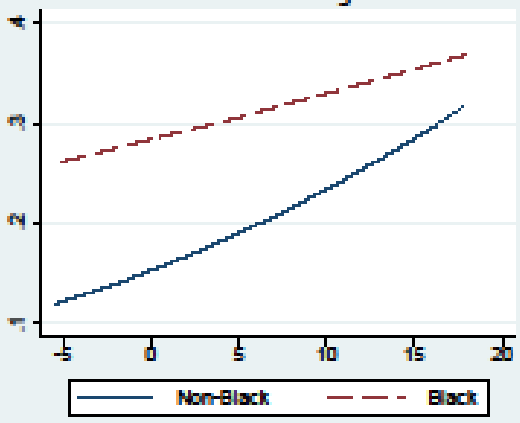
Figure 5.8: Interactions between Race and Community-Level Independent Variables



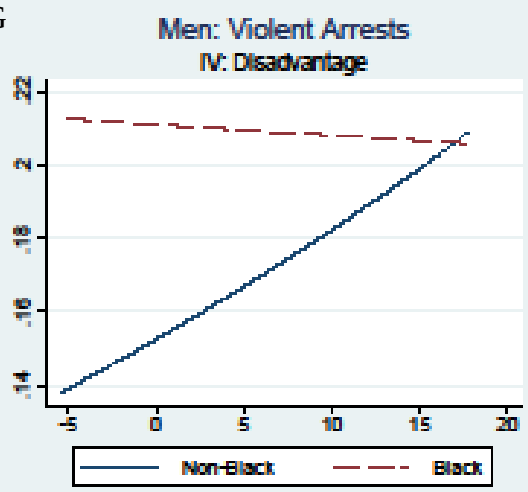
E


Men: Violent Violations
IV: Disadvantage
.04
.03
.02
.01
-5
0
5
10
15
20
Non-Black
Black

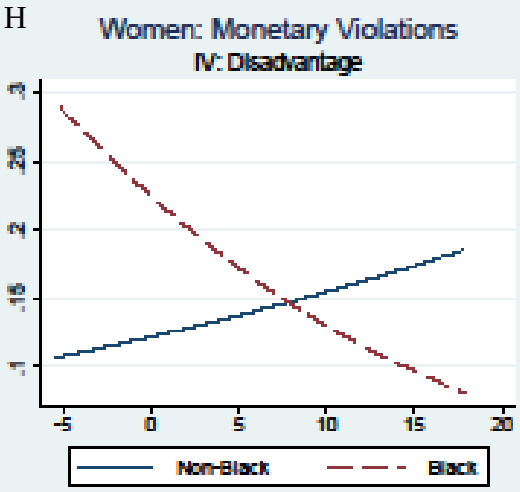
F


Men: Drug Arrests
IV: Disadvantage
.4
.3
.2
.1
-5
0
5
10
15
20
Non-Black
Black

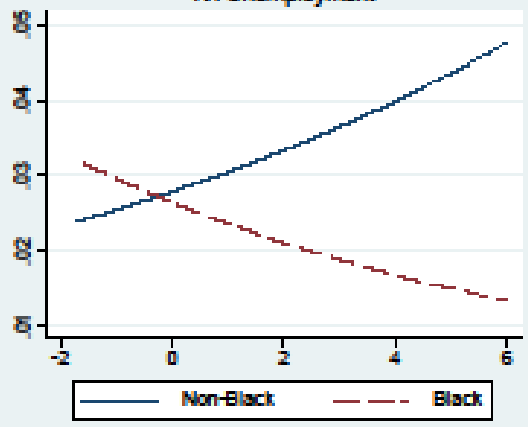
G


Men: Violent Arrests
IV: Disadvantage
.22
.2
.18
.16
.14
-5
0
5
10
15
20
Non-Black
Black

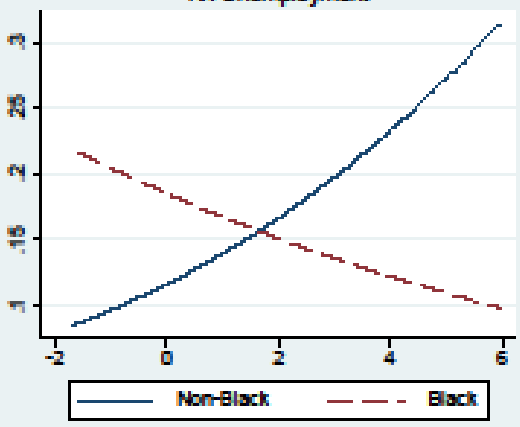
H


Women: Monetary Violations
IV: Disadvantage
.3
.25
.2
.15
.1
-5
0
5
10
15
20
Non-Black
Black

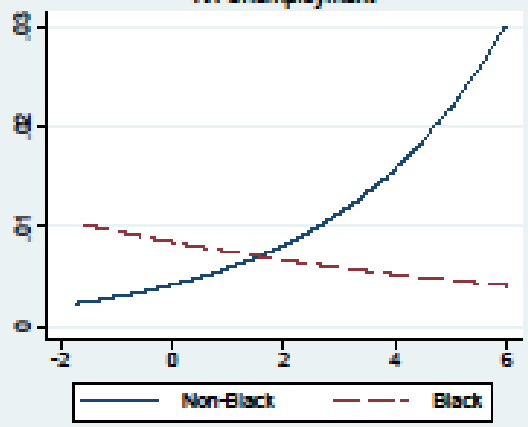
I


Men: Violent Violations
IV: Unemployment
-2
0
2
4
6
Non-Black
Black

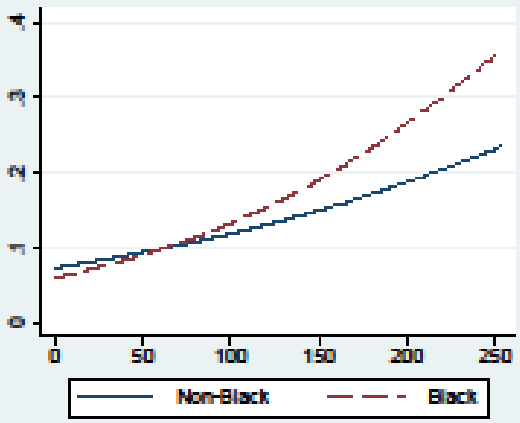
J


Women: Monetary Violations
IV: Unemployment
-2
0
2
4
6
Non-Black
Black

K


Women: Violent Violations
IV: Unemployment
-2
0
2
4
6
Non-Black
Black

L


Men: Residence Violations
IV: Offender Concentration
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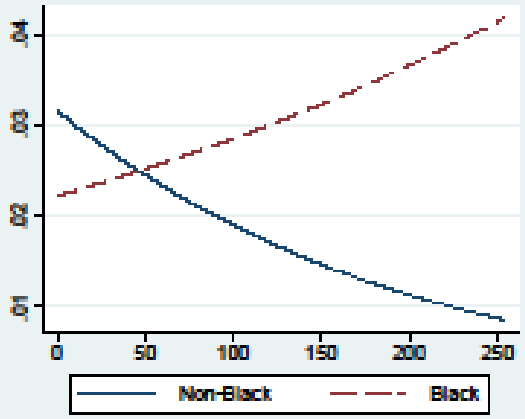
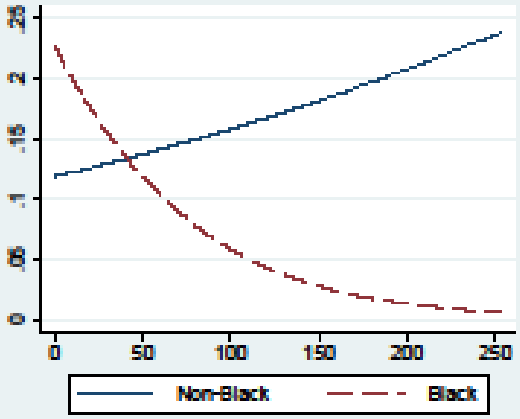
50
100
150
200
250
Non-Black
Black

M


Men: Violent Violations
IV: Offender Concentration
.01
.02
.03
.04
0
50
100
150
200
250
Non-Black
Black

N


Women: Monetary Violations
IV: Offender Concentration
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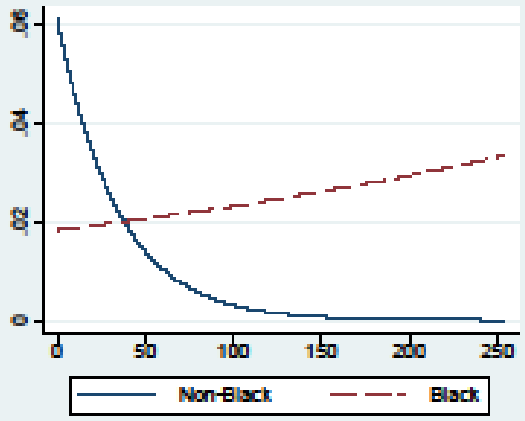
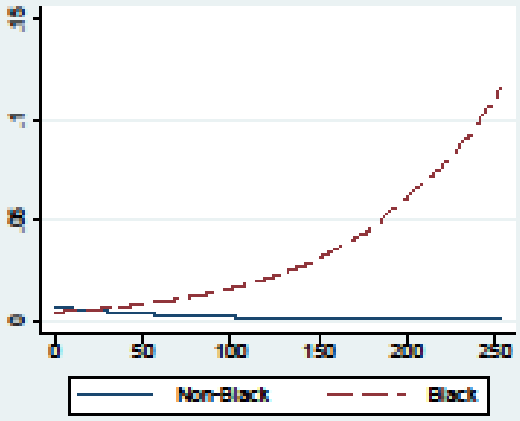
.05
.1
.15
.2
.25
0
50
100
150
200
250
Non-Black
Black

O


Women: Treatment Violations
IV: Offender Concentration
0
.02
.04
.06
0
50
100
150
200
250
Non-Black
Black

P


Women: Violent Violations
IV: Offender Concentration
0
.05
.1
.15
0
50
100
150
200
250
Non-Black
Black

APPENDICES

Appendix A: Descriptives for sample including time spent at a CCC

	Private Residential and CCC Addresses (n=11,756)			
Variable	**Mean**	**Std. Dev.**	**Min**	**Max**
Demographics				
Gender: Female	0.1107	0.31	0	1
Race: Black	0.4233	0.49	0	1
Race: White	0.4477	0.50	0	1
Race: Other	0.1290	0.34	0	1
Unmarried	0.8686	0.34	0	1
Age at Release	32.9169	9.75	17.37	79.32
High School Grad	0.6086	0.49	0	1
Prison and Arrest History				
Prior Violent Arrest	0.6437	0.48	0	1
Prior Property Arrest	0.7366	0.44	0	1
Prior Drug Arrest	0.6802	0.47	0	1
Prior Public Order Arrest	0.8229	0.38	0	1
Length of Incarceration	944.9531	877.65	76	9723
Prison Misconducts	1.3863	4.13	0	173
Parole				
Released to Street vs. Center	0.4113	0.49	0	1
Proportion of Days at Private Residence	0.8163	0.32	0	1
Initial Supervision Level	2.7908	0.70	0	4
Days in Follow-up	1150.196	693.57	1	2255
Assessment				
Arrested before 16	0.3100	0.46	0	1
Chronic Unemployment	0.4322	0.50	0	1
Recent Unemployment	0.1753	0.38	0	1
Recent Employment	0.3925	0.49	0	1
Has Financial Problems	0.5396	0.50	0	1
Relationship Satisfaction	1.6959	0.82	0	3
Criminal Spouse/Family	0.4712	0.50	0	1
Moved Often	0.0875	0.28	0	1
Criminal Friend/Acquaintance	0.9200	0.27	0	1
History of Mental Health Treatment	0.5118	0.50	0	1
Drug Dependency	0.7130	0.45	0	1
Drug OR Alcohol Dependency	0.7941	0.40	0	1
Community				
Low Social Ties Scale	2.3864	3.30	-6.47	14.30
Immigration Scale	1.9099	4.28	-2.18	16.49
Disadvantage Scale	4.1276	5.00	-5.46	17.98

Unemployment Scale	0.8092	1.34	-1.70	5.97
Co-offenders (days)	115.5809	214.83	0	1184
Co-offenders (count)	16325.79	48708.20	0	353962
One Stop Service Providers	3.8211	3.41	0	18
All Service Providers	36.2551	33.79	0	174.48
Drug/Alcohol Treatment Providers	4.4043	4.14	0	20
Recidivism Outcomes				
Aggregated Outcomes				
Any Recidivism	0.7741	0.44	0	1
Any Technical Violation	0.5115	0.50	0	1
Any Police Arrest	0.5450	0.50	0	1
Disaggregated Outcomes				
Absconding Violations	0.1556	0.36	0	1
Drug-related Violations	0.3448	0.48	0	1
Employment Violations	0.0435	0.20	0	1
Monetary Violations	0.1101	0.31	0	1
Residence Violations	0.1139	0.32	0	1
Treatment Violations	0.0576	0.23	0	1
Violent Violations	0.0305	0.17	0	1
Drug Arrests	0.2652	0.44	0	1
Property Arrests	0.2496	0.43	0	1
Violent Arrests	0.2036	0.40	0	1
Public Order Arrests	0.3598	0.48	0	1

Appendix B: Model Variations

	Model Number	**Model 1**	**Model 2**	**Model 3**
	Model Description	Controls	Controls (1st Assessment)	Controls (Last Assessment)
Demographics	Race: Black	X	X	X
	Race: White			
	Race: Other	X	X	X
	Unmarried	X	X	X
	Age at Release	X	X	X
	High School Grad	X	X	X
Prison and Arrest History	Prior Violent Arrest	X	X	X
	Prior Property Arrest	X	X	X
	Prior Drug Arrest	X	X	X
	Prior Public Order Arrest	X	X	X
	Length of Incarceration	X	X	X
	Prison Misconducts	X	X	X
Parole	Released to Street vs. Center	X	X	X
	Proportion Days at Private Residence	X	X	X
	Initial Supervision Level	X	X	X
	Days in Follow-up	X	X	X
Assessment	Arrested before 16	X	X	X
	Chronic Unemployment	X	X	X
	Recent Unemployment	X	X	X
	Recent Employment			
	Has Financial Problems	X	X	X
	Relationship Satisfaction	X	X	X
	Criminal Spouse/Family	X	X	X
	Moved Often	X	X	X
	Criminal Friend/Acquaintance	X	X	X
	History of Mental Health Tx	X	X	X
	Drug OR Alcohol Dependency	X	X	X

Community	Low Social Ties
	Immigration
	Disadvantage
	Unemployment
	Co-offenders (count)
	Co-offenders (days)
	One Stop Service Providers
	All Service Providers
	Drug/Alcohol Tx Providers

	Model Number	**Model 4***	**Model 5***	**Model 6***	**Model 7***	**Model 8**	**Model 9**
	Model Description	Disadvantage 1-Stop	Disadvantage Total Services	Disadvantage D/A Services	Unemployment 1-Stop	Unemployment Total Services	Unemployment D/A Services
Demographics	Race: Black						
	Race: White						
	Race: Other						
	Unmarried						
	Age at Release						
	High School Grad						
Prison /Arrest History	Prior Violent Arrest						
	Prior Property Arrest						
	Prior Drug Arrest						
	Prior Public Order Arrest						
	Length of Incarceration						
	Prison Misconducts						
Parole	Released to Street vs. Center						
	Proportion Days at Private Residence						
	Initial Supervision Level						
	Days in Follow-up						
Assessment	Arrested before 16						
	Chronic Unemployment						
	Recent Unemployment						
	Recent Employment						
	Has Financial Problems						
	Relationship Satisfaction						
	Criminal Spouse/Family						
	Moved Often						
	Criminal Friend/Acquaintance						
	History Mental Health Tx						
	Drug OR Alcohol Dependency						

Community	Low Social Ties	X	X	X	X	X	X
	Immigration	X	X	X	X	X	X
	Disadvantage	X	X	X			
	Unemployment				X	X	X
	Co-offenders (count)	X	X	X	X	X	X
	Co-offenders (days)						
	One Stop Service Providers	X			X		
	All Service Providers		X			X	
	Drug/Alcohol Tx Providers			X			X

	Model Number	**Model 10**	**Model 11**	**Model 12**	**Model 13***	**Model 14***	**Model 15***
	Model Description	Co-Offender Days 1-Stop	Co-Offender Days Total Services	Co-Offender Days D/A Services	Controls Disadvantage 1-Stop	Controls Disadvantage Total Services	Controls Disadvantage D/A Services
Demographics	Race: Black				X	X	X
	Race: White						
	Race: Other				X	X	X
	Unmarried				X	X	X
	Age at Release				X	X	X
	High School Grad						
Prison /Arrest History	Prior Violent Arrest				X	X	X
	Prior Property Arrest				X	X	X
	Prior Drug Arrest				X	X	X
	Prior Public Order Arrest				X	X	X
	Length of Incarceration				X	X	X
	Prison Misconducts						
Parole	Released to Street vs. Center				X	X	X
	Prop Days at Private Residence				X	X	X
	Initial Supervision Level				X	X	X
	Days in Follow-up						
Assessment	Arrested before 16				X	X	X
	Chronic Unemployment				X	X	X
	Recent Unemployment						
	Recent Employment				X	X	X
	Has Financial Problems				X	X	X
	Relationship Satisfaction				X	X	X
	Criminal Spouse/Family				X	X	X
	Moved Often				X	X	X
	Criminal Friend/Acquaintance				X	X	X
	History of Mental Health Tx				X	X	X
	Drug OR Alcohol Dependency				X	X	X

Community	Low Social Ties	X	X	X	X	X	X
	Immigration	X	X	X	X	X	X
	Disadvantage	X	X	X	X	X	X
	Unemployment						
	Co-offenders (count)				X	X	X
	Co-offenders (days)	X	X	X			
	One Stop Service Providers	X			X		
	All Service Providers		X			X	
	Drug/Alcohol Tx Providers			X			X

	Model Number	**Model 16***	**Model 17**	**Model 18**	**Model 19**	**Model 20**	**Model 21**
	Model Description	Controls Unemployment 1-Stop	Controls Unemployment Total Services	Controls Unemployment D/A Services	Controls Co-Offender Days 1-Stop	Controls Co-Offender Days Total Services	Controls Co-Offender Days D/A Services
Demographics	Race: Black	X	X	X	X	X	X
	Race: White						
	Race: Other	X	X	X	X	X	X
	Unmarried	X	X	X	X	X	X
	Age at Release	X	X	X	X	X	X
	High School Grad						
Prison /Arrest History	Prior Violent Arrest	X	X	X	X	X	X
	Prior Property Arrest	X	X	X	X	X	X
	Prior Drug Arrest	X	X	X	X	X	X
	Prior Public Order Arrest	X	X	X	X	X	X
	Length of Incarceration	X	X	X	X	X	X
	Prison Misconducts	X	X	X	X	X	X
Parole	Released to Street vs. Center	X	X	X	X	X	X
	Proportion at Private Residence	X	X	X	X	X	X
	Initial Supervision Level	X	X	X	X	X	X
	Days in Follow-up	X	X	X	X	X	X
Assessment	Arrested before 16	X	X	X	X	X	X
	Chronic Unemployment	X	X	X	X	X	X
	Recent Unemployment	X	X	X	X	X	X
	Recent Employment						
	Has Financial Problems	X	X	X	X	X	X
	Relationship Satisfaction	X	X	X	X	X	X
	Criminal Spouse/Family	X	X	X	X	X	X
	Moved Often	X	X	X	X	X	X
	Criminal Friend/Acquaintance	X	X	X	X	X	X
	History of Mental Health Tx	X	X	X	X	X	X
	Drug OR Alcohol Dependency	X	X	X	X	X	X

Community	Low Social Ties	X	X	X	X	X	X
	Immigration	X	X	X	X	X	X
	Disadvantage				X	X	X
	Unemployment	X	X	X			
	Co-offenders (count)	X	X	X			
	Co-offenders (days)				X	X	X
	One Stop Service Providers	X			X		
	All Service Providers		X			X	
	Drug/Alcohol Tx Providers			X			X

*Model included in results chapter

Appendix C: Sensitivity analysis: Do the gendered effects change when residential and CCC addresses are used?

While parolees live in a CCC, they may still be influenced by the community's resources and risks, though they may have less contact with the outside community than if they lived at a private residence. Recognizing this, all of the analyses we repeated using data from all residential and CCC addresses. With this alternative definition of what is considered being in a community, there are several differences in the gendered effects of the community characteristics. These differences are discussed below. It is likely that this is partially a consequence of the gendered nature of the use of CCC's. Men spend a larger proportion of their follow-up time in a CCC (almost 20% versus only about 12% for women). More men than women are also released to a CCC rather than a residential address (nearly 60% versus 54% of women). This means that introducing community characteristics during stays in a CCC is likely to have a larger effect on the models for men than for women, as their reentry is shaped by more time in CCC's.

Disadvantage/Unemployment and Violence/Economic-Related Recidivism

For employment-related violations, the level of disadvantage in the community does not display the gendered effects that were present before. Disadvantage also no longer significantly lowers men's odds of absconding. The effects of disadvantage on arrests are not substantively different.

For unemployment, while still associated with lower odds of property arrest for women (at least before the inclusion of individual-level controls), the effect is no longer significantly different from the effect for men.

Treatment Services

There are also a few differences in the effects of the number of nearby service providers. Having more one-stop service providers nearby decreases the odds of having a treatment-related violation for men more than for women (the coefficients for women are positive but not significantly different from zero). This gendered effect was not present in the residential-only models. It is possible that, during stays at a CCC, parolees are connected with treatment services through these one-stop service providers and this treatment is monitored and structured by the CCC, resulting in fewer failures to complete treatment, at least for male parolees. This suggests that CCCs may be important for connecting parolees to services in the community and ensuring that they use the services and complete treatment programs.

Offender Concentration

As mentioned earlier, communities where parolees are living in a CCC likely have higher numbers of other offenders living nearby, also in a CCC, biasing the effect of the number of offender concentration. Based on this, it is expected that the effect of offender concentration will be reduced in models that include community characteristics while at a CCC and may instead be capturing the effect of large numbers of offenders in a nearby CCC rather than in the community. For drug arrests, offender concentration now significantly increases men's odds of a drug arrest, at least in models without individual-level controls. In models that did not include time spent at a CCC, offender concentration was not significantly related to drug arrests for men. It may be that

time spent residing at a CCC offers extra opportunities for men to become involved with the drug market as a result of the contacts they make at the CCC.

For the measures of technical violations, offender concentration is no longer significantly associated with drug violations for men. Additionally, offender concentration now increases the odds of absconding and residence violations for men and women (though effect is accounted for by individual-level controls). Offender concentration is still associated with higher odds of treatment violations for men, but the negative relationship with treatment violations for women does not persist. Instead, there is some evidence that offender concentration increases the odds of treatment violations for women as well.

On the other hand, in models predicting any of the recidivism outcome using the aggregate measure, offender concentration measured by the number of days other offenders live nearby is associated with lower odds of recidivism for men and women. This measure of offender concentration decreases the odds of recidivism for women more than it decreases the odds for men, at least in models without clustered observations and individual-level controls. This may be related to a gendered effect of community corrections centers. The proportion of the follow-up time spent in a CCC is associated with higher odds of overall recidivism for both men and women, but significantly higher odds for women compared to men. This appears to be driven by a significantly greater effect of proportion of time spent at a CCC on technical violations for women; women who spend more time at a CCC have significantly more technical violations than men (for whom time spent at a CCC is insignificantly or negatively associated with technical violations). Arrests, on the other hand are higher for men who spend more time at a CCC, though this effect is not significantly different from women. Another way to look at CCC residence is whether the parolee was released directly to a CCC versus released to a private residence. For overall arrests, being released to a CCC is associated with higher odds of recidivism for men, though this effect is not significantly different than the effect for women.

Informal Social Ties and Immigration Concentration

In the models that include time spent at a CCC, low informal social ties have a significantly different effect across genders for many of the recidivism outcomes, at least when individual-level controls are not included. Low informal social ties in the community also has a gendered effect on the odds of absconding; lower levels of social bonds in the community increases the odds of absconding for men more than for women. Additionally, in some models, lower social bonds increases the odds of treatment-related violations for men more than for women. In some models, with and without individual-level controls, a lack of social bonds significantly decreases men's odds of having any type of arrest and significantly increases women's odds; under some model specifications, this difference is statistically significant.

For immigration concentration, there is a gendered effect for one outcome, residence-related violations, whereas there were no significant gendered effects using the residential addresses only. In the models with individual-level controls, when the number of days potential co-offenders live nearby is controlled for, immigration concentration increases the odds of recidivism for women more than for men (the effect fails to reach significance for men). Immigration concentration is also significant or marginally significant in the models for women's residence violations without individual-level controls. Models using the CCC addresses

may be particularly sensitive to the number of days other offenders live nearby as this rate is likely higher as offenders cluster at these centers, so controlling for this concentration of other offenders is especially important in the models including time spent at a CCC.

Appendix D: Figures of Models without Individual-Level Controls

		A. IV: Disadvantage[1]									
		Men					Women				
		Odds Ratio	Std Err[6]	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	1.0395	0.0065	1.0272	1.0518	*	0.9792	0.0197	0.9397	1.0186	
	Any Recidivism	1.0116	0.0060	0.9999	1.0233		0.9908	0.0188	0.9536	1.0279	
	Any Technical Violation	0.9586	0.0060	0.9463	0.9709	*	0.9788	0.0173	0.9441	1.0135	
2	Violent Arrest	1.0361	0.0064	1.0239	1.0483	*	1.0356	0.0351	0.9692	1.1021	
	Property Arrest	0.9968	0.0060	0.9849	1.0087		0.9745	0.0212	0.9318	1.0172	
	Drug Arrest	1.0722	0.0077	1.0581	1.0863	*	0.9859	0.0310	0.9243	1.0476	
	Public Order Arrest	1.0267	0.0060	1.0151	1.0382	*	0.9741	0.0210	0.9320	1.0163	
3	Absconding	0.9948	0.0074	0.9802	1.0095		0.9853	0.0279	0.9297	1.0409	
	Drug Violation	0.9670	0.0072	0.9524	0.9816	*	0.9818	0.0174	0.9470	1.0166	
	Employment Violation	1.0354	0.0138	1.0092	1.0616	*	0.9115	0.0417	0.8219	1.0011	
	Monetary Violation	0.9675	0.0096	0.9480	0.9869	*	1.0089	0.0215	0.9672	1.0506	
	Residence Violation	0.9562	0.0096	0.9365	0.9758	*	0.9719	0.0268	0.9178	1.0260	
	Treatment Violation	0.9709	0.0112	0.9483	0.9935	*	1.0102	0.0345	0.9432	1.0772	
	Violent Violation	0.9767	0.0132	0.9503	1.0031		1.0568	0.0402	0.9822	1.1315	
		B. IV: Unemployment									
		Men					Women				
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	1.0467	0.0274	0.9953	1.0980		0.8918	0.0665	0.7456	1.0380	
	Any Recidivism	0.9527	0.0249	0.9014	1.0040		1.0571	0.0815	0.9061	1.2081	
	Any Technical Violation	0.9175	0.0217	0.8710	0.9639	*	1.0806	0.0732	0.9478	1.2134	
2	Violent Arrest	1.0195	0.0263	0.9690	1.0701		0.9545	0.1104	0.7278	1.1813	
	Property Arrest	1.0063	0.0255	0.9566	1.0560		0.8362	0.0658	0.6818	0.9905	*
	Drug Arrest	1.0566	0.0274	1.0058	1.1074	*	0.9220	0.0989	0.7118	1.1322	
	Public Order Arrest	1.0172	0.0223	0.9743	1.0601		0.8735	0.0675	0.7220	1.0250	
3	Absconding	0.9640	0.0316	0.8997	1.0284		1.1021	0.1111	0.9044	1.2997	
	Drug Violation	0.9660	0.0259	0.9134	1.0186		1.0909	0.0739	0.9581	1.2238	
	Employment Violation	0.9993	0.0478	0.9055	1.0931		0.7318	0.1741	0.2654	1.1981	
	Monetary Violation	0.9746	0.0337	0.9068	1.0424		1.1001	0.0870	0.9451	1.2552	
	Residence Violation	0.9135	0.0331	0.8426	0.9844	*	1.0285	0.1181	0.8034	1.2536	
	Treatment Violation	0.9308	0.0430	0.8402	1.0214		1.0857	0.1704	0.7781	1.3932	
	Violent Violation	0.9882	0.0536	0.8819	1.0945		1.1577	0.2598	0.7178	1.5976	

		C. IV: One Stop Service Providers[2]								
		Men					Women			
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	1.0128	0.0099	0.9937	1.0318		1.0367	0.0278	0.9842	1.0892	
	Any Recidivism	1.0000	0.0094	0.9816	1.0185		1.0089	0.0278	0.9548	1.0629	
	Any Technical Violation	0.9855	0.0089	0.9677	1.0033		1.0033	0.0268	0.9509	1.0557	
2	Violent Arrest	1.0078	0.0097	0.9889	1.0267		1.0227	0.0440	0.9383	1.1071	
	Property Arrest	1.0050	0.0082	0.9889	1.0211		1.0344	0.0303	0.9770	1.0918	
	Drug Arrest	1.0101	0.0116	0.9876	1.0327		0.9979	0.0363	0.9265	1.0692	
	Public Order Arrest	1.0090	0.0093	0.9910	1.0270		1.0157	0.0295	0.9587	1.0727	
3	Absconding	0.9993	0.0102	0.9793	1.0193		1.0496	0.0425	0.9702	1.1289	
	Drug Violation	0.9737	0.0108	0.9520	0.9955	*	1.0178	0.0268	0.9661	1.0695	
	Employment Violation	0.9598	0.0184	0.9221	0.9975	*	1.1379	0.0582	1.0376	1.2381	*
	Monetary Violation	1.0193	0.0150	0.9905	1.0481		1.0100	0.0339	0.9442	1.0758	
	Residence Violation	0.9858	0.0132	0.9597	1.0120		1.0326	0.0362	0.9640	1.1012	
	Treatment Violation	0.9633	0.0164	0.9299	0.9967	*	1.0540	0.0413	0.9771	1.1308	
	Violent Violation	0.9739	0.0192	0.9353	1.0125		0.9427	0.0886	0.7585	1.1269	
		D. IV: Total Service Providers								
		Men					Women			
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	1.0004	0.0010	0.9985	1.0024		0.9971	0.0021	0.9929	1.0012	
	Any Recidivism	1.0004	0.0011	0.9983	1.0025		1.0005	0.0024	0.9958	1.0051	
	Any Technical Violation	1.0002	0.0008	0.9986	1.0018		1.0029	0.0023	0.9985	1.0074	
2	Violent Arrest	1.0007	0.0008	0.9991	1.0023		0.9954	0.0034	0.9886	1.0021	
	Property Arrest	1.0000	0.0009	0.9983	1.0018		0.9989	0.0022	0.9945	1.0033	
	Drug Arrest	0.9989	0.0012	0.9966	1.0012		0.9981	0.0029	0.9924	1.0039	
	Public Order Arrest	1.0000	0.0009	0.9983	1.0018		0.9972	0.0022	0.9928	1.0016	
3	Absconding	0.9999	0.0008	0.9983	1.0015		0.9942	0.0033	0.9877	1.0006	
	Drug Violation	0.9986	0.0010	0.9967	1.0006		1.0014	0.0023	0.9969	1.0059	
	Employment Violation	0.9981	0.0016	0.9949	1.0013		1.0108	0.0048	1.0014	1.0201	*
	Monetary Violation	1.0035	0.0013	1.0010	1.0061	*	1.0049	0.0025	1.0001	1.0098	*
	Residence Violation	1.0006	0.0013	0.9981	1.0030		0.9958	0.0028	0.9903	1.0013	
	Treatment Violation	1.0010	0.0014	0.9982	1.0037		1.0060	0.0042	0.9977	1.0143	
	Violent Violation	1.0008	0.0018	0.9972	1.0043		1.0043	0.0075	0.9896	1.0190	

		E. IV: Drug/Alcohol Service Providers								
		Men					Women			
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals	
1	Any Arrest	1.0009	0.0083	0.9847	1.0170		0.9836	0.0177	0.9483	1.0188
	Any Recidivism	0.9972	0.0098	0.9779	1.0164		1.0019	0.0206	0.9616	1.0421
	Any Technical Violation	0.9963	0.0073	0.9819	1.0106		1.0132	0.0200	0.9746	1.0519
2	Violent Arrest	1.0057	0.0071	0.9918	1.0196		0.9785	0.0283	0.9219	1.0351
	Property Arrest	1.0073	0.0079	0.9920	1.0225		1.0014	0.0180	0.9662	1.0366
	Drug Arrest	0.9874	0.0090	0.9696	1.0053		0.9775	0.0249	0.9275	1.0275
	Public Order Arrest	0.9989	0.0073	0.9846	1.0133		0.9840	0.0190	0.9462	1.0218
3	Absconding	1.0018	0.0073	0.9876	1.0160		0.9494	0.0252	0.8973	1.0014
	Drug Violation	0.9879	0.0076	0.9728	1.0031		0.9988	0.0198	0.9599	1.0377
	Employment Violation	0.9688	0.0139	0.9406	0.9970	*	1.0842	0.0450	1.0029	1.1655 *
	Monetary Violation	1.0217	0.0121	0.9986	1.0448		1.0325	0.0233	0.9883	1.0767
	Residence Violation	1.0048	0.0114	0.9825	1.0270		0.9679	0.0214	0.9246	1.0111
	Treatment Violation	0.9981	0.0122	0.9742	1.0221		1.0440	0.0371	0.9744	1.1135
	Violent Violation	0.9881	0.0162	0.9560	1.0201		0.9965	0.0723	0.8543	1.1388

		F. IV: Offender Concentration[3]								
		Men					Women			
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals	
1	Any Arrest	1.0003	0.0006	0.9991	1.0016		0.9999	0.0033	0.9935	1.0064
	Any Recidivism	1.0014	0.0010	0.9995	1.0033		1.0010	0.0024	0.9963	1.0056
	Any Technical Violation	1.0025	0.0010	1.0006	1.0044	*	0.9994	0.0020	0.9956	1.0033
2	Violent Arrest	1.0011	0.0007	0.9996	1.0025		0.9886	0.0086	0.9716	1.0055
	Property Arrest	1.0028	0.0007	1.0014	1.0042	*	0.9980	0.0026	0.9929	1.0031
	Drug Arrest	0.9999	0.0007	0.9985	1.0013		1.0061	0.0042	0.9979	1.0143
	Public Order Arrest	0.9992	0.0007	0.9979	1.0006		1.0016	0.0035	0.9947	1.0085
3	Absconding	1.0062	0.0009	1.0044	1.0079	*	1.0033	0.0025	0.9985	1.0081
	Drug Violation	0.9986	0.0010	0.9967	1.0006		0.9981	0.0023	0.9936	1.0026
	Employment Violation	1.0011	0.0016	0.9979	1.0043		0.9892	0.0087	0.9720	1.0065
	Monetary Violation	0.9978	0.0017	0.9944	1.0012		0.9990	0.0034	0.9923	1.0057
	Residence Violation	1.0091	0.0011	1.0069	1.0112	*	0.9931	0.0035	0.9862	0.9999 *
	Treatment Violation	1.0040	0.0009	1.0023	1.0057	*	0.9886	0.0066	0.9756	1.0016
	Violent Violation	1.0012	0.0014	0.9983	1.0040		0.9977	0.0095	0.9790	1.0164

		G. IV: Low Informal Social Ties[4]									
		Males					Females				
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	1.0048	0.0018	1.0012	1.0084	*	1.0074	0.0039	0.9999	1.0149	
	Any Recidivism	1.0306	0.0025	1.0257	1.0354	*	1.0223	0.0054	1.0121	1.0326	*
	Any Technical Violation	1.0330	0.0023	1.0286	1.0375	*	1.0238	0.0045	1.0152	1.0324	*
2	Violent Arrest	1.0031	0.0019	0.9993	1.0068		1.0128	0.0054	1.0023	1.0232	*
	Property Arrest	1.0052	0.0016	1.0021	1.0084	*	1.0075	0.0046	0.9986	1.0164	
	Drug Arrest	1.0009	0.0018	0.9973	1.0045		1.0076	0.0044	0.9991	1.0162	
	Public Order Arrest	1.0012	0.0017	0.9979	1.0046		1.0057	0.0043	0.9974	1.0141	
3	Absconding	1.0204	0.0024	1.0158	1.0249	*	1.0163	0.0054	1.0058	1.0267	*
	Drug Violation	1.0249	0.0022	1.0206	1.0291	*	1.0217	0.0041	1.0139	1.0295	*
	Employment Violation	1.0167	0.0027	1.0114	1.0219	*	1.0049	0.0096	0.9863	1.0236	
	Monetary Violation	1.0103	0.0022	1.0060	1.0146	*	0.9980	0.0051	0.9879	1.0081	
	Residence Violation	1.0217	0.0025	1.0170	1.0264	*	1.0219	0.0057	1.0110	1.0328	*
	Treatment Violation	1.0135	0.0027	1.0084	1.0187	*	1.0136	0.0063	1.0013	1.0259	*
	Violent Violation	1.0113	0.0030	1.0054	1.0171	*	1.0181	0.0078	1.0031	1.0332	*
		H. IV: Immigration Concentration[5]									
		Males					Females				
		Odds Ratio	Std Err	Confidence Intervals			Odds Ratio	Std Err	Confidence Intervals		
1	Any Arrest	0.9787	0.0067	0.9653	0.9921	*	0.9596	0.0212	0.9164	1.0029	
	Any Recidivism	0.9765	0.0074	0.9615	0.9914	*	0.9478	0.0181	0.9104	0.9851	*
	Any Technical Violation	0.9876	0.0067	0.9744	1.0008		0.9693	0.0169	0.9351	1.0036	
2	Violent Arrest	0.9766	0.0069	0.9628	0.9904	*	0.9553	0.0305	0.8928	1.0178	
	Property Arrest	0.9780	0.0065	0.9649	0.9911	*	0.9638	0.0232	0.9167	1.0108	
	Drug Arrest	0.9949	0.0076	0.9800	1.0099		0.9623	0.0290	0.9033	1.0213	
	Public Order Arrest	0.9763	0.0063	0.9637	0.9889	*	0.9678	0.0230	0.9212	1.0143	
3	Absconding	0.9934	0.0083	0.9769	1.0098		0.9820	0.0257	0.9308	1.0333	
	Drug Violation	0.9877	0.0068	0.9741	1.0013		0.9570	0.0171	0.9221	0.9920	*
	Employment Violation	0.9650	0.0143	0.9359	0.9941	*	0.9537	0.0619	0.8265	1.0809	
	Monetary Violation	1.0221	0.0125	0.9981	1.0461		1.0058	0.0272	0.9527	1.0589	
	Residence Violation	1.0082	0.0102	0.9883	1.0281		1.0316	0.0271	0.9801	1.0830	
	Treatment Violation	0.9695	0.0114	0.9463	0.9926	*	0.8995	0.0397	0.8130	0.9861	*
	Violent Violation	0.9907	0.0133	0.9644	1.0171		0.9723	0.0753	0.8204	1.1241	

[1]Disadvantage was measured by a factor or the following variables: percent receiving public assistance, percent below the poverty line, percent unemployed, percent black, and percent employed in service occupations (alpha=0.8561).

[2]Service providers were measured by the number of providers within two miles of the parolee's address.

[3]Offender concentration was measured by the number of other parolees in the sample who lived in the census tract.

[4]Low informal social ties was measured by a factor of the following variables: percent living in the same house as one year ago, percent owner-occupied housing units, percent non-family households, and percent of families with a married couple (alpha=0.8901).
[5]Immigration concentration was measured by a factor comprised of percent Hispanic, percent foreign born, and percent who speak a language other than English at home (alpha=0.8535).
[6]All observations are clustered by the combination of census tracts the parolee lived in.

Figure D.1: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)

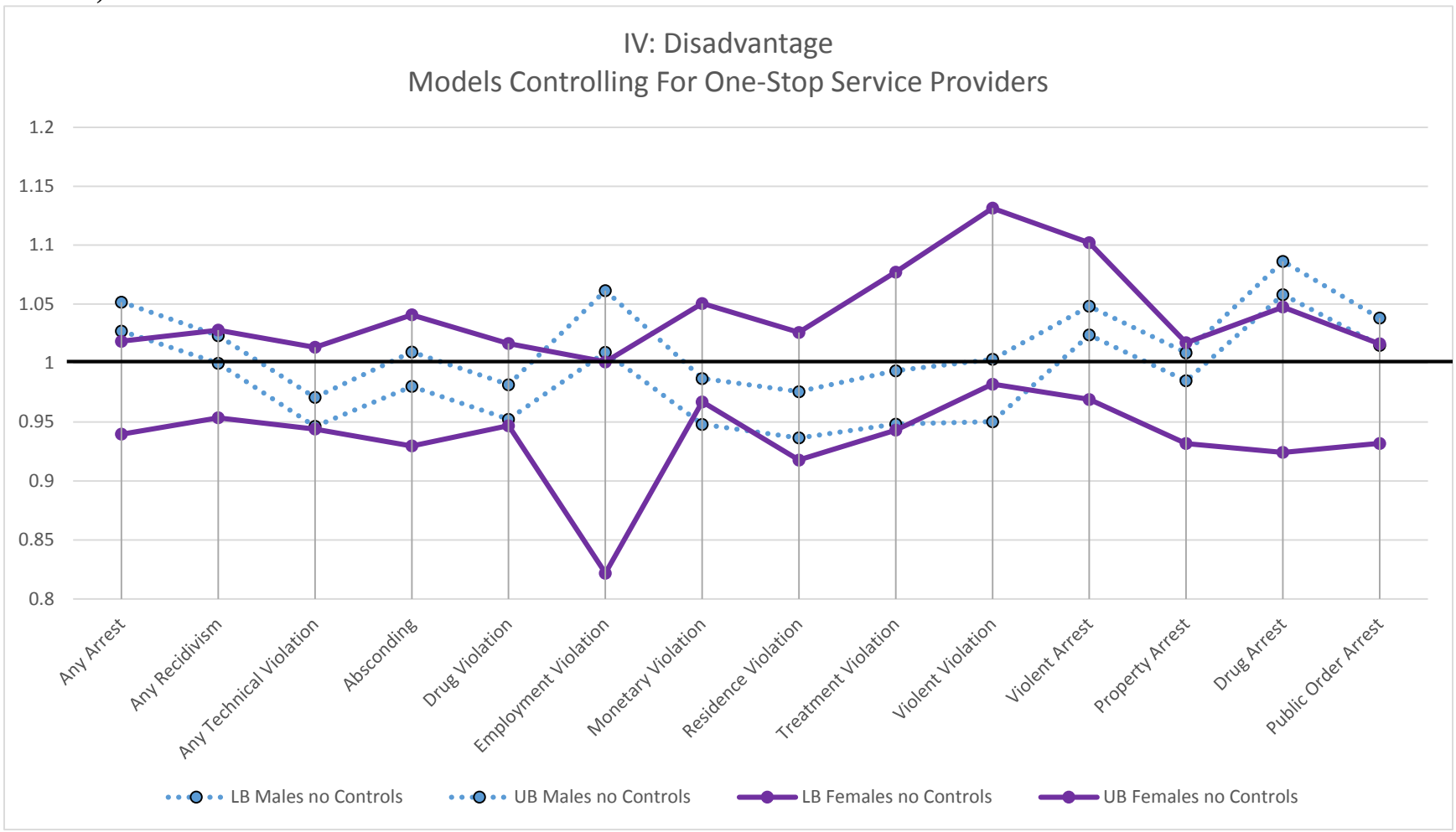


Figure D.2: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)

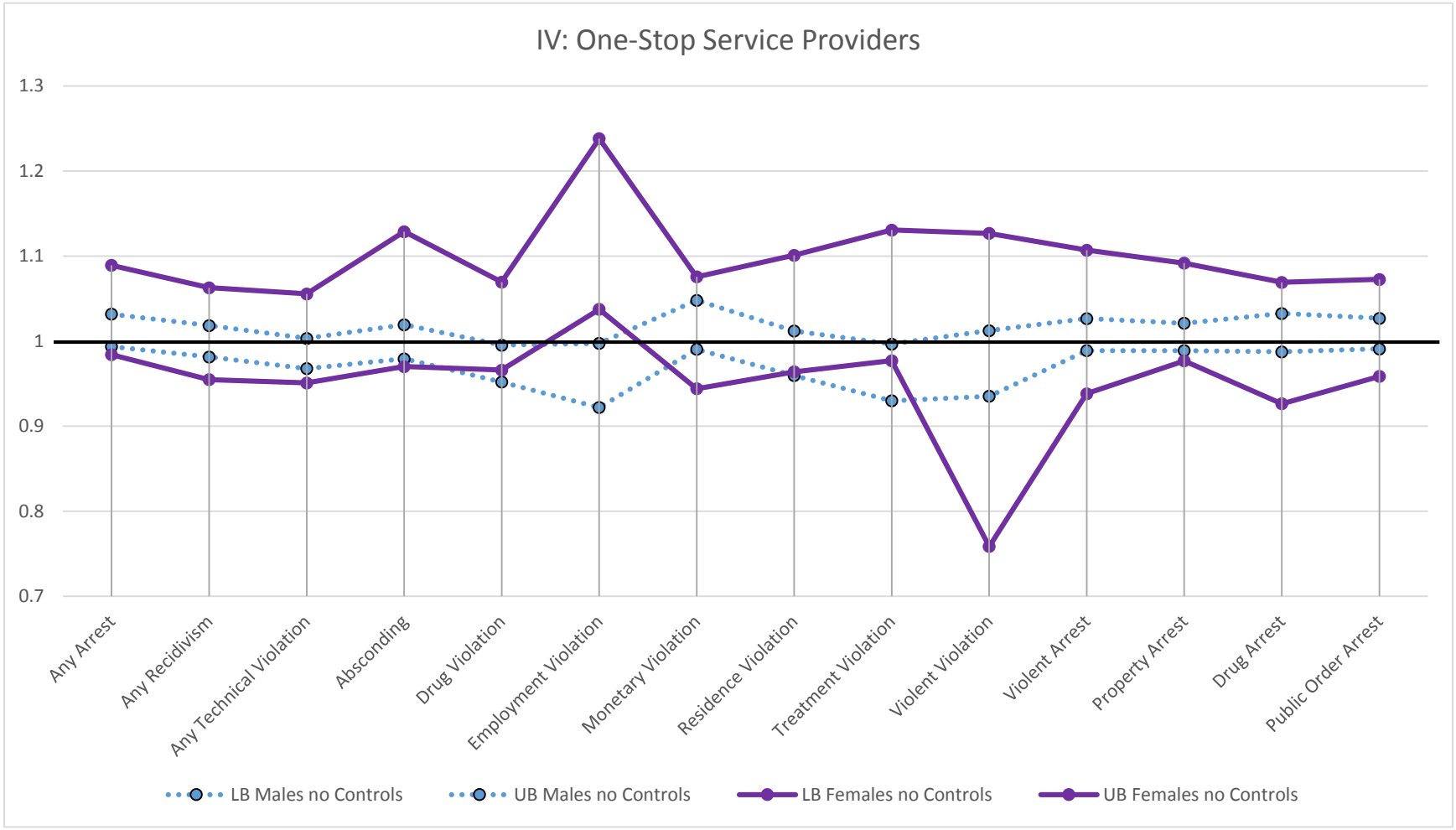


Figure D.3: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)

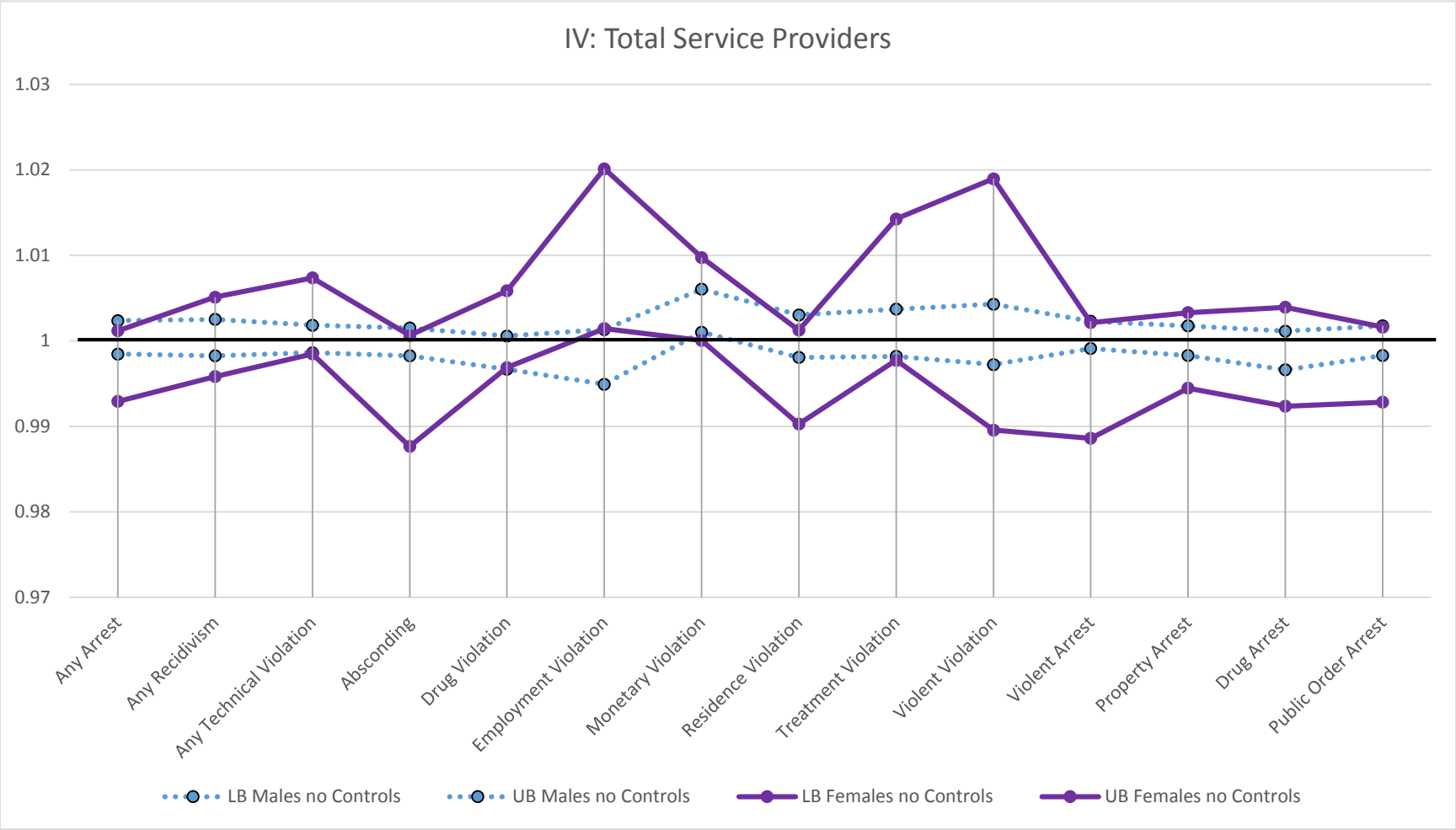


Figure D.4: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)

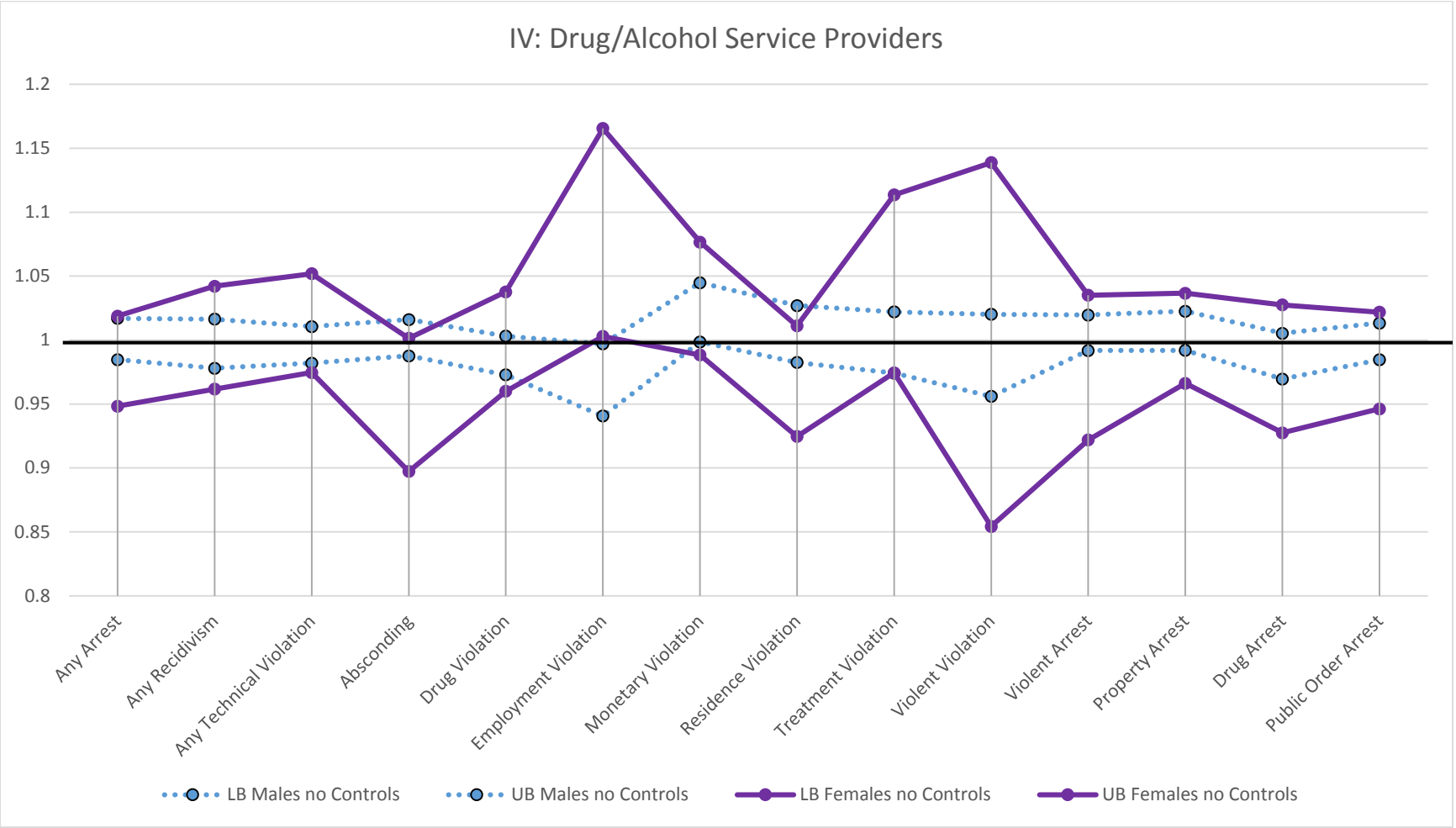


Figure D.5: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)

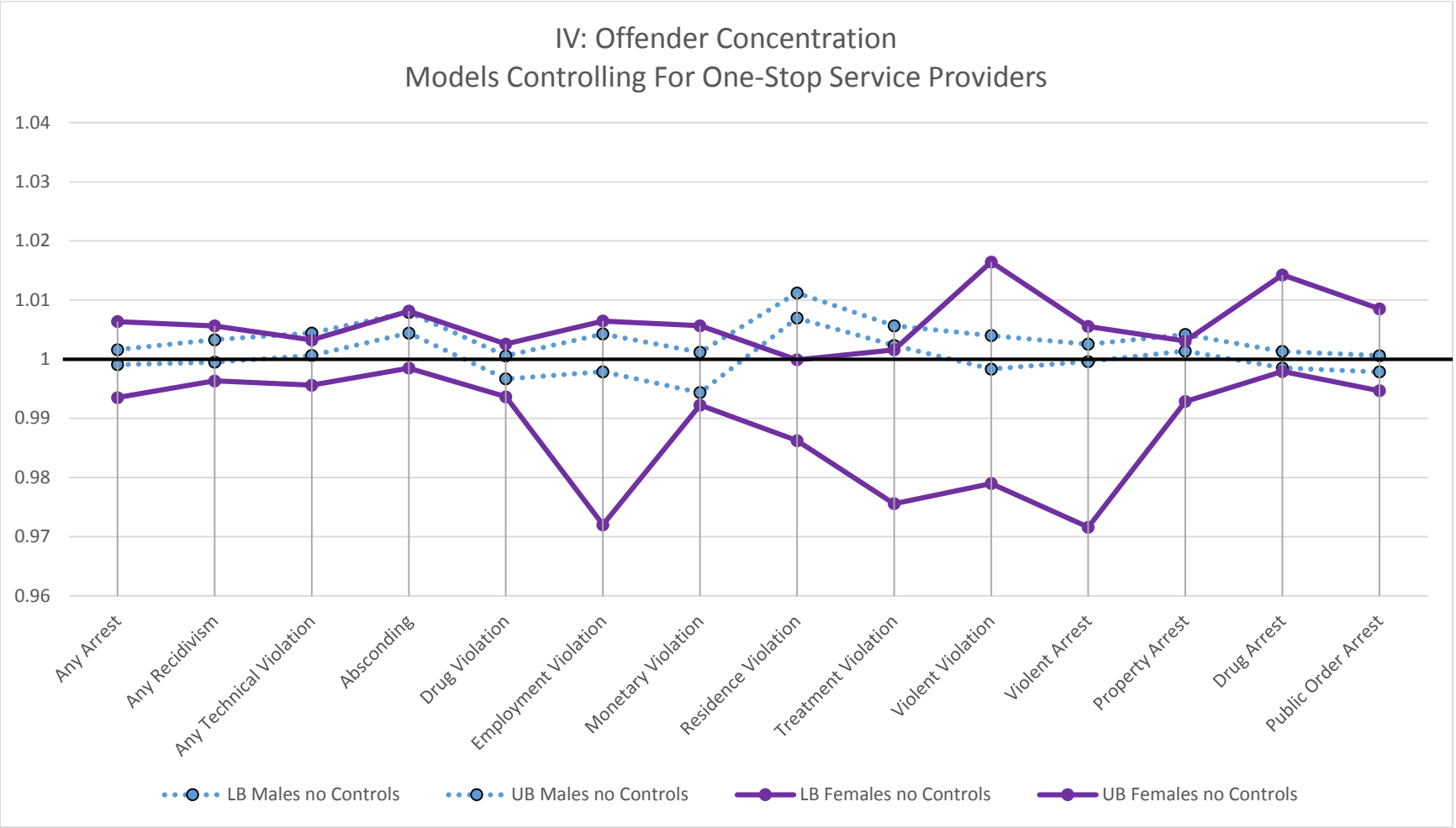


Figure D.6: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)

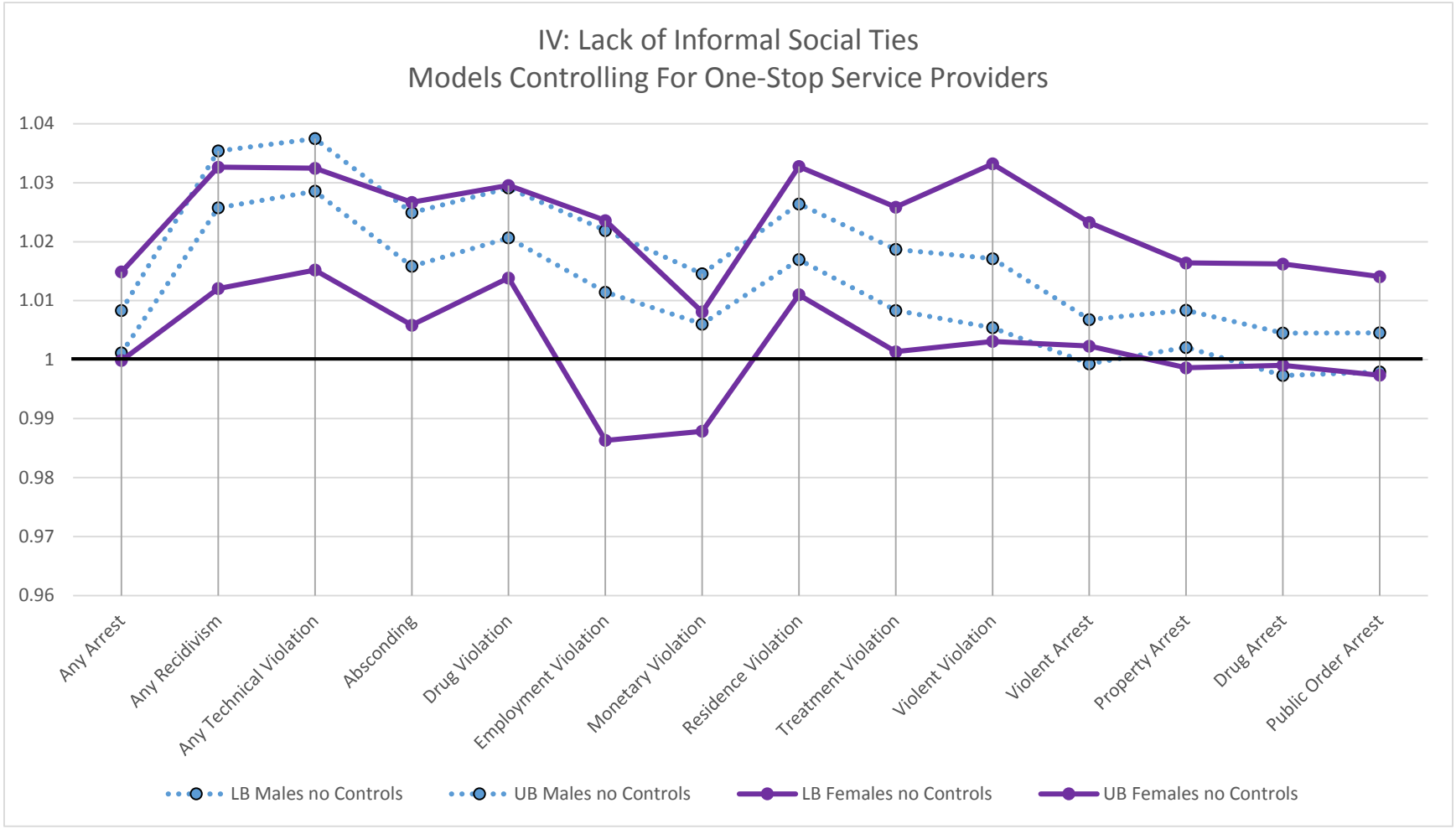
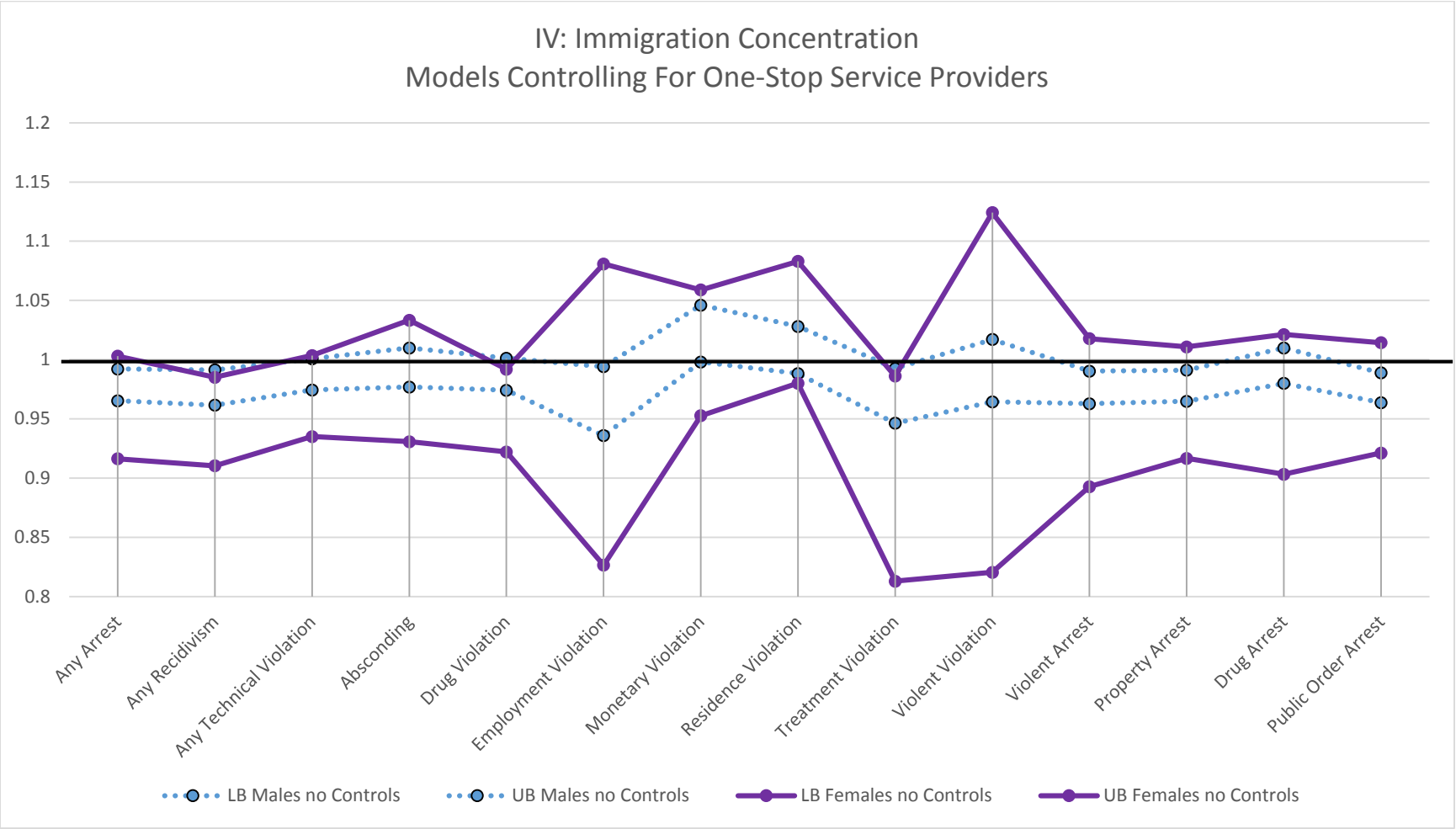


Figure D.7: Upper and Lower Bounds (residential models only with observations clustered by census tract; based on 95% confidence intervals)



Appendix E: Amount of Variance Explained by Individual and Community Variables

Outcome	Gender	IV's	R-square[1]	Addition of Community Variables
Any Recidivism	M	Indiv[2]	0.203	
	M	Indiv+Comm[3]	0.21	0.007
	F	Indiv	0.18	
	F	Indiv+Comm	0.19	0.01
Any Technical Violation	M	Indiv	0.08	
	M	Indiv+Comm	0.1	0.02
	F	Indiv	0.123	
	F	Indiv+Comm	0.137	0.014
Any Police Arrest	M	Indiv	0.235	
	M	Indiv+Comm	0.238	0.003
	F	Indiv	0.214	
	F	Indiv+Comm	0.214	0
Absconding Violations	M	Indiv	0.076	
	M	Indiv+Comm	0.089	0.013
	F	Indiv	0.103	
	F	Indiv+Comm	0.108	0.005
Drug-related Violations	M	Indiv	0.065	
	M	Indiv+Comm	0.081	0.016
	F	Indiv	0.138	
	F	Indiv+Comm	0.151	0.013
	M	Indiv	0.017	
Employment Violations	M	Indiv+Comm	0.022	0.005
	F	Indiv	0.035	
	F	Indiv+Comm	0.04	0.005
Monetary Violations	M	Indiv	0.026	
	M	Indiv+Comm	0.032	0.006
	F	Indiv	0.041	
	F	Indiv+Comm	0.042	0.001
Residence Violations	M	Indiv	0.054	
	M	Indiv+Comm	0.078	0.024
	F	Indiv	0.109	
	F	Indiv+Comm	0.119	0.01
Treatment Violations	M	Indiv	0.022	
	M	Indiv+Comm	0.025	0.003
	F	Indiv	0.046	
	F	Indiv+Comm	0.054	0.008
Violent Violations	M	Indiv	0.014	
	M	Indiv+Comm	0.015	0.001

	F	Indiv	0.037	
	F	Indiv+Comm	0.038	0.001
Drug Arrests	M	Indiv	0.164	
	M	Indiv+Comm	0.167	0.003
	F	Indiv	0.106	
	F	Indiv+Comm	0.109	0.003
Property Arrests	M	Indiv	0.113	
	M	Indiv+Comm	0.114	0.001
	F	Indiv	0.122	
	F	Indiv+Comm	0.123	0.001
Violent Arrests	M	Indiv	0.096	
	M	Indiv+Comm	0.097	0.001
	F	Indiv	0.076	
	F	Indiv+Comm	0.079	0.003
Public Order Arrests	M	Indiv	0.131	
	M	Indiv+Comm	0.132	0.001
	F	Indiv	0.113	
	F	Indiv+Comm	0.114	0.001

[1]Obtained from linear regression models

[2]Model includes all individual controls

[3]Model includes all individual controls and the following community-level variables: disadvantage, one-stop service providers, offender concentration, informal social ties, and immigration concentration

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