

**THE CORRELATES OF POST-SENTENCING ADJUSTMENTS TO
SUPERVISION LENGTH WITHIN A LOCAL PROBATION AND PAROLE
DEPARTMENT**

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ABSTRACT

Approximately one in fifty US adults are currently under probation or parole supervision (Glaze & Kaeble, 2014). Given this prevalence, it is important to understand the correlates of probation and parole supervision arrangements and outcomes. One important outcome is supervision length adjustments, often made because of a violation revocation or discretionary supervision extension. A supervision length adjustment can result in shortened or extended supervision lengths relative to sentence expiration. Prior research has overlooked organizational and ecological correlates of many probation/parole outcomes, including supervision adjustments.

This study contrasted potential supervision adjustments made four years from assignment for 12,320 male and female probationers and parolees sentenced from August 1, 2009 to July 31, 2010 in a local jurisdiction. Supervision adjustment types included on-time completion, shortened supervision, extended supervision, and ongoing or continuing supervision. This study also examined the number of additional supervision days when supervision extensions did occur.

Findings showed that agency response to client behavior and organization shaped supervision length adjustments. Some differences in supervision length adjustments also emerged across subgroups of parolees and probationers, and between males and females. One important policy implication is the inequitable adjustments to supervision lengths across subgroups. Another implication is to consider how organizational structure affects adjustments to supervision lengths. Future probation and parole research should carefully

consider organizational and social processes when addressing community supervision outcomes.

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CHAPTER 1

INTRODUCTION

Problem Statement

Community supervision sentences have specified start and end dates. One topic about these sentences not yet examined, however, is post-sentencing adjustments made to probationer and parolee supervision lengths. Such adjustments can result in shortened or extended supervision periods relative to the original sentence length.

Studies have examined important community supervision outcomes like new arrests, revocations, and reconvictions. These outcomes, however, do not account for discretionary additions or subtractions to post-sentencing supervision lengths.

Examination of supervision adjustments is important to ensure equitable application across clients. Theoretically, it is also important to understand whether the correlates of other known community corrections outcomes are applicable to supervision term adjustments as well. To address these points, this research asked whether supervision length adjustments varied across locally supervised subgroups of (a) male probationers and parolees and (b) male and female probationers. Another important question asked to what degree was supervision extended past sentence expiration.

Subgroup differences in community supervision outcomes may emerge from two possible sources: neighborhood social climate differentials (i.e., positive social attributes of a neighborhood), and intra-agency variation within the supervising agency. The community justice/coercive mobility model underscores the importance of neighborhood social context (e.g., Clear, Rose, Waring, & Scully, 2003), including social climate, but

has not yet been applied to these specific probation and parole outcomes. Likewise, arguments about how organizational geographies, such as police districts, shape officer attitudes and behaviors may be applicable to probation and parole organizations as well (Klinger, 1997).

Past work has documented extensively how intermediate sanctioning programs and reentry link to recidivism and performance outcomes. Nevertheless, this study addresses important gaps by examining adjustments to supervision term lengths. First, little research beyond technical reports has addressed supervision in lower jurisdictions. This is surprising given that 16 states, including large jurisdictions like New York, Texas, and Pennsylvania, supervise probationers and parolees at either regional or county levels (Burke, 1997). It is an unfounded assumption that lower-level probationers and parolees act in ways similar to state probationers/parolees or federal probationers. Second, despite scholarly acknowledgement that a supportive social climate is important in the lives of individuals under supervision, little research specifically links these factors to local probationer and parolee outcomes. Third, differences in adjusted supervision lengths between distinct subgroups have not yet been examined. Fourth, geographically based, within-agency unit assignment may link to adjusted lengths. Finally, shifts in supervision lengths raise the question of decision-maker discretion. To what extent do such shifts reflect rational decision-making responses to behavior versus unstructured discretion?

Framing the Need for Probation and Parole Research

The Bureau of Justice Statistics (BJS), reported 4,763,800 adults under state and federal probation or parole supervision in the United States at the end of 2013 (Glaze & Kaeble, 2014). The burgeoning probation population since the 1970s has contributed to

the explosive growth in the overall correctional population. Currently, probationers comprise about 56% of the entire correctional population; increasing the number of parolees is one option for alleviating overcrowding in prisons (Glaze & Bonczar, 2007; Sabol, Minton, & Harrison, 2007).

Recent events ensure that probation and parole will remain a prominent feature of contemporary criminal justice administration. The recent global economic downturn in 2008, for example, forced many states to reexamine incarceration and to return to other less expensive options, like probation and parole (McFarlane, 2012). Additionally, there is a renewed interest in rehabilitation in correctional settings witnessed in an increased number of community supervision programs managed by probation departments (Cullen & Gilbert, 2013). Legal intervention in cases of chronic prison overcrowding such as the recent 2011 US Supreme Court ruling also have played a role in increasing parole populations. The Court ruled that California must reduce its prison population, leading to a release of over 12,000 inmates to parole in a single year (Maruschak & Parks, 2012). The presence of over 3.9 million probationers and approximately 850,000 parolees in the US in 2013 (Glaze & Kaeble, 2014) should place supervisory agencies at the forefront of interest for policymakers and researchers. Yet, these agencies remain understudied by researchers and underfunded by government budgets.

Probation and parole account for only a fraction (12%) of states' correctional budgets (Petersilia, 1995, 1997; Pew, 2009). Although funding is complex and varies widely across jurisdictions (Phelps, 2013), one estimate states that approximately \$1 of every \$9 earmarked for correctional budgets is spent on community supervision agencies, despite the latter's responsibility for approximately two-thirds of this population

(Petersilia, 1995, 1997; Pew, 2009). This severe lack of funding for probation and parole has stretched agency resources thin (Barnes, Hyatt, Ahlman, & Kent, 2012; Phelps, 2013). It also seems misguided considering that probation and parole together are the most common forms of criminal sanction in the US (Petersilia, 1997, 2002).

After forty years of exponential growth, the past few years have seen a small decrease in state prison populations (Guerino, Harrison, & Sabol, 2011; Pew, 2013). Shrinking state budgets and marginal shifts away from punitive thinking by lawmakers partially explain the recent decrease. The result has been a strengthening push toward diverting prison-eligible cases into community programs; the latter are almost always under the supervision of probation departments (Austin, 2010; Bushway, 2011; Wool & Stemen, 2004). Budget cuts also have forced policymakers and criminal justice officials to reduce prison populations through the increased use of parole (Pew, 2013). What may be emerging in the US is a trend toward decarceration, or a push to reduce prison populations by relying increasingly on alternatives, such as probation and parole (Barker, 2011; Gartner, Doob, & Zimring, 2011). Although decarceration may appear promising, researchers have argued that the use of probation and parole has increased the prison population through back-door sentencing, or the practice of revoking sentences through supervision violations (Blomberg, Bales, & Reed, 1993; Blomberg & Lucken, 1994; Lin, Grattet, & Petersilia, 2010; Tonry & Lynch, 1996).

Clear (2005) attributes the backdoor sentencing trend to a “trail-em and nail-em” orientation among supervising officers; the orientation generates extensive surveillance and strict rule enforcement. This is coupled with a limited level of, quality resources to help probationers and parolees succeed (Petersilia, 1997). Furthermore, the intermediate

sanctions movement, outlined later, that emerged in the late-1970s, has made community corrections more punitive by increasing the monitoring and punishment of individuals on probation and parole (Blomberg et al., 1993; Blomberg & Lucken, 1994; Morris & Tonry, 1990; Petersilia & Turner, 1990). This conclusion is partially substantiated by recent figures indicating that 11.86 percent of federal and state probationers were incarcerated for supervision violations in 2012 (Bonczar & Mulako-Wangota, 2015). The performance of state parolees during this same year was even worse, with nearly a quarter (24.65%) being re-incarcerated for violating their parole supervision terms (Bonczar & Mulako-Wangota, 2015).

Even less scrutinized is the practice of imposing additional supervision time, subsequent to initial sentencing to supervision. In the wake of the determinate sentencing movement in the 1970s and 1980s, officials have begun adjusting the post-sentence length period based on performance (Doherty, 2013). This new indeterminate sentencing, according to Doherty (2013), not only has led to backdoor sentencing (through revocations), but also has contributed to extended supervision periods. The determinants and size of these discretionary post-sentencing shifts in supervised period, however, have remained to the best of this author's knowledge, completely unexamined by researchers.

Although much is known about supervision of state and federal populations, less is known about supervision in lower level jurisdictions, such as counties and municipalities (Farrall, 2003). No known evaluation, beyond the sporadic technical report, exists for local jurisdictions. Researchers who study probation and parole have largely focused on state and federal systems (Auerhahn, 2007; Hipp, Petersilia, & Turner,

2010a; Hipp, Turner, & Jannetta, 2010b; Jalbert, Rhodes, Flygare, & Kane, 2010; Landis, Mercer, & Wolff, 1969; Lin et al., 2010; Makarios, Steiner, & Travis, 2010; Olson, Lurigio, & Seng, 2000; Pearson, 1990; Petersilia & Turner, 1990; Salisbury & Van Voorhis, 2009; Steen & Opsal, 2007; Taxman, 2008).

In short, prior research has primarily focused on supervision outcomes like revocations and arrests. These, however, ignore shifts in post-sentencing lengths that have implications for equitable supervision practices. The current study examined whether shifts in supervision lengths varied across probationers, parolees, males, and females. Furthermore, this study examined whether shifts in supervision lengths were shaped by client, organizational, and ecological factors. The next chapter reviews the relevant literature on these issues, after which the research questions are stated and explained.

CHAPTER 2

REVIEW OF LITERATURE

This chapter describes several subgroups within agency populations, including male and female probationers and parolees. Attention then focuses on relevant research on community supervision outcomes grouped into classes of predictors at the client, organizational, and neighborhood levels. This chapter also discusses supervision lengths as one important type of supervision outcome. It is followed by outlining two theoretical frames – coercive mobility and geographic assignment – that might help explain post-sentencing adjustments made to supervision lengths. It concludes with a discussion of how criminal justice decision-making informs adjustments to supervision lengths.

Subgroups in Community Supervision Populations

Differences between Probationers and Parolees

Probation and parole share a common community corrections framework and supervision approach, and in some jurisdictions, a single agency handles administration. Despite these commonalities, probation and parole are distinct processes and groups. Probation and parole differ in historical development and administration. As Table 1 shows, state probationers and parolees also differ in demography, crime severity, and incarceration. Most importantly, descriptive accounts suggest that probationers and parolees – at least at the state level – differ in supervision outcomes.

One possible explanation is that parole follows a period of incarceration. Incarceration can severely interrupt an individual's residential and economic stability, access to support and resources. These in turn may affect performance under

supervision. No empirical study, however, has explicitly compared these groups on supervision outcomes.

It is not yet clear what drives differences in outcomes. One possible reason is the experience of incarceration. The *coercive mobility* section of this chapter details the implications of mass incarceration and eventual release. Briefly stated here, incarceration experienced by parolees – but not necessarily probationers – puts this subgroup at a higher risk of supervision failure (Frost & Clear, 2012). Petersilia (2001) and Hepburn and Griffin (2004) agree that those released from prison face difficulties because of the severely interrupting experience of incarceration on job attainment, education, financial stability, housing, and interpersonal relationships. There are a host of negative consequences a parolee faces upon release from prison including limited job prospects and income (Holzer, 2007; Huebner, 2005; Kelly & Fader, 2012; Western, 2006), and disrupted personal relationships (Huebner, 2007; Western, Lopoo, & McLanahan, 2004). Meanwhile, probationers can remain in the community uninterrupted, and have the opportunity to maintain employment, and family and social ties.

It is also unclear whether probationers and parolees differ in post-sentencing supervision length adjustments. Probationers and parolees differ in a number of ways, including crime severity, demographic composition, and supervision outcomes. Incarceration occurs at higher percentages for parolees compared to probationers, at least at the state level. These figures, however, do not indicate whether parolees compared to probationers also have different supervision length adjustments. This is important considering that supervision is similar for probationers and parolees, if not identical in some departments.

Table 1

Characteristics of US Adult Probation and Parole Populations, 2012

| Characteristic | Probation | Parole |
|---|-----------------|-----------------|
| Population count | 3,940,820 | 740,419 |
| Average supervision length ^a | 21.7 months | 17.9 months |
| <u>Supervision outcomes</u> | | |
| Completion | 69% | 52% |
| Incarceration | 16 ^b | 33 |
| Other unsatisfactory | 11 ^c | 9 ^d |
| Absconder | 3 | 9 |
| Death | 1 | 1 |
| Other ^e | 4 | 1 |
| <u>Most serious offense type</u> | | |
| Violent | 19% | 27% |
| Property | 28 | 24 |
| Drug | 26 | 35 |
| Public order | 17 | -- |
| Weapon | -- | 3 |
| Other | 11 | 12 ^f |
| Female | 24% | 12% |
| <u>Race/Ethnicity</u> | | |
| White ^g | 55% | 42% |
| Black ^g | 30 | 39 |
| Hispanic | 13 | 18 |

Note. Percentages may not sum to total due to rounding and exclusion of some detail. Data are estimates from 2010 Bureau of Justice Statistics survey data. This table has been adapted from information in Glaze and Bonczar (2011).

a. "Mean length of stay is calculated as the inverse of the exit rate times 12 months."

b. "Includes probationers who were incarcerated for a new offense and those who had their current probation sentence revoked (e.g., technical violation)."

c. "Includes probationers discharged from supervision who failed to meet all conditions of supervision, including some with only financial conditions remaining, some who had their probation sentence revoked but were not incarcerated because their sentence was immediately reinstated, and other types of unsatisfactory exits. Includes some early terminations and expirations of sentence."

d. "Includes parolees discharged from supervision who failed to meet all conditions of supervision, including some who had their parole sentence revoked but were not returned to incarceration because their sentence was immediately reinstated, and other types of unsatisfactory exits include some early terminations and expirations."

e. Includes individuals "discharged from supervision through a legislative mandate, because they were deported or transferred to the jurisdiction of Immigration and Customs Enforcement (ICE), transferred to another state through an interstate compact agreement, had their sentence dismissed or overturned by the court through an appeal, had their sentence closed administratively, deferred, or terminated by the court, were awaiting a hearing, were released on bond, and other types of exits."

f. Includes public-order offenses.

g. Excludes person of Hispanic origin.

Differences between Males and Females

Males are consistently arrested, incarcerated, and supervised in larger numbers than females (Belknap, 2007; Maruschak & Bonczar, 2013). That aside, there has been an increase in the arrest and incarceration of girls and women, especially women of color, over the last several decades (Glaze, 2011; Steffeinsmeier, 1995). Probation and parole populations of females have grown similarly. Glaze (2001), for instance, noted that from 1990 to 2000 the percentage of adult women under state and federal probation supervision increased from 18 to 22 percent. Similarly, the percentage of adult female parolees increased from 8 to 12 percent, during that same period.

Females currently are a sizable proportion of the correctional population. They are 1.3 million of the 7.1 million adults under correctional supervision in the US (Brown, Jones, & Greiner, 2014; Glaze & Bonczar, 2011). Focusing on just community sanctions, females currently are about a quarter (24%) of state probation populations, and about 12% of state parole populations (Glaze & Bonczar, 2011; Glaze & Palla, 2004).

Turning to supervision outcomes, females tend to recidivate at a lower rate compared to males (Chesney-Lind & Pasko, 2013; Olson et al., 2000), but may also technically violate (i.e. break the rules) more often than males (Chesney-Lind & Pasko, 2013; Langan & Levin, 2002; Norland & Mann, 1984). Table 2 displays the findings from one study looking at male and female state probationers on population characteristics and outcomes. Olson et al. (2000) examined probationers from Illinois and found that male and female clients varied in age, income, employment status, prior criminal history, and substance abuse. Female probationers were more likely to come from a lower income household than male probationers (Olson et al., 2000). Females

were also more likely than males to receive sentences for drug offenses. In their study, however, male and female probationers did not significantly vary in revocations, or technical violations, a finding that contradicts others (Chesney-Lind & Pasko, 2013; Langan & Levin, 2002; Norland & Mann, 1984). Huebner and Pleggenkuhle (2013), for example, found that females were more likely to have their parole revoked for a technical violation (36%) compared to males (30%). Jones and Sims (1997) observed that males were more likely to recidivate than females, but the gender gap narrowed when just drug and property arrests were considered.

Table 2

Comparison between Illinois Male and Female State Probationers in 1997 in Olson, Lurigio, & Seng's (2000) Study

| Probationer Characteristic | (n = 1,834) Male | (n = 459) Female |
|----------------------------|---------------------|---------------------|
| Performance | | |
| Revocation | 14.1% | 12.4% |
| Technical violation | 37.7 | 33.1 |
| Arrest* | 33.4 | 26.9 |
| Positive urinalysis | 51.2 | 54.3 |
| Incomplete treatment* | 22.6 | 28.2 |
| Supervision class | | |
| Violent* | 19.0% | 12.4% |
| Property* | 18.6 | 31.5 |
| Drug* | 21.3 | 27.4 |
| DUI* | 26.9 | 17.0 |
| Other* | 14.3 | 11.7 |
| Misdemeanor * | 52.0 | 44.1 |
| Any treatment * | 52.2 | 43.2 |
| Drug treatment* | 17.7 | 21.8 |
| Demographics | | |
| Mean Age | 32.1 | 33.0 |
| White | 59.7% | 55.8% |
| Income less than \$25,000* | 82.0 | 90.6 |
| Unemployed* | 30.6 | 42.2 |
| Less than HS education | 37.7 | 36.8 |
| Criminal justice history | | |
| Any adult convictions* | 41.2 | 31.2 |
| Any violent conviction* | 23.1 | 13.8 |
| Substance Abuse* | 64.7 | 57.0 |

Note. Table adapted from Olson, Lurigio, & Seng (2000) study examining state probationers in Illinois. The researchers drew the sample from a survey of all adult probationers discharged from supervision during a four-week period in 1997. The researchers also reported using casewise deletion for missing values.

*significant categorical differences ($\chi^2 < .05$, 1-4df)

Currently, there is a debate whether a reconsideration of risk factors should accompany the increasing female presence in criminal justice, considering that many factors were originally identified using male only samples (Huebner & Pleggenkuhle, 2013; Makarios et al., 2010; Rettinger & Andrews, 2010). One argument suggests that current criminological theory and known risk factors for recidivism are gender neutral (Simourd & Andrews, 1994; Smith, Cullen, & Latessa, 2009). According to this perspective, factors such as education, employment, housing, and antisocial personality and peers are likely to pose comparable problems for both males and females (Makarios et al., 2010; Simourd & Andrews, 1994). Studies support this perspective by showing that female offenders, like males, tend to be young, poor, of racial minority, under educated, and unmarried (Bloom, 1996; Bloom, Lind, & Owen, 1994; Feinman, 1994; Greenfield & Snell, 1999).

Feminist scholars assert that criminological theories and empirical evidence derived from predominantly male samples may not be entirely applicable to women (Daly & Chesney-Lind, 1988). Although conceptualized differently, they suggest that that exposure to life events – or *gendered pathways*– are distinct for women and men and can lead to different subgroup outcomes for men versus women (Belknap, 2007; Deschenes, Owen, & Crow, 2007; Huebner & Pleggenkuhle, 2013; Uggen & Kruttschnitt, 1998; Van Voorhis, 2012). Qualitative evidence describes women’s post-prison experiences as different from men’s (Giordano, Cernkovich, & Rudolph, 2002; Rettinger & Andrews, 2010). Huebner and Pleggenkuhle (2013), for example, found in their state sample that 56% of female parolees compared to 34% percent of male parolees

had dependent children. In addition, female parolees moved residences more often compared to males during the four-year study period.

The emerging consensus on potential differential gender outcomes suggests that some predictors for recidivism like education, work, and housing may affect both females and males similarly, while others may be gender specific (Makarios et al., 2010). Factors such as economic marginalization, drug and alcohol addictions, victimization, and familial responsibilities or combinations of these factors may affect female and male clients differently (Makarios et al., 2010). Salisbury and Van Voorhis (2009) argue that these factors are gendered because they are either not typically seen in men or seen more frequently in women. These factors may also have distinct personal and social effects for women compared to men (Salisbury & Van Voorhis, 2009). For instance, even though substance and alcohol abuse links to recidivism for both males and females, qualitative studies suggest that drug and alcohol abuse may lead to poor supervision outcomes more often for female (Davidson, 2013). This particular finding, however, is not conclusive.

Although not specifically addressing community supervision populations, researchers have noted that substance abuse and economic marginalization can expose females to more physical and sexual abuse than males (Bloom, 1996; Crawford, 1990; Feinman, 1980; Gilfus, 2006; Snell & Morton, 1994; Steffeinsmeier & Steffeinsmeier, 1980; Swanson, 1993; Widom, 2000). One study of male and female probationers found that male clients living with spouses were less likely to reoffend, while the opposite was true for female clients: female probationers living with a spouse were more likely to reoffend (De Li & MacKenzie, 2003). Romantic partners may be criminogenic influences on women more often than on men (Alarid, Burton, & Cullen, 2000; Chesney-

Lind, 1997). Alarid et al. (2000) found that married or cohabiting female offenders were more likely to commit drug and property offenses.

Increased exposure to violence and victimization in relationships can also lead to several consequences for women. Female offenders tend to have higher rates of diagnoses for psychiatric disorders compared to males, as well as having higher rates of victimization compared to males (Baugh, Bull, & Cohen, 1998; Carmichael, Gover, Koons-Witt, & Inabnit, 2007; Ditton, 1999; Shearer, 2003). These factors have been associated with increased recidivism. Van Voorhis, Wright, and Bauman (2008), for example, created a gender specific risk assessment to predict recidivism of females released from state custody. This included measures of depression, victimization, self-esteem, and relationship support. They found that their gender-specific items not only predicted female recidivism, but also increased the predictive power of the gender-neutral model. Salisbury and Van Voorhis (2009) then turned to female probationers and used path analysis to analyze 'gendered pathways' to incarceration for a cohort of 313 women. They also found that victimization, dysfunctional relationships, current mental illness, current substance abuse, and limited access to social capital through education, employment, and support were significant factors contributing to incarceration.

Females are also more likely than males to be primary caregivers to dependent children (Chesney-Lind, 2000; Crawford, 1990; Feinman, 1994; Giordano et al., 2002; Greenfield & Snell, 1999; Olson et al., 2000). Some scholars argue that the responsibility, concern, and demand of raising children make desistance from crime more likely (Benda, 2005; Giordano et al., 2002), while others suggest that parental stress can

increase recidivism, especially if the parent is raising the child alone (Bonta, Pang, & Wallace-Capretta, 1995).

To summarize, ample conceptual models exist for probationers and parolees' gendered pathways, but the research on male *versus* female differences is limited and sometimes contradictory. One study has shown that female supervisees technically violate at a higher rate than males. Other studies, however, have shown that males are more at risk of probation/parole recidivism. Specific reasons for observed gender differences in probation and parole supervision outcomes are not yet clear. Further, no known study has examined whether males and females differ in post-sentencing adjustments to supervision lengths.

Classes of Predictors of Community Supervision Outcomes

The preceding sections help group clients by supervision category (i.e., probationer or parolee) and by gender. Additional factors, however, also may help explain supervision length adjustments. Specific factors like client demographics and behavior, case features, organization subunits, and community structure and social climate may contribute to supervision outcomes. Although these factors have previously been applied to different types of outcomes like arrests, revocations, and reconvictions they may also shape adjustments to supervision lengths as well. The following sections consider these factors organized by client, organizational, and social classes of predictors.

Client-Level Factors that Affect Supervision Outcomes

Researchers seeking to identify effective community supervision strategies have identified both static and dynamic individual traits associated with an increased

likelihood of reoffending. *Static* or unchangeable factors include criminal history (Davis, 1964; England, 1955; Gendreau, Little, & Goggin, 1996; Irish, 1976; Langan & Levin, 2002; Morgan, 1993, 1994), age (Berg & Huebner, 2011; Huebner & Berg, 2011; Langan & Levin, 2002), and race (Gendreau et al., 1996; Steen & Opsal, 2007; Wehrman, 2010). While men are more likely to reoffend overall (Langan & Levin, 2002), poor women of color with extensive criminal histories are also likely to have poor supervision outcomes (Berg & Huebner, 2011; Carmichael et al., 2007; Huebner & Berg, 2011).

Some static features deserve further attention. Race, for example, predicts recidivism, but there are indications that other factors like poverty and bias may be at play. Similarly, a closer look at criminal history reveals important distinctions between crime types on the likelihood of recidivism. Looking at probationers specifically, Morgan (1993) noted that those convicted of property crimes were more likely to recidivate and fail probation. Those with violent offenses, on the other hand, were more likely to successfully complete supervision.

Dynamic or changeable risk factors for recidivism include antisocial personality, procriminal attitude, association with antisocial peers, social support for crime, substance abuse, poor family and marital relationships, school and work problems, and lack of pro-social activities (Andrews, Bonta, & Wormith, 2006; Bonta & Andrews, 2007). These can be addressed through interventions developed in the community or probation and parole departments (Andrews & Bonta, 2010). One approach that has gained ascendance in some agencies is the Risk-Needs-Responsivity (RNR) model that can identify risk factors associated with recidivism (Andrews et al., 2006; Taxman, Shepardson, & Byrne, 2004). By identifying dynamic risk factors for recidivism (needs), clients are

considerably less likely to recidivate when programs match the intensity of supervision to level of risk for recidivism (risk), and individualize the method of supervision to the client (responsivity) (Andrews et al., 2006).

Specific to probation and parole, several important dynamic factors contribute to supervision outcomes. One robust predictor of probation and parole recidivism for both male and female clients is substance abuse. Individuals engaging in drug use or alcohol abuse are more likely to have unsuccessful community supervision outcomes (Carmichael et al., 2007; Helfgott, 1997; Hepburn & Griffin, 2004; Huebner, DeJong, & Cobbina, 2010; Irish, 1976; Landis et al., 1969; Prendergast, Wellisch, & Mee Wong, 1996).

Another important dynamic factor that affects supervision performance and subsequent outcomes for both probationers and parolees is financial and personal stability. A number of studies have shown that having stable housing is likely to contribute to how well an individual performs under community supervision (Glaser, 1964; Helfgott, 1997). Housing provides the foundation for successful social relationships as probationers and parolees often rely on family and relationships for accommodations (Huebner & Pleggenkuhle, 2013). Employment and treatment, fundamental for successful reentry, depend on secure and stable housing, underscoring the critical importance of the latter (Huebner & Pleggenkuhle, 2013).

Similarly, having stable employment and a skilled occupation (e.g. trade school trained) can decrease supervision failure (Cockerhill, 1975; Crutchfield, 2014; Glaser, 1964; Harris & Keller, 2005; Holzer, Raphael, & Stoll, 2003; Kusuda, 1966; Landis et

al., 1969; US Attorney General, 1974; Visser, Kachnowski, La Vigne, & Travis, 2004). Finally, marital instability is associated with negative supervision outcomes, at least for males (Cockerhill, 1975; Kusuda, 1966; Petersilia, Turner, Kahan, & Peterson, 1985).

In sum, research has shown a range of individual factors that link to recidivism. Prior criminal behavior is a robust predictor of poor supervision outcomes, as is substance and alcohol use. Personal stability in housing, finances, employment, and relationships are also important factors contributing to a positive supervision outcome. No study, however, has looked at whether these factors shape adjustments to supervision lengths. Further, no study has focused on a local supervision agency. Little research has directly contrasted the role of individual factors on probationers and parolees and, where feasible, by gender.

Organizational Contributors to Probation and Parole Outcomes

Although research has demonstrated that individuals do contribute to their own supervision outcome, another vein of empirical work has examined the contribution made by the supervising officer and supervision structure. Conspicuously missing from this literature, however, is a clear link between the officer, supervision structure and supervision outcomes, with the exception of research on intensive supervision (ISP) and intermediate sanctions. From this related literature, it is possible to glean some insight on how organization, structure, and officer attitudes affect supervision outcomes. These factors may also shape adjustments to supervision lengths.

Officer Typologies and the Officer-Client Relationship

Early research on probation and parole focused on the practices and typologies of supervising officers, but ignored how this shaped supervision outcomes (Dembo, 1972; Glaser, 1964; Klockars, 1972; Ohlin, Piven, & Pappenfort, 1956). This ethnographic work dichotomized officers into those who were more punitive and concerned with rule enforcement and those who were more concerned with welfare and needs of clients (Miller, 2013). Researchers also identified officers who exhibited both types of supervision modalities and could transition between roles depending on circumstances (Klockars, 1972; Ohlin et al., 1956). For example, Klockars (1972) found that some officers relied primarily upon either a law enforcement or social work supervision strategy, but others were more pragmatic, employing either strategy depending on the immediate circumstance.

Although some scholars have argued that this tension between law enforcement and social work is problematic because it produces a role conflict (Glaser, 1964; Whetzel, Paparozzi, Alexander, & Lowencamp, 2011), others have argued that this duality produces a wider range of options for supervising officers to use and can lead to more effective supervision practices (Klockars, 1972; Skeem & Manchak, 2008). In either respect, one piece that remained unclear was whether the officer-client relationship linked to supervision outcomes.

A more recent wave of scholarly work began addressing this point (Bonta, Rugge, Bourgon, & Yessin, 2008; Skeem, Eno Louden, Polasheck, & Cap, 2007). Blasko and colleagues (2015), for instance, approached the officer-parolee relationship from a treatment perspective, highlighting the importance of the therapist and client relationship

on therapeutic outcomes. The researchers randomly assigned 227 drug-involved parolees to receive an intervention that included 12 weekly sessions with an officer trained in behavior management and motivational interviewing. It also included sessions with a treatment counselor. The results showed that when parolees viewed the officer-client relationship positively, better supervision outcomes followed. Although this newer research is beginning to bridge the gap between officer and supervision outcomes, it remains unclear whether the officer contributes to adjustments in supervision length.

Caseload Size and Intermediate Sanctions

Other research has focused on the effect of caseload size on client performance in two distinct waves. The first wave of this research was an attempt to find the optimal ratio of clients to officers (Carter & Wilkins, 1976). The logic for this inquiry was that smaller caseloads would allow officers to spend more time helping clients (Petersilia & Turner, 1993). In actuality, these studies showed that there was little difference in recidivism rates by caseload size, and technical violations actually increased due to heightened surveillance in smaller caseloads (Carter & Wilkins, 1976).

Growth in US probation and parole populations since the 1970s has serious implications for caseload size and supervision structure (Burrell, 2007; DeMichele, 2007). Historically, probation was intended for relatively low-level offenders who posed little public safety risk and could benefit from formal supervision in the community (Petersilia, 1998). The rise of the intermediate sanctions movement, which advocated cost-saving yet punitive alternatives to prison, meant that populations within probation departments increasingly posed a greater potential public safety threat. Taxman et al. (2004) acknowledged that by 2001 probationers increasingly mirrored the prison

population in terms of risk, public safety threat, and criminal history (see also, Auerhahn, 2007).

The intermediate sanctions movement itself was an attempt to fill the perceived void of punishment options between imprisonment and probation (Morris & Tonry, 1990). The lack of options between prison and probation spurred proponents to seek intermediate sanctions proportional to crime severity. Tonry (1996) suggested the shift toward creating intermediate sanctions was the result of the “nothing works” movement away from rehabilitative correctional aims (Martinson, 1974), and the increased use of just deserts as a criminal justice aim. Amongst other things, like the expanded use of fines and community service, intermediate punishment saw a prominent role for intensive supervision programs (ISPs). Morris and Tonry (1990) outlined ISPs as a mechanism that could use options such as house arrest, drug testing, treatment orders, fines, boot camps, and electronic monitoring to control behavior in the community, and facilitate a crime-free life for the individual. Because of the increased surveillance, ISPs also tended to have smaller caseloads. For the latter half of the 20th century, the surveillance and crime control model of supervision dominated probation and parole supervision strategies primarily due to sociopolitical pressure to appear tougher on crime (Petersilia & Turner, 1993).

The second wave of research concerning caseload size began in the wake of the intermediate sanctions and ISP movements, as departments began dealing with an increasingly heterogeneous population. Some clients continued to pose little public safety risk. Other offenders, who might have otherwise received prison sentences, needed more attention and control. This led to at least two consequences for

contemporary agencies. First, the overall client-to-officer ratio grew dramatically since the 1970s. The 1967 President's Commission on Law Enforcement and Administration of Justice, for instance, recommended 50 clients to be the appropriate caseload size for officers in 1967 (DeMichele, 2007). The current caseload size made by the American Probation and Parole Association, however, varies from 30 to 120 individuals depending on risk (Burrell, 2007; DeMichele, 2007). To this last point, the rise of the ISP model and budget constraints has created within-agency heterogeneity in client-to-officer ratios. Individuals classified as 'risky' are funneled into smaller ISP units while others who are 'less risky' receive reduced attention by officers with larger caseloads. As a result, a hallmark of contemporary community supervision is intra-agency variation in supervision intensity. Some individuals report to supervising officers frequently and are subject to intense scrutiny, while others within the same agency are seen infrequently, and some might not be supervised at all (Burrell, 2005; Grattet, Lin, & Petersilia, 2010; Petersilia & Turner, 1993).

Research on the effectiveness of ISP revealed that increased surveillance has little to no consistent effect on recidivism rates (MacKenzie, 2006; Petersilia & Turner, 1993). Earlier ISP models in the 1960s also had no clear standard for what constituted 'low' and 'high' risk, and intensive supervision was often given to low-risk individuals, or excluded those most in need of intense supervision. Other studies found that ISPs were marginally effective for high-risk clients but ineffective, or even detrimental, for low-risk clients (Erwin, 1986; Lowenkamp, Latessa, & Holsinger, 2006). In addition, earlier ISP attempts seemed to lack clear theoretical grounding. For instance, there was an assumption that probation supervision was 'good' for clients, so more must be better

(Clear & Hardyman, 1990). There was no clear articulated theoretical basis, however, for this assumption. Relatedly, there were no standards for what intensive supervision should consist of, or even what the goals should be (Clear & Hardyman, 1990).

Recent attempts to implement ISP programs have addressed some of these issues by targeting only high-risk clients and focusing on treatment and service provision, as well as frequent contact and surveillance (Latessa, Travis, Fulton, & Stichman, 1998; Paparozzi & Gendreau, 2005; Taxman, 2008). For example, Jalbert et al. (2010) hypothesized that probationers assigned to small ISP caseloads were less likely to criminally recidivate compared to those in programs where officers had larger caseloads due to the increased services provided. Conversely, they also hypothesized that those in ISP were more likely to commit a technical violation compared to the two other groups due to the increased surveillance (Jalbert et al., 2010). Findings supported their first hypothesis; probationers supervised in ISP with smaller caseloads were significantly less likely to criminally recidivate (drug, property, or drug arrests). Contrary to their second hypothesis, however, they found no statistically significant increase in sentence revocation due to technical violations (Jalbert et al., 2010). In other words, ISP programs targeting only high-risk clients served to reduce criminal recidivism without leading to increased technical violations.

These results are not conclusive. A recent experimental study by Hyatt and Barnes (2014) focused on high risk probationers supervised in ISP units, which mandated smaller caseloads, increased reporting frequency, and a zero-tolerance approach for rule violations. The control group, also high-risk probationers, was supervised under general supervision, which included monthly reporting, larger caseloads, and no mandatory drug

testing. The researchers were interested in new arrests, absconding, incarceration, and technical violations of probation hearings. They found that after the year follow-up period, clients in the experimental group had approximately the same number of new arrests as those in the control group. The two groups were also arrested for similar types of offenses. Unlike Jalbert et al. (2010), Hyatt and Barnes (2014) found that probationers assigned to ISP were more likely to abscond and be incarcerated at the year follow-up period. In this study, ISP led to no significant changes in new arrests, but did lead to an increase in technical violation hearings, incarceration, and absconding.

To summarize, extensive documentation of different officer supervision typologies has only recently examined how these shape supervision outcomes. Research on intermediate sanctions, specifically ISPs, also has addressed how supervision structure affects supervision outcomes. Generally, these studies indicate that ISPs applied uniformly without regard to risk or services can be ineffective or even increase the likelihood of technical violations. The common thread between these studies, however, is that different types of clients and officers exist within singular agencies. Although previous research has examined intra-agency differences in terms of supervision outcomes, the question of intra-agency variation in adjustments in supervisions remains open. One question emerging from this, for example, asks whether groups of clients supervised in different subunits within an agency are more or less likely to experience adjustments to supervision lengths.

Social Climate and Structure on Supervision Outcomes

Researchers have extensively examined the effects of individual-level factors and organizational practices, while paying little attention to the role of neighborhood context

on probation and parole outcomes (Clear, 2005; Kubrin & Stewart, 2006). Other criminal justice areas, like policing (Clear, 2007; Manning, 2003) and corrections (Stahler et al., 2013) have recognized the importance of the client-neighborhood context. Probation and parole agencies, however, have largely overlooked such factors as potential influences on supervision outcomes (Clear, 2005; Petersilia, 2008), let alone to adjustments of supervision lengths.

There are a few exceptions (e.g., Bursik & Grasmick, 1993), as some agencies acknowledge that neighborhood social climate, crime, and demographic structure represent potentially important influences. One recent New York City probation initiative, for example, is attempting to address client needs by connecting them to services and opportunities within the communities they reside. The decentralized approach also includes an agency focus on building and facilitating local, supportive networks for clients (McGarry, Yaroni, & Addie, 2014).

Scant research, however, specifically links neighborhood factors to probationer and parolee outcomes. One ethnographic study by McCulloch (2005) suggested that both supervising officers and probationers acknowledged that the social context of clients could help prevent future criminality. The study's recommendation was that agencies adopt supervision styles that help improve the social contexts of clients.

A small number of quantitative studies suggest contextual effects on recidivism rates (Gottfredson & Taylor, 1988; Kubrin & Stewart, 2006). The latter study found that aside from compositional effects, parolees and probationers living in economically disadvantaged neighborhoods had increased likelihoods of recidivism. Similarly, Hipp et

al. (2010a) looked at neighborhood effects on parolees. Results showed that the presence of nearby social service providers reduced individual recidivism. Structure also mattered. Census tracts with more concentrated disadvantage and bar and liquor store employees per capita were places where parole was revoked sooner (Hipp et al., 2010a). These authors also found that as the residential stability of surrounding tracts increased, the likelihood of recidivism in the focal tract decreased. In another study, Mears and colleagues (2008) examined county influences on parolees and found resource deprivation and racial segregation influenced the likelihood of a new conviction.

It is also worth noting that although still understudied, the role of the neighborhood may have different implications for females (Berg & Huebner, 2011; Cobbina, Huebner, & Berg, 2012; Huebner et al., 2010). Women of color in particular face challenges especially if they are returning to impoverished neighborhoods (Richie, 2001). In Richie's (2001) study, interviewed female parolees were likely to report a lack of access to neighborhood programs and services in marginalized communities, substantially reducing their chances of successfully reentering society.

One possible explanation for potential differential effects of social climate on gender is that female offenders are more likely to have difficulty maintaining long-term, stable residency compared to males (Huebner & Pleggenkuhle, 2013). Mallik-Kane and Visser (2008) for instance, found that women compared to male parolees were less likely to receive support from family, and relied more often on public housing. Women were more likely than men to be responsible for finding housing for multiple people, including children.

Findings from Huebner and Pleggenkuhle (2013) suggest that the effects of community context may be gender-specific. In their study, they examined differential recidivism rates between male and female parolees (Huebner & Pleggenkuhle, 2013). Overall, they found that males did recidivate more than females, but females had a higher technical violation rate than males. In order to account for these differences, the researchers examined compositional, social, and contextual influences. These included concentrated disadvantage, rental vacancy rate, and residential mobility to predict male and female recidivism and technical violation (Huebner & Pleggenkuhle, 2013). Only residential stability was statistically significant at predicting the overall recidivism for male and female parolees; both males and females were more likely to recidivate in areas with high residential turnover. When predicting technical violations, however, concentrated disadvantage, residential mobility, and rental vacancy were significant and positively related to male technical violations, but not for female parolees (Huebner & Pleggenkuhle, 2013). No contextual features modeled in their study significantly explained female technical violations. Unfortunately, the authors did not elaborate on the last finding, describing it as beyond the scope of their paper.

Research to date suggests that neighborhood contexts may influence supervision outcomes like recidivism and revocations. Specifically, a limited number of studies suggest that socioeconomic status and service availability may be relevant. What remains unstudied, however, is whether ecological context factors into adjustments to supervision lengths. At the same time the gendered pathways literature suggests that social processes may moderate the experience more for female clients. A limited test of a

gender interaction effect on supervision adjustments would contribute to this understanding.

In this study, *supportive social climate* refers to positive social attributes of a neighborhood, such as the presence of social networks, strong local informal control, and cohesion. The term describes a range of social processes, including collective efficacy (i.e. social cohesion and willingness to intervene) (Sampson, Raudenbush, & Earl, 1997), informal social control and supervision (Bursik & Grasmik, 1993), and social capital (Putnam, 2000). Although each of these is conceptually distinct, empirical indicators overlap. The latter include, among others, measures of attachment-to-place, organizational participation, (perceived) willingness to intervene, and social organization. Some empirical indicators refer to a specific process. Social network indicators, for example, reflect social capital, but are separate from collective efficacy indicators. A supportive social climate broadly indicates that complex positive social processes are present.

But given the limited number of ecological studies looking at probationers and parolees, relevant specific social processes are still unclear. Even more troubling is uncertainty about whether any social processes link to supervision adjustments. Possible theoretical reasons for such a link are outlined following a discussion of why supervision adjustments are important to examine. It is proposed that if probationer and parolee experiences an unsupportive local social climate, that can leave poor behavior unchecked. In turn, this could result in poor performance and subsequent sanctions, including supervision adjustments.

Length of Supervision as an Outcome

Up to this point, the discussion has not explicitly distinguished between the outcome measures used in probation and parole studies. In part, this is a consequence of the many measures of behaviors, success, failure, and cost used to assess probationer and parolee performance and outcome. An arrest during supervision, for instance, is indicative of supervision failure. No new arrest, on the other hand, is indicative of supervision success. Other common supervision outcomes studied are recidivism (e.g., arrest or conviction), violation, revocation, and (re)incarceration. Recent studies have also examined other poor behaviors, including drug use (e.g., Blasko et al., 2015) and absconding (e.g. Hyatt and Barnes, 2014). Another important type of outcome measure, however, concerns supervision time and length¹.

Two types of time measures exist in probation and parole outcome research – sentence length and actual supervision time (McGarth, 2013). Sentence length is the period of supervision imposed on an individual in the community. Time served is the actual length of time spent under supervision. These time lengths may be different from each other (McGarth, 2013).

Possible Sources of Post-Sentencing Adjustments to Supervision Lengths

Specific reasons for a discrepancy between an individual's sentence length and actual supervision length are still unknown. However, at least two historical criminal justice movements may help understand how sentence time and actual supervision time may be different. One possibility is the consequence of the determinate sentencing

¹ Some studies do control for supervision length (e.g., Green & Winik, 2010) as either an exposure or independent variable. Time under supervision, however, is not typically used as an outcome measure.

movement of the 1970s and 1980s, which called for more structured, transparent, or restricted sentencing practices (Dharmapala, Garoupa, & Shepard, 2010). A result of determinate sentencing, for instance, was the abolition of the federal parole system and new limits on many state parole boards (Doherty, 2013).

Some have argued that determinate sentencing policy has actually pushed discretionary practices to the post-sentencing phase (Doherty, 2013). The argument states that sentence lengths and severity are open to scrutiny at the sentencing phase. Sentence lengths, however, can be augmented with little oversight post-sentencing. That is, after imposing an official sentence a decision maker can instead extend sentence lengths post-sentencing. These extensions often depend on the performance of clients (Doherty, 2013).

It should be clear that this argument is not necessarily about identifying malicious intentions or exposing an abuse of power. The decision to adjust supervision lengths can fit within a rehabilitative framework aimed at addressing offender problems with additional treatment and in some cases, supervision. That is, the reasoning to adjust supervision length may be well intended.

Another explanation for discrepancies between sentence and actual supervision length comes in the wake of the intermediate sanctions movement of the 1980s. The intermediate sanctions movement itself was an attempt to fill the perceived void of punishment options between imprisonment and probation (Morris & Tonry, 1990). Amongst other things, like the expanded use of fines and community service, intermediate punishment saw a prominent role for intensive supervision programs (ISPs),

as previously discussed. Morris and Tonry (1990) outline ISPs as a mechanism that could control behavior in the community, and facilitate a crime-free life for the individual. Useful tools toward this aim are (threats of) violation hearings, revocations, and additional time under supervision.

The primary focus has been on ‘backdoor sentencing’, which sends individuals to prison, primarily through supervision violation revocations (Doherty, 2013). When this occurs, it is reasonable to assume that supervision periods are shortened relative to the initially assigned sentence length for supervision. Although there are other reasons for a shortened sentence, as discussed shortly. There is also evidence that some probationers and parolees have their supervisions extended beyond their initially sentenced supervision expiration. One study of probationers with a domestic violence arrest during supervision, for example, found that federal prosecutors used the violation of probation hearing to improve the likelihood of punishment through a revocation, rather than focusing on prosecuting the new arrest. This often resulted in either an incarceration term *or additional supervision time* for the probationer (emphasis added) (Kingsnorth, MacIntosh, & Sutherland, 2002). Another descriptive report analyzing an unnamed probation agency found that 40% of revocation hearings in that jurisdiction resulted in additional time under probation supervision (Burke, 1997).

In sum, it is unclear whether adjusting community supervision lengths is widespread practice. Documentation of a discrepancy between sentence length and actual supervision length is somewhat recent (McGrath, 2013). It is also unclear the extent to which supervision lengths are adjusted. Evidence of this practice, however, does provide an opportunity to classify probationers and parolees according to the degree

of overlap between his or her sentence and actual supervision time. Any systematic investigation of post-sentencing supervision adjustments should include examining the type of shift (e.g., shortened or extended supervision), length, and to what extent client demographic, client behavior, supervision features, organizational subunit, and neighborhood factors shape these adjustments.

Theoretical Frames

This chapter has outlined factors potentially related to differential supervision outcomes, and suggested that one important unexamined outcome is the difference between sentence supervision period versus actual supervision length. What follows tries to answer: What possible theoretical mechanisms produce these differential supervision outcomes? The following section outlines two theoretical perspectives that attempt to address this question. Coercive mobility theory and Klinger's (1997) theory of negotiated orders and ecology of police behavior inform the selection of predictors for the study, expected impacts, and suggest directions for future research.

Coercive Mobility Theory

A potential explanation for differential subgroup probation and parole supervision outcomes, including adjusted supervision lengths, is situated within the community justice model, specifically one aspect called coercive mobility theory (Clear, 2005). Although the relevant dynamics of the community justice model are complex, the basic idea is that the primary focus of justice agencies should be on collaboration with community members and informal social control agents to foster greater public safety (Clear, 2007; Lynch & Sabol, 2004; Rose & Clear, 1998). Within this perspective, justice agencies do not exist solely to address crime by punishing wrongdoers. Rather,

justice agencies should be reinforcing the societal aims of increasing equity and security for individuals and the community (Clear, 2007). The community justice philosophy in practice is a series of programs and initiatives that are co-produced by justice agencies and community partners with the overall goal of restoring individuals and communities through utilitarian punishments (Clear, 2007).

Within the community justice framework, *coercive mobility* – the forced removal of individuals through incarceration – undermines the goals of community justice. Clear et al. (2003) and Rose and Clear (1998) argue that the large-scale removal of individuals from neighborhoods, or mass incarceration, is a form of coerced residential mobility on a scale so large that it disrupts community networks. Coercive mobility theory suggests that neighborhoods experiencing mass incarceration have less informal social control available to resist crime, thus resulting in increasing crime rates (Clear, 2007, 2008; Rose & Clear, 1998; Western, 2006).

Clear et al. (2003) explains that to a point, the removal of individuals may result in lower crime rates later (deterrence) (Clear, 2007). Coercive mobility theory posits that there is a ‘tipping point’, however, beyond which the excessive removal of individuals through mass incarceration results in higher crime rates later (Clear et al., 2003). Coercive mobility theory posits that certain neighborhoods experience the removal of individuals through incarceration at levels high enough to impair neighborhood life (Lynch & Sabol, 2004).

The community justice/coercive mobility framework suggests that informal social control mechanisms such as families, neighbors, social organizations, and friendships

contribute substantially to local public safety (Clear, 2008). Removing adults from neighborhoods weakens these mechanisms and results in attenuated family and informal control networks (Clear, 2007; Lynch & Sabol, 2004; Rose & Clear, 1998). Specifically, mass incarceration can disrupt families (Lopoo & Western, 2005), lower the marriageability of men, and limit employment opportunities (Rose & Clear, 1998). Additionally, neighborhoods disproportionately affected by mass incarceration are characterized by lower voter turnout (Burch, 2014), higher divorce rates (Apel, Blokland, Nieuwebeerta, & van Schellen, 2010), and higher poverty (DeFina & Hannon, 2013) compared to other neighborhoods. Consequently, neighborhoods have weaker informal social control (Bursik & Grasmick, 1993). In turn, low social capital and social disorganization can then create a cycle for further criminal behavior to go unchecked (Clear, 2007, 2008).

Empirical support for the coercive mobility theory generally examines (a) how incarceration affects later crime rates, and (b) how incarceration impairs families and networks. Addressing the latter, there is an impressive body of literature linking the mass incarceration of individuals with disrupted families (e.g., Lynch & Sabol, 2004). Families of incarcerated individuals must deal with financial and emotional burdens and childcare responsibility (Sharp, Marcus-Mendoza, Bentley, Simpson, & Love, 1997; Western & McLanahan, 2000). Further support for the indirect consequences of mass incarceration comes from evidence of impaired neighborhood organization. Rose, Clear, and Ryder (2001), for example, found disrupted interpersonal networks, necessary for collective efficacy, in the two neighborhoods characterized by a high degree of incarceration that they studied.

Other studies have examined how mass incarceration relates to later increases in crime rates. Although not specifically examining coercive mobility theory, Gottfredson and Taylor (1988) found that residents living in high reentry neighborhoods were also more likely to report higher fear of crime, as well as perceived incivilities. More recently, several studies have found that incarceration rates and crime rates link positively (Hipp & Yates, 2009; Kovandzic & Vieritis, 2006).

As mentioned, Clear suggests that up to a point, incarceration may in fact deter (and lead to lower) crime (Clear, 2007). At some point, however, focused and mass incarceration begins to have negative social effects and can lead to higher crime (Clear, 2007). This curvilinear relationship has been examined, but only partial support has been found (Liedka, Piehl, & Useem, 2006). Renauer, Cunningham, Feyerherm, O'Conner, and Bellatty (2006) for example, found a curvilinear relationship for violent, but not property crime in their neighborhood study. One potential explanation for the mixed results may be the difficulty of quantifying and identifying the appropriate temporal lag or tipping point.

This perspective, however, is not without criticism. Simply put, the coercive mobility theory suggests that mass incarceration 'causes' a host of social problems, including increased crime. One issue with this statement is that incarceration 'causes' crime, but it is also equally valid that crime 'causes' incarceration (Clear, 2007). One way to address this simultaneity issue is to utilize time ordered data in nonrecursive path models (e.g., Rose & Clear, 1998). This type of model, however, also can violate the assumption that residuals (i.e. relationship) between socio-structural, endogenous factors and measures of social capital are uncorrelated (Berry, 1984; Taylor et al., 2009). It also

does not specify the time lag between high rates of removal and subsequent increases in crime, an important practical and theoretical consideration (Taylor et al., 2009). Another way to isolate the effect of incarceration on later crime would be to use an instrumented variable that separates the portion of variance in crime explained by incarceration (Clear, 2007). This approach bypasses some of the endogeneity issues by focusing on the effect of incarceration on crime only, along with appropriate control variables.

In sum, coercive mobility theory is concerned with overlapping issues. The first issue is the spatial concentration of mass incarceration (Western & McLanahan, 2000). A small number of neighborhoods, and even blocks (Cadora, Swartz, & Gordon, 2002), substantially contribute to prison populations. The second issue concerns the negative social effects linked to removing individuals from communities in high numbers. Research has demonstrated that mass incarceration leaves disrupted families, severed networks, and can stunt economies (Rose et al., 2001; Sharp et al., 1997; Western & McLanahan, 2000). Areas that experience mass incarceration can also experience higher crime (Liedka et al., 2006; Renauer et al., 2006). The causal order of these relationships, however, is not yet clear. Aside from this, the last two points suggest that probationers and parolees living in neighborhoods with high removal rates will, to some extent, experience reduced social support. The capacity for informal social control in these neighborhoods may also be compromised. In such places, participation in local organizations will also be weaker because those organizations have potential members or members removed from the community.

Klinger's (1997) Theory of Negotiated Orders and the Ecology of Police Behavior

Organizational geographies are an important structural element in criminal justice agencies. Police deploy geographically by district, for instance, and courts have authority over geographically defined jurisdictions. While caseload size and estimated risk level dominate probation and parole organization, geography further sorts agency organizations into subunits. To account for this in probation and parole organizations, another useful theoretical perspective borrows from the policing literature to explain differential organizational subunit responses. Klinger's (1997) perspective recognizes the police district organizational unit as a geographic space within which police officers negotiate responses to criminal activity.

Klinger's perspective also falls within a spectrum of many theories concerning organizational control of space. At one end of this spectrum lie macro-level, state processes like Garland's (2001) work concerning the state's response to increased and normalized crime experienced within its borders during late modernity. Although his argument is complex and generally not a spatial one, it concerns the state's use of law to control what occurs within its borders, and how to divide the responsibility of crime control (Garland, 2001). At the other end of the spectrum lies small group (Taylor, 1988) and individual-level processes (Herbert, 1997). Specifically addressing police work, Herbert (1997) argues that individual officer-citizen interactions are shaped by an individual officer's ability to control localized space using one or more normative orders, such as law, bureaucratic regulation, machismo, safety, competence, and morality. Herbert (1997) explains that spatial control is fundamental to police power and organization. These, of course, are not the only perspectives of territoriality, and some

even disagree (e.g., Sack, 1986; Taylor, 1988). Nestled within this spectrum of territoriality, however, is a useful perspective explaining why police-citizen interactions vary across geographically defined subunits, like police districts.

Klinger's theory of police work suggests that crime, deviance, perceived undeserving nature of victims, police cynicism, and workload at the district level all affect police-citizen interactions and police perceptions of citizens' requests. Depending on these circumstances, officers will vary in their level of *vigor* – the general amount of energy and attention given to a particular interaction. He argues that in districts with high levels of the aforementioned factors police resources are stretched so thin that officers must preserve vigor for only the most serious incidents. In contrast, police response to crime in districts with lower sustained levels of crime will be more intense, or vigorous, because there are resources and a desire to maintain low crime. In effect, Klinger (1997), suggests that police who patrol in perceived and actual high-crime, socially and physically disorderly districts spend their energy addressing only the most serious crimes.

At the heart of this theoretical perspective is the geographic patterning of organizational norms and outcomes, which is equally applicable to probation and parole as well. Klinger (1997), for instance, uses broader organizational theory principles to show the importance of the work environment, policy and administrative mandates, and immediate workloads in shaping negotiations (Strauss, 1978). Organizational factors are also fundamental to probation and parole agencies. Klinger (1997) also explains why policing patterns emerge from the ecological literature on crime and social control. This argument suggests that actual and perceived crime levels shape localized responses (Bursik, 1986; Schuerman & Korbin, 1986; Skogan, 1990). Individual probation and

parole officer reactions also may be subject to similar considerations. Klinger's (1997) view may be applicable to the intra-agency variation in probation and parole norms and outcomes. The rationale for this, as outlined above, flows from the similarities in geographic organizational deployment and in the social control agent-client, interaction shared by police and probation/parole organizations.

Klinger's (1997) perspective is useful to this research in the following ways. First, he offers a theoretical explanation for geographic intra-organizational variation in outcomes. Similar to police officers who work within police beats and districts, one consideration of case assignment to probation and parole officers is the geographic residence of clients. According to Klinger (1997), social control agents, working within distinct geographical subunits (districts), will develop patterns of interaction that reflect perceived attitudes and beliefs about that area. Probation and parole officers assigned to supervise individuals from a singular geographic organizational unit may develop similar supervisory approaches.

This theoretical approach dovetails with the community justice literature in the sense that each explains how the actions of a criminal justice agency directly and indirectly affect individual and community outcomes. The community justice literature suggests that mass incarceration, through aggressive social control interventions, coupled with high crime rates, can actually lead to even higher localized crime rates. Individuals under supervision, especially parolees, also experience disrupted social and financial support, and are more likely to do poorly under supervision. Klinger's (1997) model suggests that the vigor of criminal justice agents within their defined organizational geographic unit also contributes to outcomes. In this sense, criminal justice agents can be

more or less vigorous in their interactions with citizens leading to more or less aggressive involvement. The extension of Klinger's (1997) model to intra-agency geographic variation in how agents respond differentially to clients stems from this last point.

Differential organizational norms organized by geography also may develop within probation/parole agencies. The links, however, may differ from Klinger's (1997) model that suggests *less* vigor in higher workload districts. Probation and parole officers assigned to supervise individuals within areas with a high workload and high crime rates may respond less vigorously to minor violations, as Klinger would suggest.

Alternatively, officers assigned to such areas also may perceive local offenders as more dangerous or less willing to change their behavior. Therefore, probation and parole officers supervising individuals within high workload and high serious crime areas may actually respond *more* punitively to individuals committing minor violations. Officers who supervise individuals in areas that have historically high crime rates and other social problems, therefore, may perceive their clients as less amenable to supervision intervention and treatment. Thus, norms may develop to respond more harshly to violations or to seek more vigorously to document violations. The first step towards addressing this, however, would be to examine whether outcome variation exists across sub-organizational geographical boundaries, and secondly, whether that variation persists net of compositional differences among supervisees.

Criminal Justice Decision Making

Another possible explanation for post-sentencing adjustments to supervision lengths comes from criminal justice decision-making perspective. This perspective is useful given the substantial discretion afforded to decision makers throughout the

criminal justice system (Gottfredson & Gottfredson, 1988). This section briefly discusses the tenets of decision-making in criminal justice, in addition to the issues associated with unstructured discretion. This is followed by what is specifically known about structured decision-making in probation and parole, and how it may link to the decision to adjust supervision.

The decision-making perspective suggests that supervision adjustments may be explained by behavior and performance under supervision: drug use, arrests, and missing office visits under supervision. These represent rational and legal reasons to adjust supervision lengths. Neighborhood factors, such as social climate and organizational subunits are not part of the decision-making perspective but instead represent extralegal factors that may link to adjustments in supervision lengths.

Criminal justice decision-making should be a process of choosing from a set of options (alternatives) to bring about change or optimize a result (goal) using relevant data (information) (Gottfredson & Gottfredson, 1988). Together, these three factors form the basis for criminal justice decisions. Regardless of the stage of the criminal justice process, however, the reality is that goals are not always stated, and available information used to make decisions may be limited. The authors also note that outside review of criminal justice decisions are often minimal, and decision-makers do not always need to explain their reasoning for decisions (Gottfredson & Gottfredson, 1988). Although scrutiny has increased in recent decades, this still is an issue.

At the conclusion to their review of decision-making, Gottfredson and Gottfredson (1988, p. 258) noted three consistent considerations when making decisions:

seriousness of the offense, prior criminal conduct, and the personal relationship between the offender and victim. In general, they argue that serious offenses committed by individuals with extensive criminal histories against strangers invoked stricter sanctions, regardless of the criminal justice stage (Gottfredson & Gottfredson, 1988). This may lead to inequities in decisions if important additional legally relevant factors are overlooked (e.g., Goldkamp, 1987; Walker, 1993).

Structured decision-making through administrative policies, guidelines, and explicit rationales increases the visibility of decisions (Gottfredson & Gottfredson, 1988). In turn, this can limit and structure discretion so it is measurable and can be evaluated as departures from decision-making guidelines (Gottfredson & Gottfredson, 1988; Walker, 1993). Taken together, this approach can limit or expose inequitable treatment in the criminal justice system.

Looking specifically at decision-making in probation and parole agencies, Gottfredson and Gottfredson (1988), note three main types of decisions: treatment referrals and completion, control of the client through sanctions and surveillance, and organizational maintenance and management. Issues related to these general types of decisions, like risk prediction and recidivism responses, is the focus of most probation and parole research. Missing, however, is research addressing supervision adjustments. The latter, according to Doherty (2013), also has led to shortened and extended supervision lengths for clients depending on their behaviors. The specific set of relevant information taken into account for supervision length adjustments, however, is not clear. This research will determine which specific probationer or parolee performance (under

supervision) and behavior (under supervision) indicators link to structured decision-making, i.e. supervision length adjustments, by the supervising agency.

CHAPTER 3

RESEARCH QUESTIONS

Six research questions addressed which individual, case, neighborhood, and organizational covariates were associated with supervision adjustments. As previously outlined, some studies have focused on the client while others have focused on the supervising officer. Few have focused on contextual factors such as supportive social climate, crime levels, and demographic context surrounding individuals. Further, few have examined intra-agency unit variation. Even less understood are potentially important differences between subgroups in adjusted supervision lengths.

To date, no study has contrasted supervision adjustment types. Likewise, no study has examined the length of supervision extensions. Further, past research has focused on state and federal populations, but very little is known about local jurisdictions. Probationers and parolees may differ in two important ways, which led to the first two questions asking:

Research Question 1: Do male probationers and parolees differ in supervision adjustment types?

Research Question 2: Of the male probationers and parolees who receive additional supervision time, do they differ in the degree of supervision extension?

The first research question asked whether probationers and parolees varied by supervision outcome type, including having a shortened supervision, on-time completion, or extended supervision versus an ongoing supervision. The second research question looked specifically at those who had an extended supervision to assess whether

probationers and parolees differed in the length of additional supervision time added.

Gender was not a consideration in these two questions. Although there has been a substantial increase of females under community corrections, in this data set there were too few local female parolees to examine the impacts of probationer and parolee supervisions and gender simultaneously.

All male parolees enter the community only after a term of incarceration, while male probationers generally remain in the community for their entire sentence.

At an aggregate level, the coercive mobility theory has demonstrated the negative effects of mass incarceration on neighborhoods (Clear, 2007; Rose & Clear, 1998). The inability of communities to organize due to mass incarceration can result in limited participation in local organizations and high crime rates.

The expectation was that the experience of incarceration for male parolees is especially disruptive as it severs them from social and financial resources for a length of time. There is some indication of this in recent figures showing that parolees are more likely to violate sentences compared to probationers (Glaze & Bonczar, 2011). Petersilia (2001) notes that individuals released from incarceration often face limited financial and familial support while those who begin supervision in the community have access to uninterrupted employment and support (Hepburn & Griffin, 2004). This led to four hypotheses that test subgroup differences of male probationers and parolees:

Hypothesis 1a: Male parolees and probationers are likely to have different supervision adjustment types.

Hypothesis 2a: Among those with supervision extensions, male parolees compared to probationers are likely to have longer supervision extensions.

It is easy to assume that probationers and parolees at the local level will behave similarly to those supervised at the state or federal level, but to date, this would be the only study to test such an assumption. Looking at state figures, a higher percentage of state probationers compared to parolees successfully finish their sentences (Glaze & Kaebler, 2014). It was expected, therefore, that probationers compared to parolees would be more likely to finish supervision on time. Additionally, state parolees compared to probationers are reincarcerated at a higher percentage. Given these state-level differences, the expectation here was that parolees compared to probationers would have their supervisions shortened, possibly due to revocations that are associated with new arrests (hypothesis 1a). Hypothesis 2a looked specifically at those who had supervision time extended. Extended supervisions are a discretionary period of additional supervision. Given the poorer outcomes of state level parolees compared to probationers, it was expected that when supervision was extended, it was extended for longer periods for parolees compared to probationers. These differences were expected to persist, even after accounting for supervision offense type, risk, and ecological factors.

Hypothesis 1b: Male parolees and probationers are likely to have different supervision adjustment types, even after accounting for differences in neighborhood social climate.

Hypothesis 2b: Male parolees compared to probationers are likely to have longer supervision extensions, even after accounting for differences in neighborhood social climate.

Hypotheses 1b and 2b examined the potential subgroup variation in supervision length adjustments after considering the effect of a supportive social climate that Petersilia (2001) and others have found to be important at the state and federal level. The expectation was that the severed social and economic ties brought on by incarceration, would result in parolees more likely to fail supervision compared to probationers, even after accounting for social climate. That is, once accounting for supportive social climate and client factors, differential outcome types and longer extended supervisions would persist for parolees compared to probationers.

Attention then turned to a different subgroup differences in research questions 3 and 4. This author is not aware of an empirical study examining the differences in adjustments to supervision length by gender for a local probation/parole population. This has practical importance given the increasing presence of women under community supervision.

Research Question 3: Do male and female probationers differ in supervision adjustment type?

Research Question 4: Of the male and female probationers who receive additional supervision time, do they differ in supervision extensions?

These questions examined differences between male and female probationers². Some studies have found that female probationers technically violate their probation at higher rates than do male probationers (Chesney-Lind & Pasko, 2013; Langan & Levin, 2002; Norland & Mann, 1984). This research approached this issue from a slightly different angle and examined whether male and female probationers differed in supervision outcome type based on adjusted supervision lengths.

Hypothesis 3a: Male and female probationers are likely to differ in supervision adjustment types.

Hypothesis 4a: Males are likely to have longer supervision extensions compared to female probationers.

Considering previous work showing that male and female probationers and parolees are different in a number of ways, hypothesis 3a examined whether gender differences persisted in outcome types. As mentioned, some feminist scholars have suggested that females are more likely to have technical violations. However, other research has shown that males are more likely to commit crime and recidivate. The expectation was that males compared to females in this sample would have shortened supervision lengths. It was also expected that males compared to females would be more

² Data limitations precluded comparison of female and male parolees, as there were too few female parolees to contrast with to male parolees. Female parolees, therefore, were not included in the analyses addressing this question.

likely to have additional supervision time added. Finally, it was expected that females would be more likely to finish supervision on time. Looking specifically at supervision extensions, hypothesis 4a expected that males compared to female probationers would have longer supervision extensions. These differences were expected to persist even after accounting for supervision features and neighborhood social climate.

Hypothesis 3b: Male and female probationers are likely to have different supervision adjustment types, even after accounting for differences in neighborhood social climate.

Hypothesis 3c: Impacts of neighborhood social climate and socioeconomic status on supervision adjustment types will be stronger for female probationers compared to male probationers.

Hypothesis 4b: Males compared to female probationers are likely to have longer supervision extensions, even after accounting for differences in neighborhood social climate.

Hypothesis 4c: Impacts of neighborhood social climate and socioeconomic status on supervision extensions will be stronger for female probationers compared to male probationers.

Given the importance of social and structural factors in other criminal justice settings, it was expected that social climate would also shape supervision length adjustments. Scholars have argued that social context may affect females differently (Berg & Huebner, 2011; Cobbina et al., 2012; Huebner et al., 2010). Since gender specific variables were not available in this data set, a limited test of the gendered

pathways literature was undertaken (hypotheses 3c and 4c). It was expected that differences in supervision outcome types would persist between male and female probationers, even after social climate measures were introduced (hypothesis 3b). Similarly, given the overall poor performance of males compared to females, it was expected that if supervision was extended, it would be extended for longer periods for male compared to female probationers (hypothesis 4b).

By controlling for predicted risk, these research questions also tested assumptions about the differences between these subgroups. After controlling for risk, this study addressed whether other factors, including demographic, supervisory, and ecological, explain variation in supervision outcomes. It was expected that risk would explain a large amount of variation in both supervision outcome types and supervision extensions. It did raise questions about what exactly the risk instrument was measuring, however, since significant variation remained after controlling for risk. One potentially important factor shaping supervision outcomes, for instance, may stem from organizational geography. This was explored in research question 5.

Research Question 5: Do supervision adjustments vary spatially according to geographic organization, before and after controlling for compositional client differences?

To this point, research questions 1 – 4 and associated hypotheses have addressed variation in supervision outcomes using individual differences and differences in the local social climate. Although these questions contribute to the understanding of probation and parole, another unexplored perspective asked whether a third source of variation explained probation and parole supervision outcomes. To date, Klinger's

(1997) model of organizational geographic differences has explained police-citizen interactions and organizational norms. This model, applied to probation/parole agencies, first explored whether there geographic differences in supervision outcomes. If there is sizable organizational geographic variation then it may be possible to account for that variation with geographically-based organizational subunits. Although this study did not investigate the sources of outcome variation by agency geographic units, it did explore if such variation was present, before and after controlling for the composition of clients.

Another important inquiry is whether agency decision-making affects supervision outcomes. Gottfredson and Gottfredson (1988) outlined how decisions shape several aspects of probation and parole, including risk classification and revocation proceedings. It is also possible to examine legal, i.e. behavioral and performance and extralegal correlates of supervision adjustment lengths using a decision-making frame. A final research question addressed this point.

Research Question 6: Is the agency responsive to client behavior?

This question began to systematically address whether adjustments to supervision lengths are driven by factors related to client behavior. From a decision-making perspective, it was expected that legal factors, such as risk and offense seriousness would be important information used to determine whether supervision should be extended. Other performance and behavioral information, like new arrests, positive drug tests, and absconding behavior, may also be important considerations to adjust supervision lengths. This question also explored whether extra-legal considerations, like social climate, shape supervision adjustments.

CHAPTER 4

DATA AND METHODS

This chapter describes the study setting and the data used in this study. Included is a description of each measure. This chapter also discusses the analytic approach taken to answer the research questions.

Description of Probation and Parole in Philadelphia County

Data for this study came from several sources, primary being the Philadelphia Adult Probation/Parole Department (APPD). Before describing the data sources and collection process, it is useful to describe APPD practices and organization to help frame the organization and the day-to-day setting of the examined agency.

Pennsylvania requires that each judicial district (i.e. each county) supervise probationers sentenced within its jurisdiction. It also requires that each judicial district supervise parolees serving sentences less than two years in length (incarceration plus community supervision) and released into that jurisdiction (Barnes & Hyatt, 2012). Parolees who receive sentences less than two years are eligible for release upon completion of their minimum sentence range, judicial review, and prison recommendation. A separate state agency governed by a parole board supervises those sentenced to two years or more in Pennsylvania. The focus of this study is on individuals supervised by the local (county) community supervision agency in Philadelphia: the APPD.

The APPD supervises adult individuals serving probation and incarceration sentences (with parole) that are two years or less within Philadelphia County.

Philadelphia's APPD is the largest county-level probation and parole agency in the Commonwealth of Pennsylvania and is under the jurisdiction of the First Judicial District of Pennsylvania (Barnes & Hyatt, 2012). During 2009-2010, there were approximately 271 supervising probation officers supervising approximately 45,946 active probationers and parolees in administrative (low risk), general (moderate risk), anti-violence (high risk), or specialized (court-ordered) units in a centralized, downtown location (APPD, 2011).

Risk Classification and Supervision Structure

A risk forecast instrument was developed in 2009 by APPD in partnership with the University of Pennsylvania (Barnes & Hyatt, 2012). In addition to predicting and forecasting an individual's risk of committing a crime, the instrument currently determines how often a supervising officer sees probationers or parolees, as outlined below. A full description of the risk instrument is provided in the Appendix. After restructuring the entire department using risk guidelines in 2009, the APPD is organized in such a way that a little more than one-third (38%) of individuals who are predicted by the instrument to be a low public safety threat are supervised under administrative supervision. A smaller yet substantial group of individuals predicted to be at risk of committing a non-serious crime according to the instrument receives traditional, or "general", supervision, and an even smaller number of high-risk individuals are subject to intensive supervision in "anti-violence" units.

Over 17,000 probationers and parolees were assigned to *administrative* supervision in 2010, the least restrictive form of supervision (APPD, 2011). Probationers or parolees in administrative supervision must report in person twice a year to one of

three administrative units, and were not subject to urinalysis screening unless the supervising officer has reason to suspect drug use (APPD, 2011). Administrative supervision included those predicted by the risk instrument to pose a minimal public risk (low risk), those in Accelerated Rehabilitative Disposition (ARD) (a diversionary program for first time non-violent offenders), and those convicted of defrauding the Pennsylvania Department of Public Welfare (APPD, 2011). Because of the infrequent reporting, there was a higher unit-to-client ratio³ (1:5,820 in 2010) in administrative supervision compared to the other units.

Six *general* supervision units oversaw about 16% (7,351) of all clients (APPD, 2011). The unit-to-client ratio was lower for this group compared to administrative supervision (1:1,225 in 2010), because contact occurred more often. Clients in general supervision reported to a supervising officer monthly. The officer had discretion to set urinalysis drug screenings and home visitations (APPD, 2011). This supervision approach is most similar to ‘traditional’ probation and parole supervision, meaning individuals must report regularly and comply with standard guidelines and referrals. Placement into general supervision was contingent upon the risk instrument predicting the individual to be likely to commit a new, but non-serious offense (APPD, 2011).

Finally, four anti-violence units oversaw approximately 7% (3,216) of clients. These clients posed the greatest public safety risk according to the risk instrument (APPD, 2011). This level of supervision had the lowest unit-to-client ratio (1:804 in 2010) and clients placed in these units were subject to Intensive Supervision (ISP)

³ The unit-to-client ratios reported here for administrative, general, and anti-violence units were not fixed or mandated by policy. These ratios, however, reflect a general policy shift towards concentrating department resources on individuals predicted as high-risk (anti-violence units).

techniques such as weekly reporting, home visits from officers, and frequent and mandatory urinalysis drug screening (APPD, 2011). Some clients were also required to enroll in a cognitive behavioral therapy class and adhere to additional conditions set by the supervising officer (APPD, 2011). Clients in these units were subject to increased surveillance compared to moderate and low risk and expedited judicial hearings if needed.

Unlike units in administrative or general supervision, three of the four high-risk anti-violence units were organized geographically. Supervision of some high-risk clients occurs in units roughly corresponding to the north-northwest, south-central, and east-northeast sections of Philadelphia. Clients supervised in the north-northwest Anti-Violence unit, for example, generally resided in those sections of the city. The fourth unit was not organized geographically. Clients in this citywide subunit resided across all sections of Philadelphia and were eligible to be selected for cognitive behavioral therapy classes. The purpose of the citywide unit during the study period was to have a subset of high-risk individuals eligible for interventions, like cognitive behavioral therapy. Assignment of high-risk clients into the citywide unit versus other geographically based high-risk units was random.

Other specialized units at APPD oversaw individuals with unique needs or court-ordered programming. The Forensic Intensive Recovery (FIR) unit, for instance, developed in conjunction with the District Attorney's and Public Defender's offices supervised individuals with a dual diagnosis of both drug dependency and mental illness (APPD, 2011). Other specialized units were created in response to state sentencing guidelines, like the intermediate punishment (IP) program. This program seeks to divert

individuals from state incarceration (APPD, 2011). Other specialized units included domestic violence offenders, sex offender, and gun court units. Taken together, about 22% of all supervised individuals were in specialized units (APPD, 2011).

The APPD aims to “protect the community by intervening into offenders’ lives” (APPD, 2009, p. 4). Achievement of this mission occurs in three ways: enforcing court orders, providing opportunity to those under supervision to become “productive, law-abiding citizens” and providing support to victims of crimes (APPD, 2009, p. 4). On-going data collection entered by supervising officers and electronically stored in a case management system (APPD, 2011) was used to monitor objectives. Data for the current study came from this electronic record management system.

Case Selection and Data Sources

Time Frame

All new APPD supervision cases beginning supervision between August 1, 2009 and July 31, 2010 in administrative, general, and anti-violence units were eligible for inclusion. This period was chosen because the APPD was interested in client performance after the 2009 reorganization based on risk.

This period permits ample follow-up. Different follow-up periods have been used in this research area. The average national supervision length for state probation sentences in 2011 was 22 months and for parole was 19.1 months (Maruschak & Parks, 2012). Similarly, the majority of APPD’s supervision cases closed within two years (APPD, no date). Given these lengths, many cases would close within two years, but many also would exceed that time. Given the national average supervision length and

local judicial practice, the expectation was that the majority of cases beginning supervision between July 2009 and June 2010 would be closed four years after, by 2014.

Case Selection Procedures

From August 1, 2009 to July 31, 2010, the APPD initiated 25,052 probation and parole supervision cases. Case initiation means that a supervision case was generated post-sentencing. From the 25,052 cases, specific rules described below were applied to remove cases that fit specific criteria. After applying those rules, the remaining 16,399 cases belonged to 12,320 individuals. The following describes each exclusion rule.

Cases supervised in courtesy supervision or specialized units were removed. Sentencing guidelines, unique supervision requirements, and judicial requests ensure that individuals supervised in specialized units comprise unique populations⁴. Individuals in specialized units are subject to different conditions and review protocols while under supervision. Some cases in Philadelphia County were supervised on behalf of another jurisdiction. Specialized cases and courtesy supervision cases numbered 8,505 (33.9%),

⁴ The following individuals were excluded from the current research study. Individuals in the Forensic Intensive Recovery (FIR) Unit who have a dual diagnosis of drug and mental health problems were excluded. Individuals in FIR are required to work with case managers and receive treatment. Individuals convicted by the Mental Health Court and supervised in the Mental Health (MH) Unit were excluded. Individuals convicted in Philadelphia County but residing elsewhere were excluded. Individuals convicted elsewhere but residing in Philadelphia County and supervised by the Out of County/State Unit were excluded. Individuals convicted of sexual offenses and supervised in the Sex Offenders (SO) Unit were excluded. Individuals in SO must undergo counseling and abstain from Internet use. Individuals on house arrest and supervised by the Monitored Supervision Unit were excluded. Individuals supervised by Intermediate Punishment (IP) were excluded. IP is a probation sentence established by state statute for individuals who have a substance abuse problem and score in the upper range of the Sentencing Guideline. Individuals prosecuted by the Family Violence and Special Victims Unit in the District Attorney's Office and supervised in the Domestic Violence (DV) Unit at APPD were excluded. Individuals who are supervised under the Accelerated Rehabilitative Disposition (ARD) program for first time non-violent offenders at the discretion of the District Attorney's Office were excluded. Those convicted of defrauding the Department of Public Welfare or Unemployment Compensation and supervised by the Fraud Unit were excluded. Individuals in the Youth Violence Reduction Partnership (YVRP) Unit were excluded. YVRP is a multiagency collaboration aimed at reducing violence among high young adults and operates in sections of Philadelphia. Finally, individuals convicted for a gun related offense by Gun Court and supervised in the now dissolved Gun Court Unit were excluded. Additional information about specialized units can be found on the APPD Website at <http://www.courts.phila.gov/common-pleas/trial/criminal/appd.asp>.

and were excluded. Examination of supervision performance of offenders in these units is an important inquiry of its own, but was beyond the scope of this research. A second decision led to the exclusion of a small number of individuals (148) who did not receive risk level evaluations. This resulted in 16,399 low-, moderate-, and high-risk cases eligible for examination.

Individuals can serve multiple or overlapping supervision cases, and therefore sometimes may be both probationers and parolees at once. Within each of these categories, individual probationers and parolees can serve multiple concurrent or consecutive supervision sentences. Those included in this study had on average 1.33 supervision cases ($SD = .83$) during the study period. The majority (78.2%), however, had just one supervision case.

This study focused on the earliest generated case during the study time frame per individual. This allowed examination of a single case outcome for each individual and thus ensured that each observation was independent of other observations. Further, it reduced the contribution of criminal justice dynamics, which can be more sizeable for those with multiple cases during the time frame, in cases generated later in the time frame. The final subgroup of 12,320 cases was the earliest supervision case in the data time frame for low-, moderate-, and high-risk individuals.

Data Sources

The APPD provided data about probationers and parolees from August 1, 2009 – August 15, 2014. Social climate data came from the 2008, 2010, and 2012 Philadelphia Health Management Corporation's biannual community Household Health Survey of the

Philadelphia metropolitan area. Crime data came from the Philadelphia Police Department incident reports from 2008-2013. Other socio-demographic data came from the US Census American Community Survey 5 year estimates from 2008-2012.

Data on Locally Supervised Probationers and Parolees in Philadelphia

Individual-level data came from the APPD's electronic case management system from August 2009 through August 2014. The APPD collects a number of static and time-varying demographic, social, and behavioral features. This electronically stored data, therefore, reflect a blend of the supervising officer's notes/observations, the client's self-reported behavior, and imported court related characteristics.

Initial data provided by APPD included information on all supervision cases ($n = 25,052$) generated from August 2009 through July 2010, such as the number of cases per individual, supervision length, and unit assignment. After selection procedures outlined in the preceding section, the final dataset included 12,320 individuals with 16,399 cases. The APPD provided these data to this researcher on August 15, 2014. The data reflect activity current to that date.

After de-identifying and merging procedures, one complete dataset containing all the information was sorted by each client's case initiation date. The dataset was restructured and all but the earliest supervision case for each client were removed. This dataset included all static and time varying case features that occurred up to the date the case closed, or until August 15, 2014, if the case remained open. From this dataset, individual-level variables were created.

To make this point clear, consider the following hypothetical data scenario: An individual included in the final sample began low, moderate, or high-risk supervision for a newly generated case between August 1, 2009 and July 31, 2010. If several cases were generated for this individual during this year, then the earliest supervision case was retained. Static and time varying data associated with this individual's case, like gender (static) and number of arrests (time varying), ended at either case closure date, or August 15, 2014, whichever came first.

Data on the Social Climate in Philadelphia Neighborhoods

Neighborhood-level data came from three waves of household surveys in Philadelphia. The Philadelphia Health Management Corporation (PHMC) administers a biannual survey using a random digit dialing methodology to ask adult respondents in the metropolitan area about health related questions. This survey also included questions about social interactions and attitudes towards others (PHMC, 2005). The three surveys used in this current study ran from June through November in 2008, 2010 and 2012 and include 12,316 successful interviews in Philadelphia County across waves.

Of particular interest were four questions described in Table 3 that asked respondents about the perceived local social climate. These questions were adapted from the Social Capital Benchmark Survey administered by Harvard University, which is the largest nationally representative survey of civic engagement in the US. The 2008 and 2010 PHMC surveys included all four social climate measures, while the 2012 PHMC survey only included two of the four measures – participation in local organizations and helping neighbors. This study included the neighborhood-level proportions of participation in local organizations, and working together to improve the neighborhood.

Additionally, this study also included a neighborhood-level social climate index (Cronbach's alphas = .57 in 2008 and .51 in 2010) of the four survey items described in Table 3.

Table 3

PHMC Survey: Social Climate Items and Univariate Statistics Across Three Survey Waves

| Survey Item | Response | 2008 (n = 4,393) | | | 2010 (n = 4,398) | | | 2012 (n = 3,525) | | |
|-----------------------|---------------------|------------------|------|------|------------------|------|------|------------------|------|------|
| | | f(%) | Mean | SD | f(%) | Mean | SD | f(%) | Mean | SD |
| <u>Participate</u> | 0 | 2465 (56.8) | .78 | 1.21 | 2289 (52.7) | .91 | 1.36 | 1849 (53.6) | .86 | 1.30 |
| “How many | 1 | 1003 (23.1) | | | 1021 (23.5) | | | 858 (24.8) | | |
| local | 2 | 491 (11.3) | | | 581 (13.4) | | | 420 (12.2) | | |
| organizations in | 3 | 237 (5.5) | | | 280 (6.4) | | | 196 (5.7) | | |
| your | 4 | 86 (2.0) | | | 90 (2.1) | | | 66 (1.9) | | |
| neighborhood | 5 | 34 (.8) | | | 35 (.8) | | | 37 (1.1) | | |
| do you | 6+ | 23 (.4) | | | 45 (1.0) | | | 27 (.8) | | |
| currently | Missing | 55 (1.3) | | | 55 (1.2) | | | 71 (2.0) | | |
| participate | | | | | | | | | | |
| in...?” | | | | | | | | | | |
| <u>Trust</u> | SA ^a (1) | 643 (16.1) | 2.27 | .84 | 534 (13.6) | 2.28 | .79 | | | |
| “Please tell | A (2) | 1999 (50.1) | | | 2093 (53.3) | | | | | |
| me...most | D (3) | 985 (24.7) | | | 993 (25.3) | | | | | |
| people in my | SD (4) | 367 (9.2) | | | 311 (7.9) | | | | | |
| neighborhood | Missing | 399 (9.1) | | | 468 (10.6) | | | | | |
| can be trusted” | | | | | | | | | | |
| <u>Help Neighbors</u> | Always (1) | 1012 (23.0) | 2.61 | 1.26 | 1122 (26.5) | 2.44 | 1.91 | | | |
| “Using the | Often (2) | 1034 (23.5) | | | 1167 (27.5) | | | | | |
| following scale, | Some (3) | 1200 (27.3) | | | 1224 (28.9) | | | | | |
| rate how likely | Rare (4) | 530 (12.6) | | | 408 (9.6) | | | | | |
| people in your | Never (5) | 434 (10.3) | | | 318 (7.5) | | | | | |
| neighborhood | Missing | 183 (4.2) | | | 157 (3.6) | | | | | |
| are willing to | | | | | | | | | | |
| help with | | | | | | | | | | |
| routine | | | | | | | | | | |
| activities...” | | | | | | | | | | |

Survey Item Not included in 2012 survey

Survey Item Not included in 2012 survey

Table 3

(Continued)

| Survey Item | Response | <i>f</i> (%) | Mean | SD | <i>f</i> (%) | Mean | SD | <i>f</i> (%) | Mean | SD |
|--|---------------------|--------------|------|-----|--------------|------|-----|--------------|------|-----|
| <u>Improve</u> “Have people in your neighborhood ever worked together to improve the neighborhood?” | Yes | 2753 (66.1) | .66 | .47 | 3057 (72.7) | .73 | .45 | 2247 (66.7) | .67 | .47 |
| | Missing | 230 (5.2) | | | 191 (4.3) | | | 161 (4.6) | | |
| | | | | | | | | | | |
| <u>Social Climate</u> Index of four social climate measures | Cronbach’s Alpha | .57 | | | .51 | | | | | |

Note. Unweighted data come from the Biannual Philadelphia Health Management Corporations Household Health Survey.

a. Response categories are “Strongly Agree”, “Agree”, “Disagree”, and “Strongly Disagree”.

Since it was also important that the PHMC samples closely reflect the population from which they were drawn, the data were weighted for the Census population. This was necessary because the PHMC survey purposefully oversamples certain geographic units and demographic features (PHMC, 2005). To reflect the actual population of Philadelphia, the PHMC data were adjusted for basic population demographic features of gender, race, and education level. Adjustment for the population was made using US Census data on individuals and household units from Community Survey's (ACS) Public Use Microdata Sample (PUMS) 5 year estimates from 2008-2012. To attain the weight, individuals were randomly sampled from households within PUMS. The final weight variable for each PHMC wave readjusted cases for both non-response to the trust item and to basic population demographics.

Table 4 shows the proportion of cases in each of the 45 PHMC neighborhoods. PHMC defines 45 Philadelphia supra-neighborhoods corresponding to historic political wards drawn in the eighteenth and nineteenth centuries. Major natural or human made features, such as roads and rivers typically bound the neighborhoods (Mennis et al., 2011; PHMC, 2005).

There is no consensus on the appropriate spatial scale for defining neighborhoods; there are many levels of nested neighborhoods. The mass incarceration/coercive mobility model, focused on processes linked to severed social networks have yet to specify the conceptually appropriate spatial scale at which those dynamics operate. It is possible that neighborhoods defined by PHMC are the appropriate level to examine these dynamics.

It also is important to match the spatial scale to the conceptual frame (Hipp, 2007). Considering this, there conceptual slippage may have occurred using PHMC neighborhood social climate indicators, since the appropriate spatial scale is unknown for coercive mobility dynamics. Hipp (2007) identifies this as a general concern in multilevel research, whereas misspecifications in the appropriate level of aggregation can obscure empirical relationships. The neighborhoods used in this study, for example, are large, so within unit variation in social climate indicators may be masked.

PHMC survey respondents also may have different social networks than probationers/parolees. Survey respondents tended to be older, homeowners, and had long lengths of residency. Survey respondents also were less likely to be unemployed than probationers/parolees. When aggregated to neighborhoods, the social climate of survey respondents in a particular neighborhood may differ markedly from the social climate of probationers/parolees in the same neighborhoods.

Finally, it is not possible to estimate an individual probationer/parolee's exposure to different neighborhoods since residency lengths were not consistently time-stamped.

This data constraint and the other issues aside, Mennis et al. (2011) has argued that PHMC neighborhoods, which were used here, represent historic boundaries and beliefs about the internal geographic, cultural, and socioeconomic boundaries.

Table 4

Social Climate Proportions for 45 PHMC Neighborhoods Across Three Survey Waves

| | | Proportions | | | | | | | | | |
|----|------------------------------|-------------|-------|------|---------|--------|-------|------|---------|--------|---------|
| | | 2008 | | | | 2010 | | | | 2012 | |
| | Neighborhood | Partic | Trust | Help | Improve | Partic | Trust | Help | Improve | Partic | Improve |
| 1 | Center City | .47 | .78 | .56 | .71 | .59 | .78 | .49 | .77 | .59 | .76 |
| 2 | Schuylkill-Point Breeze | .42 | .48 | .57 | .77 | .42 | .62 | .50 | .80 | .59 | .78 |
| 3 | Grays Ferry – Passyunk | .44 | .56 | .49 | .63 | .48 | .59 | .62 | .74 | .70 | .78 |
| 4 | Pennsport – Queen Village | .32 | .77 | .60 | .51 | .52 | .92 | .60 | .86 | .46 | .67 |
| 5 | Southwark – Bella Vista | .28 | .79 | .43 | .52 | .46 | .71 | .44 | .74 | .53 | .80 |
| 6 | Snyder – Whitman | .46 | .62 | .65 | .60 | .49 | .66 | .62 | .76 | .29 | .51 |
| 7 | South Broad – Girard Estates | .40 | .71 | .48 | .68 | .37 | .78 | .52 | .77 | .53 | .67 |
| 8 | Eastwick – Elmwood | .32 | .64 | .45 | .63 | .47 | .70 | .40 | .71 | .38 | .62 |
| 9 | Paschall – Kingsessing | .44 | .42 | .30 | .66 | .46 | .43 | .52 | .75 | .38 | .70 |
| 10 | University City | .54 | .62 | .54 | .74 | .59 | .68 | .53 | .76 | .58 | .76 |
| 11 | Cobbs Creek | .43 | .54 | .46 | .83 | .45 | .56 | .58 | .90 | .34 | .71 |
| 12 | Mill Creek – Parkside | .39 | .47 | .42 | .70 | .43 | .53 | .50 | .76 | .34 | .67 |
| 13 | Haddington - Overbrook | .39 | .53 | .45 | .74 | .44 | .59 | .47 | .77 | .49 | .78 |
| 14 | Overbrook Park – Wynnefield | .37 | .66 | .55 | .76 | .59 | .85 | .56 | .90 | .49 | .62 |
| 15 | Strawberry Mansion | .45 | .52 | .47 | .78 | .52 | .56 | .43 | .78 | .43 | .86 |
| 16 | Sharswood – Stanton | .43 | .34 | .47 | .67 | .55 | .55 | .46 | .82 | .53 | .55 |
| 17 | Poplar – Temple | .39 | .51 | .43 | .73 | .45 | .53 | .41 | .79 | .44 | .63 |
| 18 | N. Liberties – W. Kensington | .33 | .51 | .35 | .65 | .54 | .71 | .58 | .81 | .39 | .77 |
| 19 | Fairmont – Spring Garden | .54 | .79 | .55 | .83 | .48 | .95 | .68 | .89 | .51 | .80 |
| 20 | Nicetown – Tioga | .43 | .49 | .40 | .79 | .46 | .51 | .59 | .84 | .49 | .78 |
| 21 | Hunting Park – Fairhill | .41 | .50 | .43 | .66 | .39 | .46 | .48 | .68 | .37 | .73 |
| 22 | Lower Kensington | .44 | .66 | .50 | .82 | .34 | .54 | .42 | .77 | .41 | .70 |
| 23 | Richmond – Bridesburg | .46 | .70 | .77 | .85 | .34 | .54 | .72 | .86 | .51 | .73 |
| 24 | Upper Kensington | .36 | .52 | .33 | .50 | .46 | .31 | .29 | .40 | .21 | .65 |
| 25 | Juniata Park – Harrowgate | .24 | .52 | .44 | .54 | .34 | .49 | .43 | .61 | .18 | .45 |
| 26 | Roxborough – Manayunk | .49 | .84 | .56 | .56 | .55 | .86 | .66 | .61 | .57 | .56 |

Table 4

(Continued)

| | | Proportions | | | | | | | | | |
|----|------------------------------|-------------|-------|------|---------|--------|-------|------|---------|--------|---------|
| | | 2008 | | | | 2010 | | | | 2012 | |
| | Neighborhood | Partic | Trust | Help | Improve | Partic | Trust | Help | Improve | Partic | Improve |
| 27 | Chestnut Hill – West Mt Airy | .60 | .89 | .67 | .84 | .68 | .96 | .66 | .87 | .62 | .75 |
| 28 | East Mt Airy | .55 | .71 | .48 | .75 | .63 | .78 | .63 | .85 | .62 | .82 |
| 29 | East Falls – Westside | .58 | .81 | .48 | .74 | .49 | .67 | .58 | .91 | .43 | .86 |
| 30 | Germantown | .52 | .54 | .39 | .77 | .51 | .60 | .46 | .76 | .43 | .79 |
| 31 | West Oak Lane – Cedarbrook | .61 | .73 | .61 | .83 | .56 | .67 | .60 | .86 | | |
| 32 | Oak Lane – Fernrock | .44 | .69 | .41 | .68 | .53 | .67 | .60 | .89 | .51 | .86 |
| 33 | Ogontz | .58 | .62 | .45 | .78 | .43 | .68 | .59 | .80 | .70 | .94 |
| 34 | Logan | .39 | .63 | .44 | .74 | .47 | .45 | .50 | .76 | .52 | .77 |
| 35 | Olney – Feltonville | .27 | .58 | .35 | .64 | .50 | .49 | .49 | .70 | .47 | .71 |
| 36 | Frankford | .33 | .49 | .33 | .61 | .34 | .40 | .44 | .62 | .38 | .49 |
| 37 | Wissinoming – Tacony | .48 | .53 | .41 | .61 | .44 | .72 | .52 | .66 | .30 | .63 |
| 38 | Lawndale – Cresentville | .43 | .63 | .47 | .57 | .42 | .63 | .47 | .57 | .41 | .63 |
| 39 | Mayfair – Holmesburg | .50 | .74 | .56 | .72 | .48 | .75 | .53 | .68 | .57 | .61 |
| 40 | Oxford Circle | .46 | .61 | .43 | .57 | .29 | .54 | .39 | .55 | .56 | .70 |
| 41 | Rhawnhurst – Fox Chase | .49 | .84 | .48 | .54 | .37 | .77 | .58 | .56 | .22 | .33 |
| 42 | Bustleton | .44 | .85 | .58 | .40 | .36 | .96 | .55 | .45 | .51 | .46 |
| 43 | Somerton | .37 | .89 | .52 | .32 | .56 | .82 | .57 | .36 | .51 | .36 |
| 44 | Torresdale North | .43 | .86 | .67 | .66 | .57 | .79 | .67 | .73 | .52 | .44 |
| 45 | Torresdale South - Pennypack | .40 | .83 | .59 | .49 | .47 | .81 | .64 | .55 | .52 | .67 |

Note. Data came from the Philadelphia Health Management Corporation's Biannual Household Health Surveys in 2008, 2010, and 2012. Data were weighted to reflect US Census 2010 gender and race composition and education levels in Philadelphia County. Data were also adjusted to non-responses to the survey question on Trust.

Data on Demographic Structure in Philadelphia Neighborhoods

Additional neighborhood data came from the US Census ACS PUMS 5 year estimates from 2008-2012, after downloading data from the Census Website. These data included socio-demographic and structural characteristics at the Census tract level. Specific measures included average income, education attainment, home value, home ownership, population size, racial/ethnic composition, and housing occupancy. After creating the variables outlined in the next section, they were aggregated to the PHMC neighborhood-level from the Census tract level using ArcGIS. Each of the 45 PHMC neighborhoods overlays the boundaries of multiple tracts clustered together (PHMC, 2010). In other words, the PHMC neighborhood boundaries are comprised of grouped tracts.

Data on Crime in Philadelphia Neighborhoods

Crime data roughly corresponding to the study period came from the Philadelphia Police Department (PPD). Data from August 2009 – July 2013 included incidents recorded by the police. Incidents included violent, property, and drug offenses. The locations of these criminal incidents were geocoded by the Philadelphia Police Department and matched to corresponding PHMC neighborhoods. These counts were then aggregated to the neighborhood level to create rates per 10,000 residents.

Variables

Dependent Variable: Supervision Adjustment Type

By the end of the data follow-up period (August 15, 2014), each individual's earliest supervision case could have resulted in one of the following four exclusive and

exhaustive categories: shortened supervision, on-time closure, extended supervision, and ongoing supervision. The sentence end date and the actual supervision end date determined the adjustment type.

Each new supervision case included the court provided start and expiration dates for the supervision sentence. Once a supervision case closed, the APPD also recorded the actual end date. Subtracting the actual end date from the sentence expiration date provided the degree to which an individual's sentence length matched the actual supervision length⁵.

Because of gaps in adjacent counts, extreme low and high values were winsorized⁶. Figure 1 shows the winsorized distribution of the difference between the sentence expiration date and the actual end date. One low value (-5,206 days) was winsorized to -3,532 days. Additionally, 14 high values (696 to 896 days) were winsorized to and 690 days. Reasons for discrepancies between dates vary widely. A discussion of potentially relevant reasons for discrepancies follows in the description of each category type.

⁵ An individual, for instance, with a sentence expiration date of August 1, 2012 and an actual supervision end date of August 1, 2013 would have +365 days difference. This individual was supervised one year longer than his or her sentence expiration.

⁶ Winsorizing data is a statistical method to limit extreme values. Extreme high or low values are recoded to an appropriate value (STATA Corp., 2014).

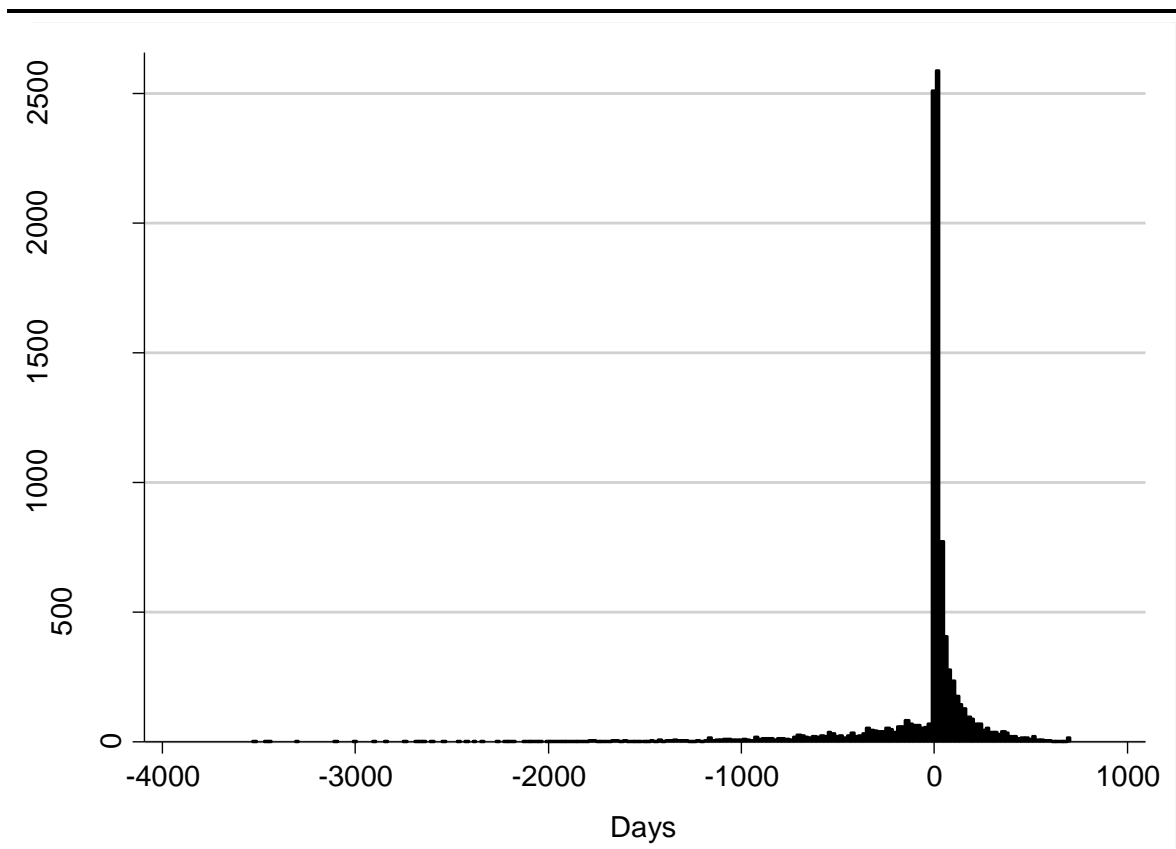


Figure 1. Difference in Days between Sentence Expiration Date and Actual Close Date, $n = 9,900$

Note. Data were from the Philadelphia Adult Probation/Parole Department from clients beginning supervision August 1, 2009 to July 31, 2010. Follow-up was on August 15, 2014. The actual supervision close date was subtracted from the original sentence date for the difference in supervision days. One low value (-5,206 days) was winsorized to -3,532 days. Additionally, 14 high values (696 to 896 days) were winsorized to 690 days.

If a sentence expiration date roughly matched the actual end date, the outcome was *on-time completion*. There could be many reasons for this outcome. These may include natural case expiration, i.e., maximum supervision time was reached without any official revocation. It could also indicate that only restitution and fines remained after the maximum time for supervision had been reached. Generally, on-time completions are considered ‘successful’ because no official actions or sanctions were imposed.

Individuals under supervision for a shorter period than their mandated sentence length experienced a *shortened supervision*. This may indicate an overall ‘unsuccessful’ performance under supervision. Relevant performance indicators could include, among others, drug use, missing appointments, committing domestic violence, and owning a firearm. These may have resulted in a violation hearing, and subsequent probation or parole sentence revocation and shorter sentence length. A new arrest also violated the terms of supervision. APPD policy mandates a violation hearing for violent and/or sex offense arrests. Drug possession and distribution arrests also could have resulted in a violation hearing. Serious or numerous violations could result in a revocation, or shortened supervision. It is also possible that a shortened supervision occurred if a supervisee’s attorney learned that the mandated supervision sentence was not legally permissible. The reasons for a shortened supervision are complex. Table 5 shows that most (53%) supervisees with a shortened supervision had at least one new arrest during supervision, which could have led to a revocation. Shortened supervisions, however, are not synonymous with revocations or incarcerations.

If the actual end date exceeded the sentence end date, the case outcome was *extended supervision*. Again, reasons for this category varied. It also may have represented marginal or poor performance under supervision. Positive drug tests or missed appointments, for instance, may have warranted additional supervision or continued supervision, but not necessarily a revocation. Given the research to date, this supervision adjustment type is probably the least understood.

Table 5

Cross Tabulations between Sentence Outcome Types and Client Performance and Behavior Indicators

| Supervision outcome type | No (%) | Yes (%) | Total (%) |
|--|---------------|---------------|--------------|
| <u>Missed office visit during supervision</u> | | | |
| On-time completion | 2,124 (85.1) | 372 (14.9) | 2,496 (100) |
| Extended supervision | 4,047 (73.34) | 1,471 (26.66) | 5,518 (100) |
| Shortened supervision | 1,115 (59.12) | 771 (40.88) | 1,886 (100) |
| Ongoing supervision | 2,174 (89.83) | 246 (10.17) | 2,420 (100) |
| Total | 9,460 (76.79) | 2,860 (23.21) | 12,320 (100) |
| <u>Positive drug test during supervision^a</u> | | | |
| On-time completion | 2,127 (85.22) | 369 (14.78) | 2,496 (100) |
| Extended supervision | 4,692 (85.03) | 826 (14.97) | 5,518 (100) |
| Shortened supervision | 1,289 (68.35) | 597 (31.65) | 1,886 (100) |
| Ongoing supervision | 1,684 (69.59) | 736 (30.41) | 2,420 (100) |
| Total | 9,792 (79.48) | 2,528 (20.52) | 12,320 (100) |
| <u>Arrest during supervision</u> | | | |
| On-time completion | 2,249 (90.1) | 247 (9.9) | 2,496 (100) |
| Extended supervision | 4,077 (73.89) | 1,441 (26.11) | 5,518 (100) |
| Shortened supervision | 887 (47.03) | 999 (52.97) | 1,886 (100) |
| Ongoing supervision | 1,274 (52.64) | 1,146 (47.36) | 2,420 (100) |
| Total | 8,487 (68.89) | 3,833 (31.11) | 12,320 (100) |

Note. Data were from the Philadelphia Adult Probation/Parole Department from clients beginning supervision August 1, 2009 to July 31, 2010. Follow-up to determine outcome type was August 15, 2014. Behavior/Performance is only measured if it occurred during the client's earliest supervision case.

a. "No" for drug tests includes individuals who had negative drug test results and individuals who were never drug tested.

Finally, individuals in the *ongoing supervision* category only had sentence end dates (but not actual end dates) because their supervision was ongoing as of August 15, 2014. Individuals with longer sentences may have been convicted of offenses that were more serious. This outcome was not the result of multiple or a concurrent sentence since only the earliest case was selected. Individuals in this category did not have his or her supervision closed as of the follow-up date. This makes interpretation of this category

somewhat different from the previous three types because any correlate of ongoing supervision is a reflection of sentence length only.

Number of Additional Supervision Days

Although shortened supervision was of interest, the reasons vary widely. Further, another type of supervision adjustment – supervision extension – has yet to be examined. For those whose actual close date exceeded his or her sentence end date at the four-year follow-up, a second dependent variable measured the number of additional supervision days beyond the sentence expiration date. This outcome allowed for comparison between subgroups with additional supervision days.

Additional supervision days were the difference between the sentence end date and the actual end date, the same calculation used for supervision outcome categories. Figure 2 and Figure 3 shows individuals with a positive difference – actual close date later than the sentence end date – and represents individuals who had their supervision extended. Administrative reasons, like paperwork processing, could result in a small difference between these two dates. To capture only substantial extensions of supervision, differences in days extended that were six or less days were not counted as extended supervision. In order to have the count begin with zero, however, five (one work week) was subtracted from each count of additional days. Additionally, 14 of the longest extensions (696 to 896 days) were winsorized to 685 days because of sizable gaps in adjacent counts.

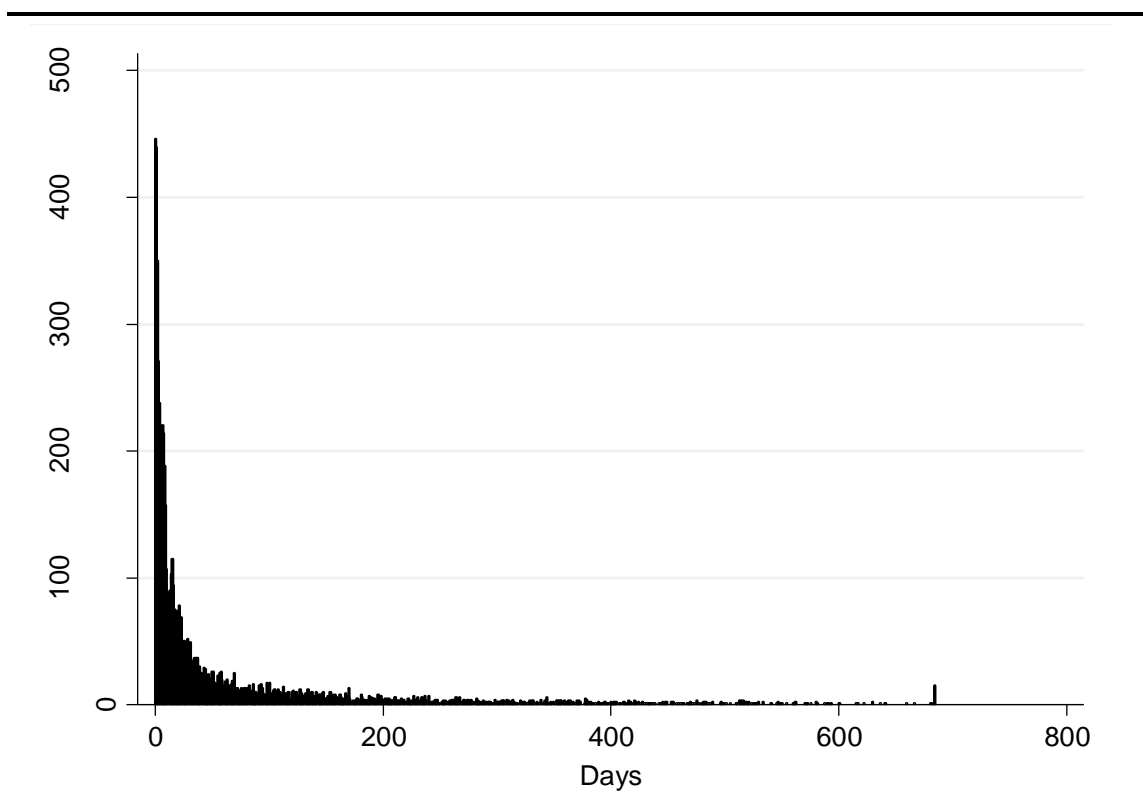


Figure 2: Substantial Additional Supervision Days beyond Sentence Expiration ($n = 7,991$)

Note. Data were from the Philadelphia Adult Probation/Parole Department from clients beginning supervision August 1, 2009 to July 31, 2010. Differences in days are as of August 15, 2014. The actual supervision close date was subtracted from the original sentence date for the difference in supervision days. 14 high values were winsorized to 685 days.

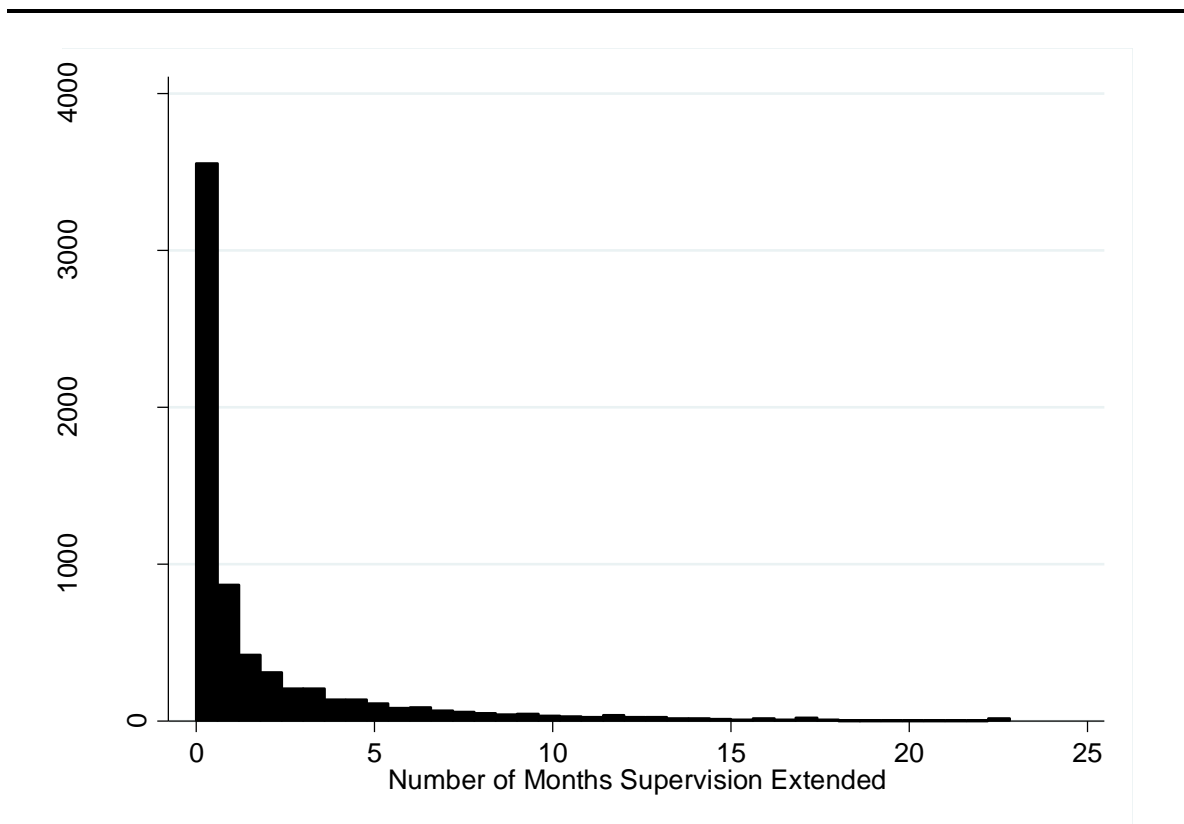


Figure 3: Substantial Additional Supervision Months beyond Sentence Expiration ($n = 7,991$)

Note. Data were from the Philadelphia Adult Probation/Parole Department from clients beginning supervision August 1, 2009 to July 31, 2010. Differences in days are as of August 15, 2014. The actual supervision close date was subtracted from the original sentence date for the difference in supervision days. 14 high values were winsorized to 685 days.

Independent Measures: Neighborhood Variables

Of particular interest to this research was whether neighborhood social climate, or shifts in that climate, affected supervision outcomes. Police incident data captured neighborhood crime, which provided a measure for the degree of neighborhood disorganization. Finally, US Census data measured neighborhood structural features including racial composition, socioeconomic status, and residential stability.

Static Neighborhood Social Climate Averages

Neighborhood average of participation. This PHMC survey item asked respondents about their participation in local organizations. One neighborhood participation indicator was the neighborhood average of responses in 2008, 2010, and 2012 for any participation in local organizations (= 1, no participation = 0) (see Table 4).

Neighborhood average of working to improve neighborhood. A PHMC survey item asked respondents whether neighbors had ever worked together to improve their neighborhood. The improvement indicator used was the neighborhood average of responses in 2008, 2010, and 2012, recoded so an affirmative response (=1) and no (=0) (see Table 3 and Table 4).

Neighborhood average of social climate index. Four original items in the PHMC survey asked respondents about their participation in local organizations, level of trust in neighbors, how often neighbors help each other, and whether neighbors are willing to work together to achieve a common goal. A social climate index was the average of the four z-scored items in 2008 (Cronbach's alpha = .57) and 2010 (Cronbach's alpha = .51).

Dynamic Changes in Neighborhood Social Climate

To measure the unexpected changes in neighborhood-level social climate within neighborhoods over time, 2010 PHMC measures were regressed upon 2008 PHMC measures. Bursik and Grasmik (1993) advocate this method by pointing out that standard residual change scores reflect ecological discontinuities between two time points. For this study, the resulting standardized residuals represented the unexpected shifts or instabilities in the *social climate index*, *participation*, and *improvement* between 2008

and 2010. This same process was repeated for participation and improvement for changes from 2010 to 2012 and 2008 to 2012 (the other two items were not asked in the 2012 PHMC survey). Further, the Empirical Bayes (EB) adjusted mean was also calculated for these change measures⁷. Table 6 shows the EB adjusted standardized residuals between 2008 and 2010. Positive scores represent higher than expected improvements between waves.

⁷ Although there were over 4,000 survey respondents in each PHMC survey across all 45 neighborhoods, Devine, Louis and Halloran (1994) note that the addition or deletion of a single respondent in a neighborhood with a small response rate could drastically change the observed data. One solution for small response rates in geographic data is the Bayesian approach which “seeks to estimate a rate that has been adjusted to reflect the differing contributions of ‘true’ variation and the component of overall variation due to random chance” (Kennedy-Kalafatis, 1995, p. 1274). Empirical Bayes (EB) estimates adjust the mean for the number of respondents per neighborhood, how often their responses agree, and any extreme values (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). An EB adjustment was calculated in HLM 7 for neighborhood-level social climate measures in the study

Table 6

Unexpected Changes in Empirically Bayes (EB) Adjusted Neighborhood Social Climate Proportions

| | | Standardized Residuals From 2008 - 2010 | | | | | | | | | |
|----|------------------------------|---|-------|-------|-------|-------------|------------|-------|-------|-------|-------------|
| | | Original Item | | | | | Proportion | | | | |
| | Neighborhood | Partic | Trust | Help | Imprv | Soc Clim | Partic | Trust | Help | Imprv | Soc Clim |
| 1 | Center City | -1.25 | .87 | 1.97 | .21 | .93 | 3.26 | -.59 | -1.88 | -.21 | .04 |
| 2 | Schuylkill-Point Breeze | .55 | -.93 | 1.64 | .50 | .71 | -.24 | 1.21 | -.90 | -.50 | -.50 |
| 3 | Grays Ferry – Passyunk | .58 | -1.00 | -.82 | -.62 | -.49 | -.73 | .60 | .53 | .62 | .62 |
| 4 | Pennsport – Queen Village | .28 | -.19 | .37 | -2.67 | -1.20 | .04 | .59 | -.68 | 2.67 | 2.08 |
| 5 | Southwark – Bella Vista | 1.98 | .15 | -.13 | -2.14 | .25 | -.49 | -.78 | .15 | 2.14 | .52 |
| 6 | Snyder – Whitman | .86 | -.37 | 1.64 | -1.03 | .04 | -.66 | .06 | -1.26 | 1.03 | .23 |
| 7 | S.Broad – Girard Estates | -.58 | -.16 | .01 | .21 | -.86 | .05 | .23 | -.45 | -.22 | -.17 |
| 8 | Eastwick – Elmwood | 1.63 | -.34 | .93 | -.81 | .46 | -.61 | .51 | -1.08 | .81 | .07 |
| 9 | Paschall – Kingsessing | -.29 | -.84 | -2.05 | -.01 | -.64 | .39 | .31 | 2.66 | .01 | .45 |
| 10 | University City | -.19 | -.05 | .99 | 1.54 | .86 | 1.00 | .14 | -.14 | -1.54 | .10 |
| 11 | Cobbs Creek | -.42 | -.13 | -.65 | -.30 | -.74 | -.31 | .37 | .80 | .30 | .31 |
| 12 | Mill Creek – Parkside | -.10 | -1.40 | .01 | .66 | -.41 | -.06 | .33 | .15 | -.66 | .13 |
| 13 | Haddington - Overbrook | -.79 | -.49 | .02 | .74 | .35 | .02 | .39 | -.22 | -.74 | -.14 |
| 14 | Overbrook – Wynnefield | 1.54 | -.56 | .33 | -.84 | -.74 | -.33 | 1.44 | -.70 | .84 | 1.69 |
| 15 | Strawberry Mansion | .06 | -.71 | .46 | .61 | .59 | 1.10 | .51 | -.89 | -.61 | -.39 |
| 16 | Sharswood – Stanton | 1.06 | -1.98 | .13 | -1.13 | .38 | .12 | 2.32 | -.77 | 1.13 | .92 |
| 17 | Poplar – Temple | -.56 | .12 | .64 | .59 | -.10 | -.01 | -.02 | -.86 | -.59 | -.41 |
| 18 | N. Liberties – W. Kensington | 1.46 | -2.64 | -.84 | -.92 | -1.10 | -1.17 | 2.53 | 1.40 | .92 | 2.37 |
| 19 | Fairmont – Spring Garden | -.12 | -.74 | -.52 | .35 | -.97 | -1.14 | 1.10 | .52 | -.35 | .79 |
| 20 | Nicetown – Tioga | 1.16 | -.13 | -1.46 | -.18 | -1.02 | -1.02 | .18 | 1.66 | .18 | .48 |
| 21 | Hunting Park – Fairhill | .90 | -.19 | -.42 | .85 | .15 | -1.33 | .16 | .23 | -.85 | -.84 |
| 22 | Lower Kensington | -.26 | .71 | .85 | 1.02 | 1.46 | .09 | -.27 | -.53 | -1.02 | -2.16 |
| 23 | Richmond – Bridesburg | -.23 | 1.32 | .76 | 1.83 | .17 | -.20 | -.81 | -1.66 | -1.83 | -1.45 |
| 24 | Upper Kensington | .33 | .87 | -.61 | 1.35 | 3.32 | -.41 | -.44 | .15 | -1.35 | -1.92 |
| 25 | Juniata Park – Harrowgate | 1.34 | .26 | .08 | -.99 | 1.07 | -1.26 | -.16 | -.41 | .99 | -.52 |
| 26 | Roxborough – Manayunk | -.98 | .93 | .83 | -.30 | .21 | .84 | -.34 | .02 | .30 | .66 |

Table 6

(Continued)

| | | Standardized Residuals From 2008-2010 | | | | | | | | | |
|----|----------------------------|---------------------------------------|-------|-------|-------|-------------|------------|-------|-------|-------|-------------|
| | | Original Items | | | | | Proportion | | | | |
| | Neighborhood | Partic | Trust | Help | Imprv | Soc Clim | Partic | Trust | Help | Imprv | Soc Clim |
| 27 | Chestnut Hill – W. Mt Airy | -.92 | .57 | .67 | .97 | .29 | 3.39 | .20 | -1.32 | -.97 | .80 |
| 28 | East Mt Airy | -1.12 | .27 | -.31 | .26 | -1.23 | .70 | .16 | .34 | -.26 | 1.25 |
| 29 | East Falls – Westside | -2.16 | .36 | -.13 | -1.04 | -2.15 | 1.53 | -1.71 | .41 | 1.05 | -.22 |
| 30 | Germantown | -.54 | -1.23 | -.41 | 1.03 | .44 | .16 | .64 | .47 | -1.04 | -.25 |
| 31 | W. Oak Lane – Cedarbrook | -.54 | 1.18 | .63 | .82 | .77 | -.22 | -.96 | -.25 | -.81 | -.55 |
| 32 | Oak Lane – Fernrock | .92 | -.38 | -1.05 | -1.03 | -1.75 | -.72 | -.49 | 1.71 | 1.03 | 1.41 |
| 33 | Ogontz | -2.17 | -.46 | -1.50 | 1.54 | -1.42 | .33 | .36 | 1.51 | -1.54 | -.30 |
| 34 | Logan | -.43 | .74 | -.89 | .32 | .49 | .12 | -1.16 | .45 | -.32 | -.56 |
| 35 | Olney – Feltonville | 1.76 | .79 | -.54 | .30 | .63 | -1.27 | -.62 | .86 | -.30 | .70 |
| 36 | Frankford | .05 | .14 | -1.81 | .61 | .14 | -.45 | -.27 | 1.29 | -.61 | -.87 |
| 37 | Wissinoming – Tacony | -.62 | -1.80 | -2.28 | -.22 | -1.45 | -.07 | 1.68 | 1.15 | .22 | .23 |
| 38 | Lawndale – Cresentville | -.27 | .75 | .35 | .24 | .35 | .83 | .04 | .24 | -.24 | -.88 |
| 39 | Mayfair – Holmesburg | -.57 | 1.28 | 1.21 | 1.54 | .87 | .39 | -.36 | -1.14 | -1.54 | -.85 |
| 40 | Oxford Circle | -.85 | 1.22 | .93 | -.26 | -.06 | .56 | -.68 | -.57 | .26 | -2.32 |
| 41 | Rhawnhurst – Fox Chase | -1.30 | 1.74 | -.95 | -.17 | -.07 | -.20 | -1.75 | .72 | .17 | -.89 |
| 42 | Bustleton | -.80 | -.92 | 1.52 | -1.23 | -.12 | -.15 | .29 | -.92 | 1.24 | -.76 |
| 43 | Somerton | .58 | .55 | -.21 | -1.11 | 1.33 | -.23 | -1.67 | .43 | 1.11 | .38 |
| 44 | Torresdale North | .76 | 2.03 | .57 | -.56 | .76 | -1.39 | -2.46 | -1.21 | .55 | .52 |
| 45 | Torresdale S. - Pennypack | .27 | .79 | .02 | -.50 | -.47 | -.24 | -.80 | .00 | .51 | .19 |

Note. Data came from the Philadelphia Health Management Corporation's Biannual Household Health Surveys in 2008, 2010, and 2012. Data were adjusted to reflect US Census 2010 gender and race composition and education levels in Philadelphia County. Data were also adjusted to non-responses to the survey question on Trust.

Residential Stability

Residential stability was the proportion of homeowner occupied housing units in 2010 compared to the total number of available units. This was calculated using US Census ACS 5 year estimates from 2008-2012 measured at the tract level. The number of owner occupied houses was divided by the total number of occupied housing units for each PHMC neighborhood. The resulting proportion was standardized using a z distribution. Higher neighborhood values represent more a stable neighborhood.

Proportion of African American Residents

Racial composition was measured as the neighborhood proportion of African American residents. This was calculated using US Census ACS 5 year estimates from 2008-2012 measured at the tract level. The number of African Americans was divided by the total number of residents in each PHMC neighborhood. The resulting proportion was standardized using a z distribution. Higher neighborhood values represent more African American residents compared to the neighborhood population.

Socioeconomic Index

One socioeconomic index measured six aspects of wealth, employment and education for each neighborhood (Cronbach's $\alpha = .92$). Higher values represent a more affluent neighborhood. This was calculated using US Census ACS 5 year estimates from 2008-2012 measured at the tract level. Specifically, the measure included the percent of individuals above the poverty level, the percent of individuals 150% above the poverty level, the median house value, the median household income, the percent of high

school graduates, and the percent employed. These measures were standardized using a z distribution. The average was calculated for each PHMC neighborhood.

Neighborhood Crime Rates

Neighborhood violent, property, and drug incident rates per 10,000 residents were calculated for each neighborhood. The Philadelphia police recorded incidents they respond to even if there was no resulting arrest. Geocoded incidents from August 1, 2009 through July 31, 2013 were provided by the police department and used for calculation. *Violent incidents* included homicides and unjustified manslaughters, rape, robbery, and aggravated assaults. Simple assaults were not included. *Property crime incidents* included burglary, larceny, theft, and motor vehicle theft. Arson was not included in the calculation of property crime incidents. *Drug incidents* included the sale and possession of narcotics. Counts of each crime type per neighborhood were created. US Census ACS 5 year population estimates from 2008-2012 were used to approximate the baseline population for each neighborhood.

Independent Measures: Client-Level Variables

Client factors came from APPD records. To ensure that client anonymity was maintained, all personal identification information was removed and residential addresses were aggregated to an areal unit so the dataset was completely de-identified. Data files used for analysis contained no personal identifying information.

Probationer/Parolee Supervision Status

A dummy variable indicated whether a client was a parolee (= 1) or probationer (= 0).

Geographically and Non-Geographically Based Subunits

Dummy variables captured assignment into one of three geographically based subunits for high-risk offenders in the east-northeast (= 1), west-northwest (= 1), and south central (= 1). An additional non-geographically based subunit included citywide high-risk individuals (= 1). The reference group was non-geographically based assignment of moderate- and low-risk clients.

Felony Instant Conviction

Seriousness of the instant offense was measured by a dummy variable for a felony conviction (= 1) or a misdemeanor (= 0).

Instrumental High-Risk Supervision

An instrumental variable proxy for risk assignment was used because the current risk classification protocol uses a forest-decision matrix that includes a geographic component (ZIP codes) (Barnes & Hyatt, 2012). The 53 predictors used for the risk classification by the APPD are listed in the Appendix. Inclusion of the original risk score would have conflated these scores with the geographic indicators used in this study. The instrumental high-risk variable captured the probability the client was assigned to high-risk supervision. Being a parolee, the number of missed contacts, the total number of office visits, the total number of urine tests, gender, conviction offense seriousness, and race and ethnicity predicted assignment into high risk.

Gender

A dummy variable coded males as 1 and females as 0.

Low Socioeconomic Status African American Probationers and Parolees

One variable included African Americans probationers and parolees living in neighborhoods at or below the median socioeconomic status percentile (= 1). Another variable included African American probationers and parolees living in neighborhoods at or below the 25th socioeconomic status percentile (= 1).

Low Socioeconomic Status Female Probationers and Parolees

One variable included all females living in neighborhoods at or below the median socioeconomic status (=1). Another variable included all females living in neighborhoods at or below the 25th socioeconomic status percentile (= 1).

Low Socioeconomic Status African American Female Probationers and Parolees

One variable included all African American females living in neighborhoods at or below the median socioeconomic status (=1). Another variable included all African American females living in neighborhoods at or below the 25th socioeconomic status percentile (=1).

Age

This study included age in years at the beginning of supervision.

Employment Status

Two dummy variables measured the employment status of each client. One variable measured unemployment (= 1). The reference category was part or full time employment. Since 35% of employment information was missing for the selected group, a dummy variable also measured whether employment information is missing (= 1).

Race

A dummy variable indicated whether the client was nonwhite (African American, Asian, or “Other” = 1). The majority of nonwhite clients were African American (7,973, 64.72%), and a small number were Asian (97, .79%).

Ethnicity

A dummy variable indicated whether the client was Latino (= 1).

Arrests during Supervision

A dummy variable indicated whether an individual was arrested once during the supervision period (= 1). Another dummy variable measured whether the individual was arrested two or more times during the supervision period (= 1). The reference category was no arrest.

Positive Drug Tests during Supervision

A dummy variable measured whether an individual tested positive for any narcotic just once during the supervision period (=1). Another dummy variable measured whether the individual tested positive for narcotics two or more times during the supervision period (= 1). The reference category was those who were never tested or never had a positive drug test.

Missed Appointment during Supervision

A dummy variable measured whether an individual missed just one scheduled office visit during the supervision period (= 1). Another dummy variable measured

whether the individual missed two or more office visits during the supervision period (= 1). The reference category was those who never missed any office visits.

Analytic Plan

There were four groups of clients: male probationers, male parolees, female probationers, and female parolees. There were too few female parolees ($n = 181$), however, to obtain reliable results. Outcome differences between male probationers and male parolees and those between male and female probationers were of particular interest. One set of analyses examined each pair across the four outcome categories. Another set compared group differences on additional supervision days for those in this outcome category.

Categorical Outcome

Multilevel multinomial logistic regression models analyzed the categorical outcome with individual cases nested within neighborhoods (Rabe-Hesketh, Skrondal, & Pickles, 2004). Comparisons were made between the reference category and other categories in simultaneous logistic regression analyses (Weisburd & Britt, 2007). In this study, the reference category was on-time supervision closures. Classification into this group occurred when the actual supervision date was within a week of the original sentence expiration date. This group was a proxy for successful supervision completion. The models compared individuals who completed supervision on time versus those who had shortened supervision, extended supervision, or ongoing supervision.

Number of Additional Supervision Days

A second series of analyses more closely considered variation within just one of these outcome groups: supervision extensions. More specifically, it examined subgroup differences in the *number* of days supervision was extended, as well as associated client and neighborhood factors. These models also controlled for factors that led to a case being “selected” for supervision extension (Berk, 1983; Heckman, 1976; Zatz and Hagan, 1985). Since the number of additional supervision days was a count, it was analyzed using multilevel negative binomial models. This study used negative binomial rather than Poisson models because the outcome distribution closely matched the expected negative binomial distribution (See Figure 4). A chi-square test with only the number of additional supervision days was significant ($\chi^2 = 3.30, p < .05$), suggesting that the distribution more closely resembled the negative binomial versus a Poisson distribution.

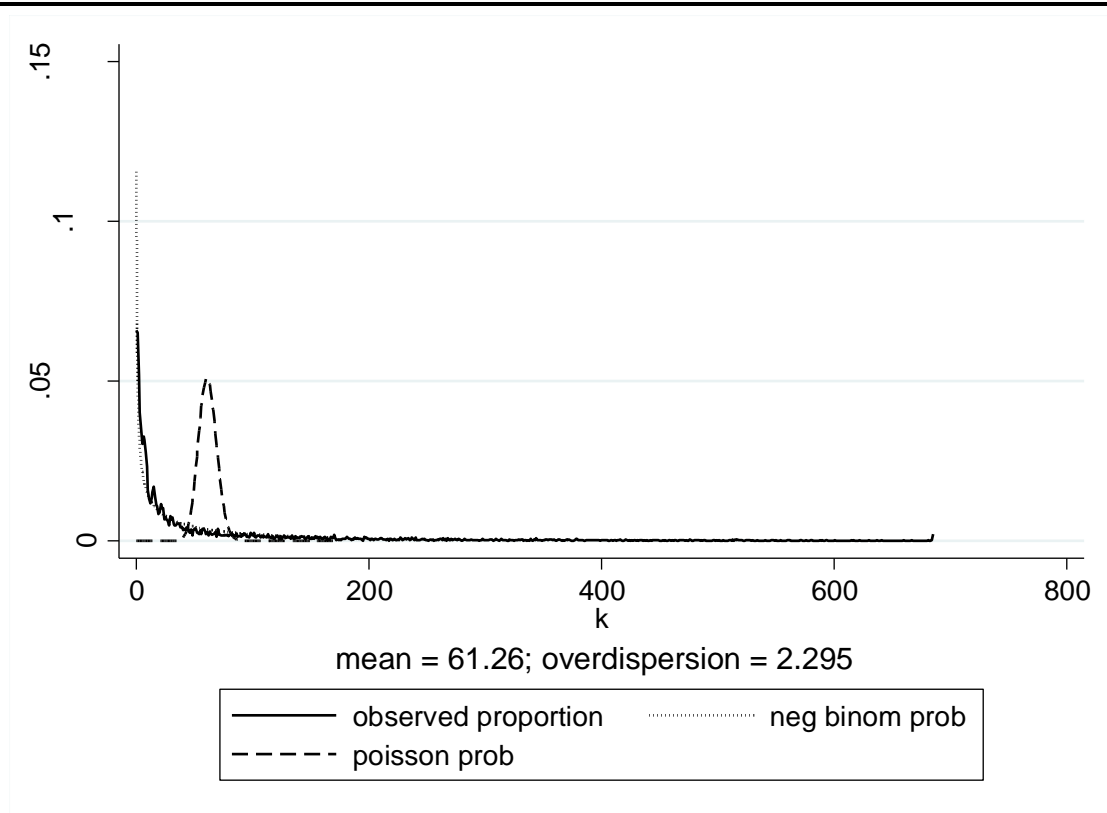


Figure 4: Distribution of Additional Supervision Days against Negative Binomial and Poisson Distributions

Selection into Additional Supervision Days

To examine only a subset of individuals who have supervision extensions ignores others who may have been eligible for additional supervision but did not receive it. Doing so can confound the predictor impact with selection dynamics. Since inclusion in the group (i.e. having supervision extended) was not random, a Heckman adjustment accounted for probability of selection into this group (Heckman, 1976).

In a process outlined by Heckman (1976) and Berk (1983), the two-step Heckman estimator used a probit model at the first stage to estimate a dummy variable for supervision extension. The second stage used OLS regression to estimate the number of additional supervision days. A superset of predictors included dummy variables for

employment, missing employment information, missing one or multiple office visits, and having one or multiple arrests during supervision. This set of predictors was chosen because they significantly predicted supervision extension relative to on-time completion in the multinomial models. From this process, the inverse Mills ratio of the likelihood of having supervision extended was saved and included as an explanatory variable in the negative binomial models.

Sequence of Analyses

For the multinomial and negative binomial models, an initial ANOVA or null model assessed whether significant differences in supervision outcome types and supervision extensions existed across PHMC neighborhoods. The next model introduced gender and parole/probation variables to address research questions 1-4 and 6.

To address research question 5, the next model added geographic subunit variables. To separate geographic from compositional effects, additional client features included (depending on the outcome) gender, supervision status, race, ethnicity, age, and employment status. Supervision and case features included a felony conviction, arrests, missed contacts, instrumental high-risk and positive drug tests during supervision. At this point, all client-level predictors were included and changes in the effects of gender, parole, and geographic subunits due to additional predictors were examined.

The next set of models included neighborhood social climate, followed by crime incident rates. These models included all client-level predictors, a measure of social climate, crime incident rates, and socio-demographic features. Additional models for probationers only examined subgroups of African Americans and females in lower

socioeconomic status neighborhoods. In total, there were 60 full models for each of the two outcome measures⁸. Potential correlates included client demographics, case features, client behavior, organizational features, gender interactions, social climate measures, crime incident types, and socio-economic status. Table 7 provides an overview of the research questions, hypotheses, outcome, independent variable of interest, and statistical analyses used in this research.

⁸ Sixty tests examining supervision outcome type included separate tests for socioeconomic status, violent, property, and drug incidents (4) for average participation, average improvement, social climate average, changes in participation, changes in improvement, and changes in social climate ($4 \times 6 = 24$) in the male only model. Additional models for male and female probationers included two additional models that included females and African Americans living at or below the median and the 25th percentile socioeconomic status neighborhood ($6 \times 6 = 36$). The same number of tests on the number of additional supervision days was conducted.

Table 7

Questions and Hypotheses the Study: Adjustments to Supervision Lengths for Adult Probationers and Parolees in a Local Supervision Agency

| Question | Hypothesis | DV | Key IVs | Statistical Analysis |
|---|---|---|---|---|
| Differences between subgroups? | Male parolees > probationers to have shortened and extended supervision adjustments | Supervision adjustment type | Social climate, Neighborhood crime | Multinomial logistic regression |
| | Male > female probationers to have shortened and extended supervision adjustments | | | |
| | Male parolees > probationers longer supervision extensions | Additional supervision days | Social climate, Neighborhood crime | Multilevel negative binomial regression |
| | Males > female probationers longer supervision extensions | | | |
| | Impacts of neighborhood social climate stronger for female probationers compared to male probationers | Additional supervision days & Supervision adjustment type | Females in lower socioeconomic status neighborhoods | Multilevel negative binomial regression & Multinomial logistic regression |
| Differences by geographic organization? | | Additional supervision days & Supervision adjustment type | Organizational subunits | Multilevel negative binomial regression & Multinomial logistic regression |

Since this study tested several hypotheses using the same outcome (60 full models for each outcome), the probability of committing a Type I error increased (Aickin & Gensler, 1996). This increased the likelihood of erroneously finding *something* significant and rendering the individual p values inappropriate guides to actual statistical significance. Individual p values were therefore Holm adjusted to minimize Type I error rates (Aickin & Gensler, 1996)⁹. Holm p values were used to determine significance in this study.

To calculate the appropriate Holm adjustment after each model, the predictors were sorted in ascending order from lowest to highest p value Aickin & Gensler (1996). Next, the threshold alpha level (in this case .05) was divided by the number of tests (60) minus the position of that predictor in the order of ascending p values. A value of one was then added to this quotient to produce the Holm adjusted p value for that predictor. The Holm adjustment, therefore, became less stringent as the number of tests increased.¹⁰

⁹ There are other approaches to minimizing Type I errors. Another solution adjusts individual p values using a Bonferroni procedure. This procedure adjusts the p value of each null hypothesis by dividing the alpha-level by the number of null hypotheses tested. Using the Bonferroni procedure, as the number of tested hypotheses from the same sample on a single outcome increases, so does the stringency of individual p values (Aickin & Gensler, 1996). One criticism of the Bonferroni procedure is that it may be too conservative in estimation, which is why the Holm procedure was used in this study.

¹⁰ The following example shows the Holm adjustment for one predictor, felony conviction, of additional supervision days as specified by Aickin and Gensler (1996). The unadjusted p value for having a felony conviction is .03, which is significant ($p < .05$). The Holm adjustment for this predictor uses the following equation and steps:

$$\text{Holm adjusted } p \text{ value} = \frac{\alpha}{(n - i + 1)}$$

1. Sort all predictors in ascending order of unadjusted p values (i). In this example, having a felony conviction is the eighth lowest p value out of seventeen. Seven predictors have lower p values (i.e. are more significant), while the remaining have higher p values (less significant).
2. Once sorted, the predictors place in the sort (8) is subtracted from the number n of analyses (60). One is added to this to produce 53.
3. The alpha-level (α) of .05 is divided by this value to produce the Holm adjusted p value of .0009.

Table 8 shows the Holm adjusted p values used in this study. In models reported in the *Results* section, unadjusted p values are reported, but significant results using a Holm adjustment are indicated with an asterisk (*) next to the variable.

| Table 8 | |
|---|-----------------------|
| <i>Holm Adjusted p Values Used in this Study for 60 Separate Tests for Each of the Two Outcomes</i> | |
| Ascending order place (i) of p values in any model | Holm adjust p value |
| 1 | .0008 |
| 2 | .0009 |
| 3 | .0009 |
| 4 | .0009 |
| 5 | .0009 |
| 6 | .0009 |
| 7 | .0009 |
| 8 | .0009 |
| 9 | .001 |
| 10 | .001 |
| 11 | .001 |
| 12 | .001 |
| 13 | .001 |
| 14 | .001 |
| 15 | .001 |
| 16 | .001 |
| 17 | .001 |
| 18 | .001 |
| 19 | .001 |
| 20 | .001 |
| 21+ | .00125< |
| <i>Note.</i> 60 full models on each of the two outcomes were analyzed in this study. Holm adjusted p values were used to interpret significant findings. The Holm adjusted p value was compared to the unadjusted value. If the unadjusted p value \leq the Holm adjusted value, then the result is considered a significant finding. | |

4. A comparison is then made between the unadjusted p value and the Holm adjusted p value. Unadjusted values higher than the Holm adjustment are not significant. In this example, having a felony conviction had an unadjusted p value of .03. Compared to the Holm adjustment, having a felony is not a significant predictor of additional supervision days.

Missing Data

There were two specific decisions related to the handling of missing data. The first concerned data on neighborhood social climate from the Philadelphia Health Management Corporation. Examination of the original survey items in Table 3 revealed that non-responses were higher for one social climate measure. The variable *trust* had 9.1 percent missing responses in 2008 and 10.6 percent in 2010 (survey item not included in 2012). In order to account for missing responses, each individual was weighted by the predicted probability of non-response to trust. That is, individuals who responded but were like those who did not respond to that survey item were given more weight. The second decision stems from employment information provided by the probation/parole department. In this instance, 35 percent of employment information was missing. To account for this, each final model included a dummy variable for missing employment information.

Multicollinearity

To assess whether multicollinearity was an issue, linear regression models were generated with all the independent variables included in the final analyses (Darlington, 1968). The regression models calculated Variance Inflation Factors (VIFs), a measure of multicollinearity. Given the correlation between the socioeconomic status index and drug (-0.79), property (-0.10), and violent (-0.83) rates, those were included in separate models. In addition, a strong correlation existed between African American females and all females living at or below the median socioeconomic (.84) and the 25th percentile (.82). Individuals living in neighborhoods at or below the median and 25th percentile socioeconomic were tested in separate models. Further, the variable including all females

was not included in the final models. Missing one office visit and two or more office visits were also collinear, so only missing one office visit was included in the final set of models. After these considerations, the largest VIF in any model was 2.29.

CHAPTER 5

DESCRIPTION OF LOCAL PROBATIONERS AND PAROLEES

This chapter details the client, case, and neighborhood features associated with the earliest supervision case that started between August 1, 2009 and July 31, 2010. In addition, this chapter describes the geographic distribution of local probationers and parolees using his or her first self-reported address¹¹.

Figure 5 shows the rate per 10,000 neighborhood residents of low, moderate, and high-risk probationers and parolees beginning supervision between August 1, 2009 and July 31, 2010. The figure shows that probationers and parolees came all 45 neighborhoods¹². A small number of neighborhoods, however, accounted for the highest number of probationers and parolees.

¹¹ For the 12,320 individual cases of those selected, 598 had missing, out of state, or out of city addresses. This left 95.05% with a useable initial address in Philadelphia County. From these addresses, 11,714 (90.1%) addresses were successfully geocoded using ArcGIS 10.1.

¹² Some addresses were verified by supervising officers through either mail correspondence or field verification. The supervising officer enters each residential address and any subsequent changes of address is as a standard condition of supervision. Common practice for the supervising officer to ask the probationer/parolee to verify his or her address during office visits. The electronic data management system has an open field response where the officer can enter the street address. There is an additional field for a residential change date.

The initial analytic plan in the prospectus raised the possibility of adjusting neighborhood covariates based on the amount of time supervisees were located in neighborhoods. This was not possible, however, given that over the study period, the address field was updated on average 5.03 times ($SD = 4.90$). Officers only populated the date field half (54.41%) the time. This made it difficult to time order residential addresses. The approach taken here was to use the initial address for each case.

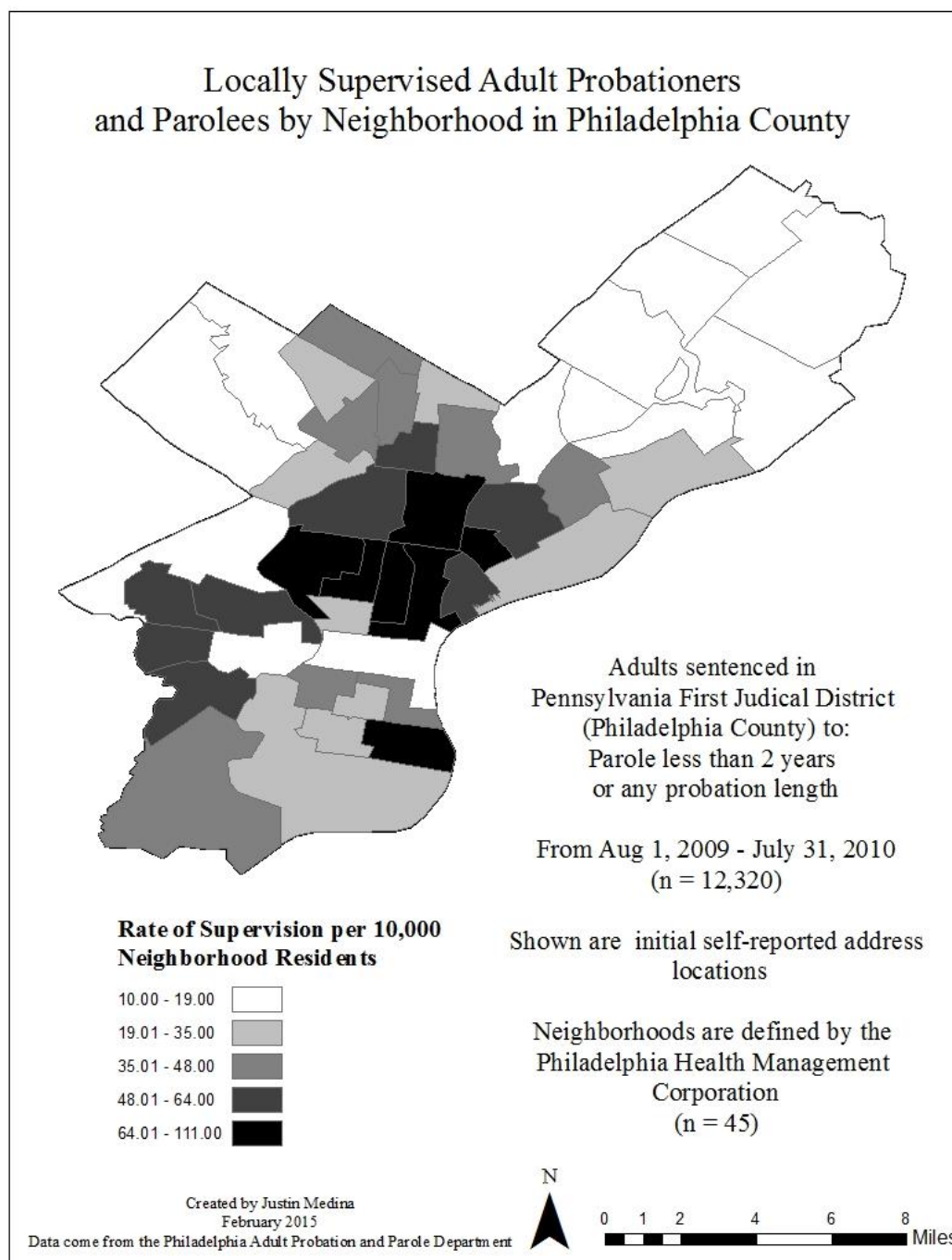


Figure 5. Supervision Rates of Adult Probationers and Parolees per 10,000 Residents of Any Age in Non-Specialized Units

Demographic Features of Local Probationers and Parolees

The first research question compared males and females under supervision. Those selected were predominantly male (80.3%). Of the females under supervision, about 9 percent lived in neighborhoods at or below the median socioeconomic status; about 4 percent lived neighborhoods below the 25th economic status percentile. Table 9 also shows that most (78.9%) of those selected were nonwhite. 64.91 percent were African American and .79 percent were Asian. Latinos comprised 10 percent of those selected. Local probationers and parolees varied in age from 18 to 69 years old, with the average probationer or parolee being about 36 years old ($SD = 11.39$) at the start of supervision. Although not reported in Table 9, about 65 percent of probationers and parolees reported having full time employment, and another 8.7 percent reported having part time employment. Nearly 4 percent of local probationers and parolees reported having untaxed employment. Nearly 12 percent of those selected were considered parolees.

Supervision Features of Local Probationers and Parolees

Instant Offense Seriousness and Supervision Length

Nearly a quarter (23.15%) of probationers and parolees were convicted of a felony offense, a proxy for offense seriousness (Table 9). For the case examined in this study, there were 2.01 conviction charges ($SD = .83$). On average, selected probationers and parolees were sentenced to less than a year (324.76 days, $SD = 182.13$) of supervision.

Table 9

Descriptive Statistics for Variables in the Study

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|-----------------|--------------|-------|--------|-----|-----|
| <i><u>Supervision length adjustments</u></i> ^a | | | | | | |
| Number of additional supervision days past sentence expiration | Additional days | 6,753 | 61.26 | 105.15 | 0 | 685 |
| Adjustment type | | | | | | |
| On-time closure (= 0) | | 2,469 | .20 | - | - | - |
| Extended supervision (= 1) | | 5,518 | .45 | - | - | - |
| Shortened supervision (= 2) | | 1,886 | .15 | - | - | - |
| Ongoing supervision (= 3) | | 2,420 | .20 | - | - | - |
| Predicted probability of being selected for additional supervision time | Mills ratio | 8,727 | .60 | .18 | .08 | .79 |
| <i><u>Client demographics</u></i> ^a | | | | | | |
| Male (=1) | Male | 12,320 | .80 | - | 0 | 1 |
| African American, Asian, and “Other” (=1) | Nonwhite | 12,320 | .79 | - | 0 | 1 |
| Latino ethnicity (=1) | Latino | 12,320 | .10 | - | 0 | 1 |
| Age in years at time of supervision start date | Age | 12,320 | 35.65 | 11.39 | 18 | 69 |

Table 9

(Continued)

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|----------------------|--------------|------|----|-----|-----|
| Dummy self-reported unemployment (=1) | Unemployed | 12,320 | .40 | - | 0 | 1 |
| Dummy missing employment information (=1) | Employment missing | 12,320 | .35 | - | 0 | 1 |
| <i><u>Client supervision behavior</u></i> ^a | | | | | | |
| Dummy one positive drug test during supervision (=1) | One positive test | 12,320 | .08 | - | 0 | 1 |
| Dummy two or more positive drug tests during supervision (=1) | Two+ positive tests | 12,320 | .13 | - | 0 | 1 |
| Dummy one arrest during supervision (=1) | One arrest | 12,320 | .08 | - | 0 | 1 |
| Dummy two or more arrests during supervision (=1) | Two+ arrests | 12,320 | .23 | - | 0 | 1 |
| Dummy missing one office visit during supervision (=1) | One missed contact | 12,320 | .12 | - | 0 | 1 |
| Dummy missing two or more scheduled office visits during supervision (=1) | Two+ missed contacts | 12,320 | .11 | - | 0 | 1 |

Table 9

(Continued)

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|---------------------|--------------|------|-----|-----|-----|
| <i><u>Case features</u></i> ^a | | | | | | |
| Parole supervision status (=1) | Parole Status | 12,320 | .12 | - | 0 | 1 |
| Felony conviction for instant offense (=1) | Felony conviction | 12,320 | .23 | - | 0 | 1 |
| <i><u>Organizational features</u></i> ^a | | | | | | |
| Instrumental variable predicting high-risk classification (excludes geographic component) | High-risk | 12,242 | .12 | .18 | .01 | .99 |
| Supervision in non-geographically based high-risk subunit (=1) | Citywide unit | 12,320 | .03 | - | 0 | 1 |
| Supervision in east-northeast high-risk subunit (=1) | East-Northeast unit | 12,320 | .03 | - | 0 | 1 |
| Supervision in south-central high-risk subunit (=1) | South-Central unit | 12,320 | .03 | - | 0 | 1 |
| Supervision in west-northwest high-risk subunit (=1) | West-Northwest unit | 12,320 | .03 | - | 0 | 1 |

Table 9

(Continued)

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|-----------------------------|--------------|------|------|-------|------|
| <i>Static neighborhood features</i> ^b | | | | | | |
| Average of social climate index (trust, participation, improvement, and neighbor), z-score standardized. Higher values indicate greater social climate (Cronbach's Alphas = .57 (2008), .51 (2010)) | Social climate average | 11,497 | -.18 | 0.59 | -1.45 | 1.51 |
| Proportional average of neighbors willingness to work together to achieve a common goal, z-score standardized. Higher values indicate greater willingness to help | Help Neighbors average | 11,497 | .01 | 0.18 | -.40 | .38 |
| Proportional average of neighbors involved in a local organization, z-score standardized. Higher values indicate greater organizational involvement | Participation average | 11,497 | -.06 | 0.14 | -.36 | 0.36 |
| <i>Dynamic neighborhood features</i> ^b | | | | | | |
| Unexpected changes in neighborhood participation from 2008 to 2010, z-score standardized | Participation changes 08-10 | 9,240 | -.18 | .84 | -1.39 | 3.39 |

Table 9

(Continued)

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|------------------------------|--------------|------|-----|-------|------|
| Unexpected changes in neighborhood participation from 2008 to 2012, z-score standardized | Participation changes 08-12 | 9,240 | .01 | .88 | -1.95 | 2.86 |
| Unexpected changes in neighborhood participation from 2010 to 2012, z-score standardized | Participation changes 10-12 | 9,240 | -.26 | .86 | -2.37 | 2.22 |
| Unexpected changes in willingness to help neighbors from 2008-2010, z-score standardized | Improvement changes 08-10 | 9,240 | -.15 | .87 | -1.83 | 2.67 |
| Unexpected changes in willingness to help neighbors from 2008 to 2012, z-score standardized | Improvement changes 08-12 | 9,240 | -.05 | .89 | -2.24 | 1.90 |
| Unexpected changes in willingness to help neighbors from 2010 to 2012, z-score standardized | Improvement changes 10-12 | 9,240 | -.41 | .84 | -1.59 | 1.84 |
| Unexpected changes in social climate index from 2008-2010, z-score standardized | Social climate changes 08-10 | 9,240 | -.05 | .95 | -2.32 | 2.37 |

Table 9

(Continued)

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|-----------------------|--------------|--------|--------|--------|--------|
| <i><u>Neighborhood Crime</u></i> ^c | | | | | | |
| Neighborhood violent crime incident rate per 10,000 residents | Violent rate | 11,497 | 152.18 | 58.80 | 29.79 | 250.10 |
| Neighborhood property crime incident rate per 10,000 residents | Property rate | 11,497 | 445.42 | 184.91 | 176.51 | 1388.3 |
| Neighborhood drug crime incident rate per 10,000 residents | Drug rate | 11,497 | 132.99 | 120.24 | 3.52 | 468.08 |
| <i><u>Neighborhood structure</u></i> ^d | | | | | | |
| Neighborhood socioeconomic index of percent above poverty, percent with high school diploma, median household income, and percent employed. Z-score standardized (Cronbach's Alpha = .92) | Socioeconomic status | 11,497 | -.33 | .69 | -1.038 | 1.87 |
| Neighborhood proportion of African American residents. Z-scores standardized. | Proportion black | 11,497 | .16 | 1.01 | -1.35 | 1.61 |
| Neighborhood proportion of owner occupied households relative to available households. Z-score standardized | Residential stability | 11,497 | .06 | .86 | -2.79 | 2.34 |

Table 9

(Continued)

| Label | Variable | Observations | Mean | SD | Min | Max |
|---|-----------------------------|--------------|------|----|-----|-----|
| <i>Gender interactions</i> ^{a,b} | | | | | | |
| African American females living in neighborhoods at or below median sei value | Black x Female x Median sei | 12,320 | .06 | - | 0 | 1 |
| African Americans living in neighborhoods at or below median sei value | Black x Median sei | 12,320 | .30 | - | 0 | 1 |
| Females living in neighborhoods at or below median sei value | Female x Median sei | 12,320 | .09 | - | 0 | 1 |
| African American females living in neighborhoods at or below 25 th sei percentile | Black x Female x 25%< sei | 12,320 | .03 | - | 0 | 1 |
| African American living in neighborhoods at or below the 25 th sei percentile | Black x 25%< sei | 12,320 | .17 | - | 0 | 1 |
| Female living in neighborhoods at or below the 25 th sei percentile | Female x 25%< sei | 12,320 | .04 | - | 0 | 1 |
| <i>Note.</i> | | | | | | |
| a. Data came from 12,320 adult probation/parole cases in Philadelphia County sentenced to begin supervision between 8/1/2009 and 7/31/2010. Follow-up for sentence closure status was at 8/15/2014. | | | | | | |
| b. Data came from three waves [2008 ($n = 4,393$), 2010 ($n = 4,398$), and 2012 ($n = 3,525$)] of the Community Health Survey administered by the Philadelphia Health Management Corporation. | | | | | | |

c. Data came from the Philadelphia Police Department from 2009 through 2013. These data represent incidents responded to and recorded by police officers, but not necessarily leading to an arrest. Drug incident rates ($n = 50,481$) include illegal narcotic possession and distribution incidents. Property incident rates ($n = 243,008$) include burglary, larceny, theft, and motor vehicle theft. Violent crime rates ($n = 71,247$) include homicides and unjustified manslaughters, rape, robbery, and aggravated assaults.

d. These data came from five-year Census population estimates in the American Community Survey 2008-2012.

Drug Testing

Looking only at drug tests within a client's supervision period, nearly three-fourths (70.60%) of clients were never drug tested. Of those who were drug tested, about a fifth (20.52%) tested positive for drugs during their supervision. Examining this more closely, 7.68 percent tested positive once, and 12.84 percent tested positive for drugs two or more times during their supervision (Table 9). When a test was positive, the most common substance detected was marijuana (45.44%) followed by cocaine (34.36%) opiates (21.88%), benzodiazepines (17.86%), pcpc (12.47%), and methamphetamine (1.16%)¹³.

Reporting and Missed Office Visits

Nearly all clients (91%) reported for a scheduled office appointment during the study period. On average, clients reported to the downtown office 5.70 ($SD = 13.67$) times during supervision. Over 11 percent of clients missed only one scheduled office (not including court) appointment (Table 9). Nearly the same number of clients (11.77%) missed two or more scheduled office appointments. Another meeting context not reported in Table 9 occurred in court. Nearly a quarter (22.00%) had at least one court appearance during supervision.

Arrests during Supervision

Overall, nearly a third (31.11%) of clients were arrested during supervision. Arrestees average 1.12 ($SD = 3.00$) arrests during supervision. Over 8.43 percent were arrested just once; 22.68 percent were arrested two or more times (Table 9).

¹³ Individuals can test positive for multiple substances in a single test, so percentages sum to over 100 percent.

Risk-Level and Subunit Assignment

APPD's risk instrument classified nearly 12 percent of individuals as high risk, and another 32.53 percent were moderate risk (not shown in Table 9). Since the department's risk instrument takes into account geography, an instrumental variable without geographic information served as a proxy for the APPD risk instrument.

High-risk probationers and parolees were supervised in geographically based subunits. Table 9 shows that approximately 9% of those selected were supervised in geographically based units in the west-northwest, east-northeast, and south-central sections of the city. An additional 2.72 percent of high-risk individuals were supervised in a citywide high-risk subunit. Figure 6 shows the geographic distribution of high-risk probationers and parolees by subunits in the west-northwest, south-central, and east-northeast sections of the city. The figure shows that self-reported addresses clustered in the corresponding geographic subunits, but many individuals supervised in these units also were outside the corresponding geographic areas.

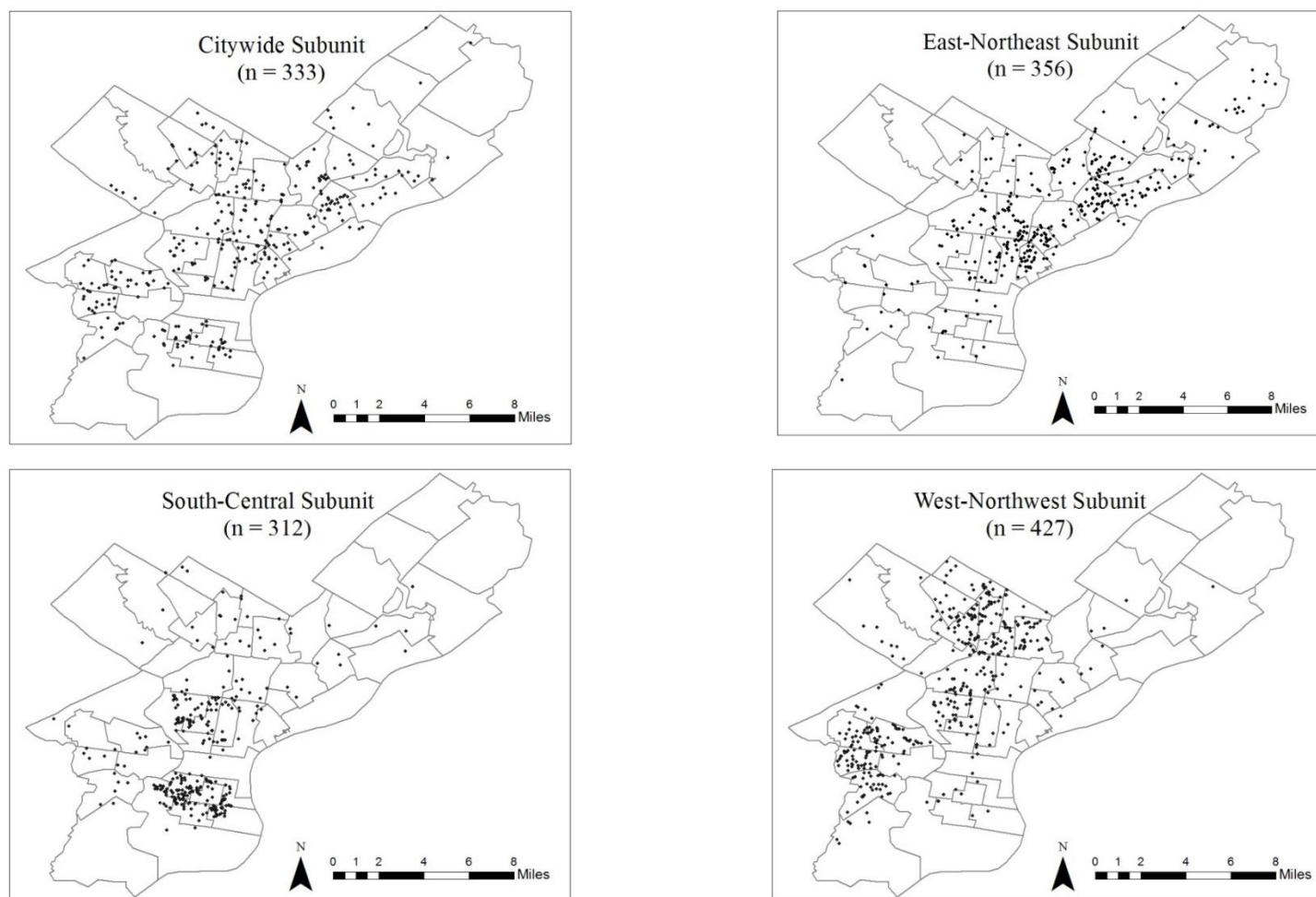


Figure 6. High-Risk Adult Probationers and Parolees Assigned to Supervision in Geographically and Non-Geographically Based Subunits

Note. Data came from the Philadelphia Adult Probation/Parole Department from individuals sentenced to parole less than two years or any probation length beginning 8/1/2009-7/31/2010, $n = 12,320$. Locations are initial self-reported addresses that generally match the supervision subunit area. Assignment into the non-geographically based high-risk unit, Citywide, is random and supervisees are subject to cognitive behavior therapy.

The Ecological Context of Probationers and Parolees

Neighborhood Social Structure

Nearly half of residents in the average neighborhood were African American, but neighborhoods varied in racial and ethnic composition. At least one of the 45 neighborhoods was predominantly African American (90.12%). One neighborhood had a sizeable Latino population (59.18%), and Asians in one neighborhood comprised a fifth (20.27%) of the residents. About 11% of individuals in the average neighborhood were born outside of the US. Five year estimates from 2008 – 2012, showed that over half (51.19%) of residents in the average neighborhood reported being employed, and the average neighborhood's household's income was \$49,570.45. Additionally, 44.27% in the average neighborhood were homeowners.

Neighborhood Social Climate

The social climate varied across neighborhoods. Table 6 shows the EB adjusted, z-scored averages for trusting neighbors, participating in organizations, helping neighbors, and working together for common improvements. An index of these variables was also created (Cronbach's alphas = .57 (2008) and .51 (2010)). About 43.75 percent in the average neighborhood reported participating in a local organization. About 70.62 percent of residents in the average neighborhood reported that they were willing to work together toward a common goal. Another 48.01 percent of respondents in the average neighborhood reported that they helped their neighbors. Over 58.29 percent of survey respondents in the average neighborhood reported that they trusted their neighbors.

Neighborhood Crime Rates

Police in the average neighborhood reported 121.74 violent crime incidents per 10,000 neighborhood residents from August 1, 2009 – July 31, 2013. The average neighborhood experienced 428.30 property crime incidents per 10,000.¹⁴ The average neighborhood experienced 87.47 drug incidents per 10,000 residents during this same period.

Post-Sentencing Supervision Adjustments

Supervision Adjustment Type

Looking at Table 10, nearly half (44.47%) of probationers and parolees had substantial additional supervision time beyond his or her sentence expiration. Additionally, about 15 percent had shortened supervisions.

Supervision Extension

Figure 7 shows the number of additional days for 6,753 individuals who had extended supervisions. This figure shows cases after 14 high values were winsorized to 685 additional days. On average, supervision was extended by a little over two months 61.26 days ($SD = 105.15$) beyond the sentence end date (see Figure 3).

¹⁴ The calculated property crime rate for the downtown Center City neighborhood was exceptionally high. It is reasonable to assume that is the consequence of a high volume of individuals and targets, but a relatively low residency rate. The decision was to include Center City in analyses because, although high, property crime incidents in this neighborhood were in the same direction as the other neighborhoods.

Table 10

| <i>Supervision Adjustment Types</i> | | |
|-------------------------------------|----------|----------------|
| | <i>n</i> | <i>Percent</i> |
| On-time completion | 2,496 | 20.26 |
| Extended supervision | 5,518 | 44.79 |
| Shortened supervision | 1,886 | 15.31 |
| Ongoing supervision | 2,420 | 19.64 |
| Total | 12,320 | 100.00 |

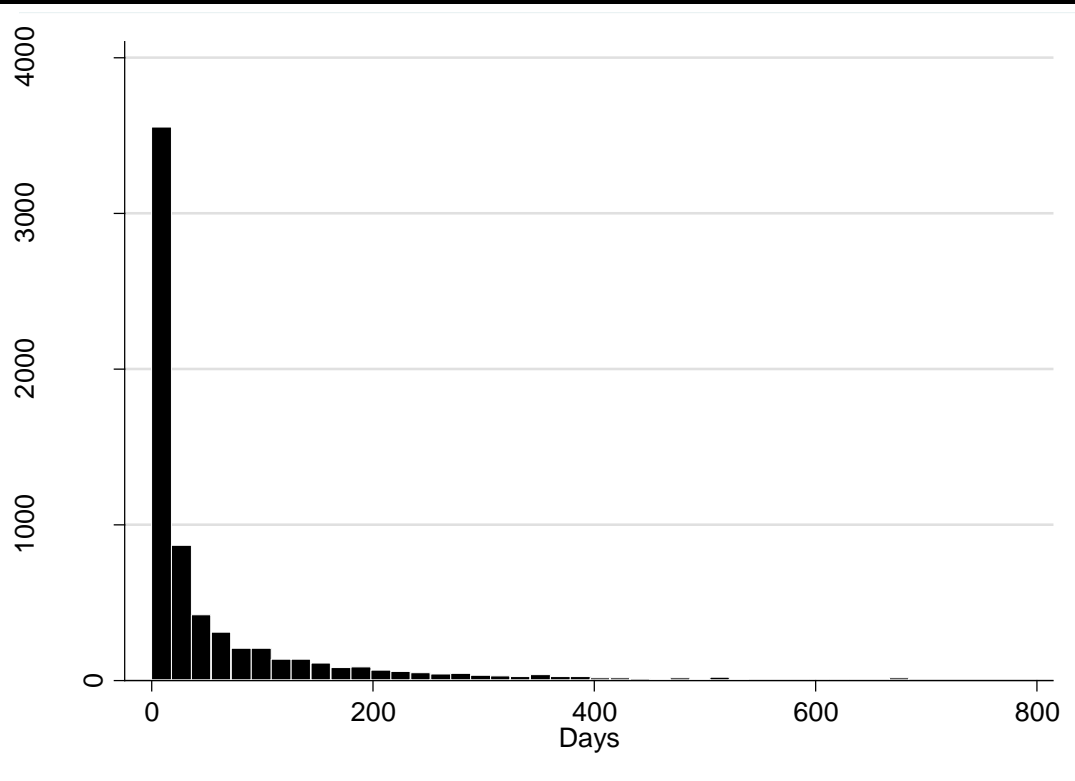


Figure 7. Histogram of Substantial Additional Supervision Days for Locally Supervised Adult Probationers and Parolees

Note. 6,753 Adult male and female probationers and parolees sentenced to local supervision in August 1, 2009 to July 31, 2010 had up to 685 additional supervision days added beyond sentence expiration. 14 high values from 689 to 896 days were winsorized to 685 days. Additionally, seven days were subtracted from each value to account for extensions of a week or more.

CHAPTER 6

RESULTS

This study examined two different outcomes. Supervision adjustment types included shortened supervision, on-time completion, extended supervision, and ongoing supervision. Another outcome looked specifically at the determinants of supervision extension lengths. Comparisons were made between different subgroups on supervision length adjustments. The first two models examined contrasts in the likelihoods of on-time completion, extended supervision and shortened supervision for (a) male probationers and parolees and (b) male and female probationers. The subsequent two models examined subgroup differences in extended supervision lengths between (c) male probationers and parolees and (d) male and female probationers.

Given the number of analyses, model comparisons and reporting relied on differences in The Bayesian Information Criterion (BIC) values (Raftery, 1995). In general, lower BIC values represent a better and more parsimonious model fit since the value reflects model complexity. Long (1997, p. 112) suggests that there is “very strong evidence” for one model over another when the BIC value difference is greater than 10. BIC value differences between 6 and 10 present “strong evidence” for preference of one model to another, and value differences between 2 and 6 provide “positive evidence” for preferring one model over another. The results of the most parsimonious models for each subgroup and outcome type are discussed below.

Multinomial Models Predicting Supervision Length Adjustment Type

An ANOVA model showed probabilities of supervision adjustment types did not vary significantly across the 45 PHMC neighborhoods ($\sigma^2 = .007$, SE of $\sigma^2 = .008$). Instead, single level multinomial regressions with robust standard errors clustered by neighborhoods were used. This approach allowed neighborhood effects across neighborhoods to still be considered.

Contrasts between Male Probationers and Parolees (n = 9,184)

The Bayesian Information Criteria (BICs) reported in Table 11 indicate a preference for the full unexpected (dynamic) changes in neighborhood processes model over the client-level and ANOVA models. This model provides the best combination of fit and simplicity. The ‘unexpected changes in neighborhood processes’ model includes neighborhood socioeconomic status and changes in neighborhood-level willingness to help others work towards a common goal. This model, however, does not consider gender or gender interactions because of the small number of female parolees.

Table 11

Bayesian Information Criteria (BIC) of Fit and Complexity and Log Likelihoods (-LL) for Multinomial Models of Supervision Adjustment Length Type that Include Male Probationers and Parolees

| | ANOVA | Client only | Static neighborhood social processes | Dynamic neighborhood social processes |
|-----|------------|-------------|--|---|
| BIC | 23,049.31 | 20,882.13 | 20,867.62 | 20,859.48 |
| -LL | -11,497.26 | -10,240.31 | -10,233.06 | -10,228.98 |

Extended Supervision versus On-Time Completion for Male Probationers and Parolees

Parole status. Table 12 shows that parolees' risk of extended versus on-time completion was about the same compared to probationers' risk of extended versus on-time completion, after controlling for case features, risk level, and social climate. It was expected that parolees compared to probationers would be more at risk of having extended supervision adjustments due to reintegration challenges (hypothesis 1a) even after accounting for social climate (hypothesis 1b), but this was not supported in the findings.

Subunit assignment. Male probationers and parolees assigned to the high-risk south-central ($p < .0001$), north-northwest ($p < .0006$), and the citywide ($p < .0011$) units had a significantly lower odds of having supervision extended versus finishing on time compared to the same odds for clients assigned to low- and moderate- non-geographically based units. This is observed even after controlling for conviction type and risk. For example, the odds of having supervision extended compared to finishing on time for males in the south-central unit decreased 55 percent compared to this same ratio for males in low- and moderate-risk units. This finding addresses research question 5 concerning intra-agency differences in supervision adjustment lengths. This finding suggests that some groups of high-risk clients have different outcomes compared to other high-risk and non-geographically assigned clients.

Table 12

Best Fitting Model Predicting Supervision Outcome Type for Locally Supervised Male Probationers and Parolees^a

| | Extended supervision ^b | | | | Shortened supervision ^b | | | | Ongoing supervision ^b | | | |
|---------------------------|-----------------------------------|-----|------------------|----------------|------------------------------------|-----|-------|-------|----------------------------------|-----|------|-------|
| | b | SE | RRR ^c | p ^d | b | SE | RRR | p | b | SE | RRR | p |
| Parole Supervision Status | -.30 | .13 | .74 | .0189 | 1.12* | .12 | 3.06 | .0001 | .97* | .12 | 2.64 | .0001 |
| Citywide unit | -.59* | .18 | .55 | .0011 | .87* | .19 | 2.38 | .0001 | -.80* | .20 | .45 | .0001 |
| East-Northeast unit | .01 | .22 | 1.00 | .9831 | .56 | .23 | 1.76 | .0138 | -.71 | .25 | .49 | .0050 |
| West-Northwest unit | -.51* | .15 | .60 | .0006 | .54 | .17 | 1.72 | .0016 | -.86* | .23 | .42 | .0002 |
| South-Central unit | -.79* | .20 | .45 | .0001 | .27 | .18 | 1.31 | .1280 | -1.20* | .21 | .30 | .0001 |
| Nonwhite | -.02 | .09 | .98 | .8465 | -.26 | .11 | .77 | .0236 | .27 | .13 | 1.31 | .0314 |
| Latino | -.11 | .09 | .90 | .2473 | .01 | .11 | 1.00 | .9990 | -.03 | .15 | .97 | .8511 |
| Age | .01 | .01 | 1.00 | .1926 | -.01* | .01 | .99 | .0003 | .01 | .01 | 1.01 | .0467 |
| Unemployed | .11 | .07 | 1.12 | .1011 | .23 | .11 | 1.26 | .0300 | -.18 | .08 | .83 | .0255 |
| Employment info missing | .43* | .09 | 1.53 | .0001 | .37* | .11 | 1.44 | .0005 | -.30 | .11 | .74 | .0073 |
| Felony conviction | -.56* | .07 | .57 | .0001 | .64* | .10 | 1.90 | .0001 | 1.54* | .09 | 4.65 | .0001 |
| 1 positive drug test | .16 | .15 | 1.18 | .2806 | .31 | .18 | 1.36 | .0964 | .41 | .19 | 1.51 | .0276 |
| 2+ positive drug tests | .21 | .08 | 1.23 | .0126 | .86* | .12 | 2.35 | .0001 | .57* | .13 | 1.78 | .0001 |
| 1 arrest | 1.01* | .12 | 2.76 | .0001 | 1.43* | .14 | 4.17 | .0001 | 1.16* | .15 | 3.18 | .0001 |
| 2+ arrests | 1.42* | .10 | 4.15 | .0001 | 2.36* | .12 | 10.58 | .0001 | 2.18* | .12 | 8.81 | .0001 |
| 1 missed office visit | .16 | .10 | 1.17 | .1045 | .17 | .12 | 1.19 | .1402 | .01 | .13 | 1.01 | .9320 |
| High-risk | -.91* | .23 | .40 | .0001 | -1.88* | .25 | .15 | .0001 | .90 | .30 | 2.45 | .0026 |
| Proportion black | -.02 | .04 | .98 | .5671 | -.09 | .05 | .91 | .0936 | -.04 | .04 | .96 | .3887 |
| Residential Stability | .01 | .04 | 1.01 | .9035 | -.05 | .07 | .95 | .4642 | .01 | .05 | 1.00 | .9303 |
| Socioeconomic Status | .01 | .05 | 1.01 | .8194 | -.02 | .11 | .98 | .8806 | .17 | .06 | 1.19 | .0072 |
| Improvement Change 08-10 | -.03 | .05 | .97 | .6221 | -.09 | .07 | .92 | .2334 | .02 | .07 | 1.02 | .8149 |
| Improvement Change 08-12 | .01 | .04 | 1.00 | .9602 | .02 | .06 | 1.02 | .7083 | .06 | .05 | 1.06 | .2592 |
| Improvement Change 10-12 | .01 | .04 | 1.01 | .8662 | .03 | .08 | 1.03 | .7230 | .11 | .07 | 1.11 | .1097 |
| Constant | .75* | .16 | 2.11 | .0001 | -.67* | .17 | .51 | .0001 | -1.61 | .19 | .20 | .0001 |

Note: Results from multinomial logistic analysis of 9,184 male probationers and parolees assigned to county-level supervision beginning August 1, 2009 - July 31, 2010. Model fit measures: BIC = 20,859.48; log likelihood = -10,228.98.

a. This model includes neighborhood unexpected changes in willingness to work together and socioeconomic status.

b. Contrast category is:

On-time completion = sentence expiration date within one week of actual supervision end date.

Versus

Extended supervision = actual supervision close date exceeds supervision expiration date by more than a week.

Shortened supervision = actual supervision close date precedes supervision expiration date by more than a week.

Ongoing supervision = supervision expiration date exceeds study follow-up date of August 15, 2014.

c. RRR = Relative risk ratio

d. Unadjusted p value

* Unadjusted p value < Holm adjusted p value used to indicate a significant relationship.

Performance while under supervision. The risks of an extended supervision versus finishing on time for male probationers and parolees were higher if the client was arrested one or multiple times. Table 12 shows the odds of receiving an extended supervision versus finishing on time were 1.76 times higher for male clients with an arrest compared to those same odds for male clients without an arrest ($p < .0001$). This risk increased with multiple arrests. This suggests that the agency is responsive to known client behavior (research question 6).

Case features. The odds of an extended supervision versus finishing on time for felons ($p < .0001$) were about 43 percent lower than the same odds for misdemeanants. Likewise, the odds of an extended supervision versus finishing on time for high-risk male probationers and parolees ($p < .0001$) were about 60 percent lower than the same odds for low- and moderate-risk clients.

Shortened Supervisions versus On-Time Completion for Male Probationers and Parolees

Focus now turns to the contrast between shortened supervision and finishing on time for male probationers and parolees, also shown in Table 12. Shortened supervisions may be the result of revocations or a readjustment to the mandated supervision sentence if it was not legally permissible.

Parole status. Parolees' odds of shortened supervision versus finishing on time were 2.06 times higher compared to the same odds for probationers, after controlling for case features and risk level (hypothesis 1a) and social climate (hypothesis 1b). Hypothesis 1b in particular expected that parolees compared to probationers would have shortened supervisions (perhaps due to revocations and difficulties adjusting post-

incarceration). This finding suggests that parolees compared to probationers are still more likely to have difficulties under supervision even after considering social climate.

Subunit assignment. Male probationers and parolees assigned to the high-risk citywide unit had significantly ($p < .0001$) higher odds of having shortened supervisions versus finishing on time compared to the same odds for clients assigned to low- and moderate- based units. This finding persisted even after controlling for a felony conviction (research question 5). It should be clear that the citywide unit is not a geographically based unit. During the study period, supervisees in the citywide unit were randomly assigned to this unit and were eligible to undergo cognitive behavioral therapy sessions.

Performance while under supervision. The odds of having supervision shortened versus finishing on time were 9.58 times higher for male clients with multiple arrests compared the same odds for clients without an arrest ($p < .0001$). Likewise, the odds of a shortened supervision versus on-time completion were 1.35 times higher for males with multiple positive drug tests compared to those same odds for clients with no positive drug tests ($p < .0001$). These findings address research question 6 regarding the responsiveness of the agency to client behavior.

Case features. The odds of a shortened supervision versus finishing on time for felons ($p < .0001$) were about 90 percent higher than those same odds for misdemeanants. Conversely, the odds of a shortened supervision versus finishing on time for high-risk male probationers and parolees ($p < .0001$) were about 85 percent lower than those same odds for low- and moderate-risk clients.

In sum, the results consistently revealed that ecological effects were not significant predictors of the odds of a shortened supervision or extended supervisions versus on-time completion (research question 1). Parolees compared to probationers, however, are more at risk of having shortened supervision compared to finishing on time (hypothesis 1b). A third contrast compared male probationers and parolees odds of having ongoing supervisions¹⁵ versus finishing on time. Although the focus of this study is on supervision length adjustments for closed cases, there are some important points to glean from Table 12 for all three contrasts. Client performance under supervision, like arrests, increased the odds of having shortened, extended, and long sentences. These findings indicate that the agency is responsive to client behavior (research question 6), and not client characteristics, like race and ethnicity. The findings also revealed that groups of male probationers and parolees in subunits have different supervision adjustments compared to others in different subunits (research question 5).

The focus now turns to potential gender differences between clients in supervision adjustment lengths (research questions 3). Females (hypothesis 3a-b), especially poor, African American females (hypothesis 3c), have a more difficult time compared to males while under supervision. The next analysis examines the potential difference in supervision length adjustments for females compared to males and specifically looks at female, African American probationers living in lower socioeconomic status neighborhoods.

¹⁵ Ongoing supervisions are sentence expiration dates that extend beyond the study period. In this respect, the prediction model is somewhat different. It is not of supervision adjustments. Instead, this contrast is examining supervision sentence lengths.

Contrasts between Male and Female Probationers (n = 10,058)

The BICs reported in Table 13 indicate a preference for the full gender interaction models over the client-level, ANOVA, and neighborhood processes models. The full model of neighborhood unexpected changes in willingness to work together, violent crime incidents, and gender interaction terms for females living in neighborhoods at or below the 25th percentile provides superior fit and simplicity compared to the other models examining male and female probationers. Table 14 presents the best fitting male and female probationer model. The following presents important outcome type contrasts between male and female probationers.

Table 13

Bayesian Information Criteria (BIC) of Fit and Complexity and Log Likelihoods (-LL) for Multinomial Models of Supervision Adjustment Length Type that Include Male and Female Probationers

| | ANOVA | Client-level | Static Neighborhood | Dynamic Neighborhood | Gender Interaction |
|-----|------------|--------------|------------------------|-------------------------|-----------------------|
| BIC | 25,250.77 | 22,634.72 | 22,627.84 | 22,621.17 | 22,615.02 |
| -LL | -12,611.55 | -11,114.61 | -11,111.16 | -11,107.83 | -11,104.75 |

Extended Supervision versus On-Time Completion for Male and Female Probationers

Gender differences. Male and female probationers had about the same odds of having supervision extended versus finishing on time (see Table 14). It was expected that males would be at greater risk of having supervision extended due to poorer outcomes in other areas of criminal justice compared to females (hypotheses 3a-b).

The gendered pathways literature also argues that supervision is particularly difficult for marginalized females of color (hypothesis 3c) The results (Table 14),

however, show that African American females living in the lowest 25th percentile socioeconomic status neighborhoods compared to white males in higher socioeconomic neighborhoods had about the same odds of supervision extension versus finishing on time.

Differences in geographic unit assignment. Differences between geographic subunits, anticipated by research question 5, appear in these results. The odds of supervision extension versus finishing on time was less for probationers assigned to the citywide ($p < .0008$), west-northwest ($p < .0001$), or the south-central ($p < .0001$) compared to probationers assigned to moderate- and low-risk units, even after accounting for client and case features and risk.

Performance while under supervision. Research question 6 considered agency responsiveness to client behavior while under supervision. The findings (Table 14) revealed that the odds of a supervision extension versus on-time completions increases for probationers who have one ($p < .0001$) or two or more arrests ($p < .0001$) compared to those with no arrest. The odds of having an extended supervision versus finishing on time, for example, were 3.28 times greater for probationers with two or more arrests compared to those with no arrests.

Case features. The odds of having supervision extended versus finishing on time significantly ($p < .0001$) decreases for probationers convicted of a felony compared to those convicted of a misdemeanor¹⁶.

¹⁶ Pearson's r correlation between felony conviction and high risk was .04.

Table 14

Best Fitting Model Predicting Supervision Adjustment Type for Locally Supervised Male and Female Probationers^a

| Predictors | Extended supervision ^b | | | | Shortened supervision ^b | | | | Ongoing supervision ^b | | | |
|-----------------------|-----------------------------------|-----|------------------|----------------|------------------------------------|-----|-------|-------|----------------------------------|-----|-------|-------|
| | b | SE | RRR ^c | p ^d | b | SE | RRR | p | b | SE | RRR | p |
| Male | .22 | .07 | 1.25 | .0014 | .15 | .11 | 1.16 | .1646 | -.14 | .10 | .87 | .1542 |
| Citywide unit | -.66* | .19 | .52 | .0008 | .84* | .21 | 2.31 | .0001 | -1.03* | .30 | .36 | .0005 |
| East-Northeast unit | -.05 | .19 | .95 | .8077 | .52 | .26 | 1.68 | .0436 | -.59 | .21 | .56 | .0063 |
| West-Northwest unit | -.68* | .15 | .51 | .0001 | .65* | .17 | 1.92 | .0002 | -.97* | .23 | .38 | .0001 |
| South-Central unit | -.90* | .19 | .41 | .0001 | .24 | .19 | 1.27 | .2062 | -1.40* | .22 | .25 | .0001 |
| Nonwhite | .01 | .07 | 1.01 | .9107 | -.26 | .13 | .77 | .0386 | .36 | .13 | 1.43 | .0062 |
| Latino | -.11 | .08 | .90 | .1979 | -.09 | .12 | .91 | .4541 | -.10 | .11 | .90 | .3493 |
| Age | .01 | .01 | 1.00 | .1615 | -.01 | .01 | .99 | .0093 | .01 | .01 | 1.01 | .0105 |
| Unemployed | .14 | .06 | 1.15 | .0303 | .14 | .10 | 1.16 | .1681 | -.20 | .08 | .82 | .0137 |
| Employment missing | .37* | .07 | 1.45 | .0001 | .37* | .11 | 1.44 | .0010 | -.35* | .11 | .70 | .0011 |
| Felony conviction | -.58* | .08 | .56 | .0001 | .81* | .11 | 2.25 | .0001 | 1.83* | .11 | 6.26 | .0001 |
| 1 positive drug test | .05 | .15 | 1.05 | .7305 | .32 | .15 | 1.37 | .0317 | .37 | .17 | 1.45 | .0284 |
| 2+ positive drug test | .16 | .09 | 1.18 | .0797 | .68* | .13 | 1.98 | .0001 | .54* | .14 | 1.72 | .0001 |
| 1 arrest | 1.01* | .12 | 2.75 | .0001 | 1.36* | .14 | 3.88 | .0001 | 1.22* | .15 | 3.39 | .0001 |
| 2+ arrests | 1.46* | .10 | 4.28 | .0001 | 2.46* | .11 | 11.73 | .0001 | 2.34* | .12 | 10.40 | .0001 |
| 1 missed contact | .13 | .08 | 1.14 | .0958 | .16 | .11 | 1.17 | .1593 | .05 | .10 | 1.05 | .6332 |
| High-risk | -.74 | .24 | .48 | .0024 | -1.47* | .29 | .23 | .0001 | 1.19* | .34 | 3.28 | .0005 |
| Proportion Black | .01 | .04 | 1.00 | .9294 | -.07 | .05 | .93 | .1682 | -.06 | .05 | .95 | .2565 |
| Residential Stability | .01 | .04 | 1.01 | .6976 | -.03 | .06 | .97 | .5410 | .03 | .05 | 1.03 | .5380 |
| Improve Change 08-10 | .04 | .05 | .99 | .4551 | -.01 | .06 | .96 | .8269 | .04 | .07 | 1.05 | .5450 |
| Improve Change 08-12 | -.01 | .04 | 1.00 | .8775 | .04 | .06 | 1.00 | .4523 | .04 | .05 | 1.00 | .4593 |
| Improve Change 10-12 | -.01 | .04 | .98 | .8430 | -.04 | .06 | .97 | .5474 | .05 | .06 | .95 | .3838 |
| Violent Incident Rate | .01 | .01 | 1.45 | .7182 | .01 | .01 | .91 | .5187 | .01 | .01 | 1.28 | .4056 |

Table 14

(Continued)

| Predictors | Extended supervision | | | | Shortened supervision | | | | Ongoing supervision | | | |
|--|----------------------|-----|------|-------|-----------------------|-----|------|-------|---------------------|-----|------|-------|
| | b | SE | RRR | p | b | SE | RRR | p | b | SE | RRR | p |
| African Americans below 25th Percentile SEI | -.02 | .07 | 1.04 | .8017 | -.03 | .13 | .99 | .8079 | -.05 | .09 | 1.04 | .5815 |
| Female African Americans-Below 25th Percentile SEI | .37 | .16 | .99 | .0223 | -.10 | .26 | 1.04 | .7105 | .25 | .20 | 1.04 | .2133 |
| Constant | .55 | .18 | 1.74 | .0017 | -1.09* | .23 | .34 | .0001 | -1.64* | .20 | .19 | .0001 |

Note: Results from multinomial logistic analysis of 10,058 male and female probationers assigned to county-level supervision beginning August 1, 2009 - July 31, 2010. Model fit measures: BIC = 22,615.02; log likelihood = -11,104.75.

a. This model includes neighborhood unexpected changes in willingness to work together, violent incident rates, and females living in the lowest 25th percentile socioeconomic status neighborhoods.

b. Contrast category is

On-time completion = sentence expiration date within one week of actual supervision end date.

Versus

Extended supervision = actual supervision close date exceeds supervision expiration date by more than a week.

Shortened supervision = actual supervision close date precedes supervision expiration date by more than a week.

Ongoing supervision = supervision expiration date exceeds study follow-up date of August 15, 2014.

c. RRR = Relative risk ratio

d. Unadjusted *p* value

* Unadjusted *p* value < Holm adjusted *p* value used to indicate a significant relationship.

Shortened Supervision versus On-Time Completion for Male and Female Probationers

Gender differences. It was expected that males compared to females would be at greater odds of having a shortened supervision (hypothesis 3a) even after accounting for social climate (hypothesis 3b), due to poorer performance and outcomes of males in other areas of criminal justice. These results show, however, that the odds of having a shortened supervision versus finishing on time are about equal for male and female probationers (see Table 14).

The gendered pathways literature also argues that supervision is particularly difficult for marginalized females of color (hypothesis 3c). The results (Table 14), however, show that African American females living in the lowest 25th percentile socioeconomic status neighborhoods compared to white males in higher socioeconomic neighborhoods had about the same odds of having a shortened supervision versus finishing on time.

Differences in geographic unit assignment. The odds of having a shortened supervision versus finishing on time increased ($p < .0001$) for probationers assigned to the citywide and the west-northwest compared to the same odds for those assigned to low- and moderate-risk units. This suggests that supervision adjustments are not equitable across intra-agency units, even after controlling for risk and case features (research question 5).

Performance while under supervision. The results (Table 14) show that having multiple positive drug tests and any arrest significantly ($p < .0001$) increased the odds of having a shortened supervision versus finishing on time compared to those same odds for

those without any arrests or positive drug tests, even after controlling for risk. The odds of having a shortened supervision versus finishing on time, for instance, increase 10.73 times for probationers with multiple arrests compared to the same odds for those with no arrests. Similarly, the odds of having a shortened supervision compared to finishing on time increased 98 percent for probationers with multiple positive drug tests compared to the odds for probationers with no positive drug tests.

Case features. The odds of a shortened supervision versus finishing on time increased ($p < .0001$) for probationers convicted of a felony offense compared to those same odds for those convicted of a misdemeanor. More serious conviction offenses are associated with increased odds of having shortened supervision lengths. On the other hand, high-risk probationers had a 77 percent decrease in the odds of a shortened supervision versus finishing on time compared to the same odds for low- and moderate-risk probationers.

The results showed that supervision adjustments were not affected by gender or subgroups of females at this local agency: men, women, and marginalized women had about the same odds of an extended, shortened, and ongoing supervision versus finishing on time (research question 3). Similar to the preceding male only model, the findings revealed that client behavior and performance shaped whether supervision adjustments for males and females resulted in shortened, extended, and ongoing supervisions compared to on-time completions (research question 6). The findings also indicated that groups of probationers in certain subunits had different supervision length adjustments.

It is also important to examine the extent to which supervision adjustments were made. Although shortened supervisions are of interest, the reasons for shortened supervision are complex. Shortened supervisions may reflect poor supervision performance that results in a revocation. Equally likely are shortened supervisions that are the result of lawyer or supervision officer petition for early closure. Even if the majority of cases were closed because of revocations, another supervision adjustment type – supervision extensions – has been overlooked entirely. Examination of the determinates of supervision extension lengths fills a gap in probation/parole research by examining an unstudied potential discretionary point in the criminal justice system.

Count Models Predicting Supervision Extension Lengths

The following set of analyses used count models to analyze subgroup differences in the length of supervision extensions. This study looked at possible contributing factors to discretionary lengths of time added to some individuals' supervision. To examine a subset of individuals who had supervision extended, it is first necessary to account for the likelihood of being selected for supervision extension (Berk, 1983). This is important to consider as many clients who have been eligible for supervision extensions, but did not receive one.

To account for selection to have additional supervision time, a two-step Heckman procedure first estimated supervision extension (1 = extended, 0 = other outcome types) for each individual. The second step then used a superset of predictors to estimate the length of additional supervision days. While there is not a theoretical basis for the predictors included in selection portion of the model, there is a practical reason. The predictors in the selection model are significant predictors of supervision extension in the

preceding multinomial models. The Heckman procedure produced the Mills inverse ratio – interpreted as the predicted probability of having supervision extended. Higher values correspond to a higher probability of supervision extension. After ruling out substantial multicollinearity between other predictors, the Mills ratios were used in the following count models to control for selection of having supervision extended.

Additional Supervision Days for Males (n = 4,614)

An initial ANOVA model of additional supervision days showed significant variation across the 45 neighborhoods ($\sigma^2 = .03$, SE of $\sigma^2 = .02$; $p < .01$). After accounting for exposure days under supervision¹⁷, about 1.10 percent of variance in the number of additional supervision days was explained between neighborhoods. Although additional supervision lengths varied across neighborhoods, the BICs reported in Table 15 indicate a preference for the client-level only model over the full neighborhood static and dynamic social processes models. The following details the best fitting, client-level, male-only model predicting the determinants of additional supervision days (Table 16).

Table 15

Bayesian Information Criteria (BIC) of Fit and Complexity and Log Likelihoods (-LL) for Count Models of Supervision Adjustment Length Type that Include Male Probationers and Parolees

| | ANOVA | Mills Only | Client Only | Static | Dynamic |
|-----|------------|------------|-------------|------------|------------|
| BIC | 48,527.91 | 46,815.44 | 46,381.52 | 46,403.12 | 46,403.03 |
| -LL | -24,254.45 | -23,395.05 | -23,127.48 | -23,121.41 | -23,121.36 |

¹⁷ Number of days between supervision start date and follow-up date (August 15, 2014).

Table 16

Best Fitting Model of Additional Supervision Days for Locally Supervised Male Probationers and Parolees Using Client-Level Predictors

| | b | SE | IRR ^a | p ^a |
|---------------------------|--------|-----|------------------|----------------|
| Mills selection | -1.56* | .10 | .21 | .0001 |
| Parole Supervision Status | -.05 | .16 | .95 | .7564 |
| Citywide unit | .06 | .18 | 1.06 | .7357 |
| East-northeast unit | .06 | .16 | 1.06 | .7290 |
| West-northwest unit | -.20 | .17 | .82 | .2383 |
| South-central unit | -.07 | .20 | .94 | .7434 |
| Nonwhite | .09 | .08 | 1.10 | .2329 |
| Latino | .07 | .08 | 1.07 | .3830 |
| Age | -.02* | .00 | .98 | .0001 |
| Felony conviction | -.20 | .07 | .81 | .0061 |
| 1 positive drug test | .58* | .06 | 1.78 | .0001 |
| 2+ positive drug test | .51* | .06 | 1.66 | .0001 |
| High-risk | -.81* | .22 | .44 | .0003 |
| Constant | -1.84* | .12 | .16 | .0001 |
| Exposure | 1 | | | |

Note. Results from negative binomial logistic analysis of 4,614 male probationers and parolees assigned to county-level supervision beginning August 1, 2009 - July 31, 2010.

a. IRR = Incident rate ratio

b. Unadjusted p value

* Unadjusted *p* value < Holm adjusted *p* value used to indicate a significant relationship

With only client-level features modeled, results of Table 16 revealed that one or multiple positive drug tests significantly ($p < .0001$) increased the expected number of additional supervision days for males, even after controlling for conviction seriousness and risk. In terms of additional supervision time, the agency is responsive to client drug use (research question 6). Additionally, the expected number of additional supervision days decreased 56 percent for high-risk males ($p < .0001$). That is, when supervision was extended, high-risk males had a lower expected number of additional supervision days, compared to moderate- and low-risk clients. Longer adjustments to supervision lengths may have been viewed as a more effective punishment or deterrent for low- and

moderate-risk compared to high-risk clients. It is also worth noting that the expected number of supervision days was about equal for probationers and parolees (hypothesis 2b) and across subunits (research questions 5).

Table 17 presents, for comparison, the results of the full static and dynamic neighborhood count models examining additional supervision days. An examination of these shows similar results to the better fitting client-only model. Although there may not have been significant variation in the expected number of supervision days between subgroups of males, there may be gender differences. The next set of analyses examined the determinants of additional supervision lengths for male and female probationers.

Table 17

Multilevel Count Models of Additional Supervision Days for Locally Supervised Male Probationers and Parolees Using Static and Changing Neighborhood Social Processes

| Average Neighborhood Processes | | | | | Dynamic Neighborhood Processes | | | | |
|--------------------------------|--------|-----|------------------|----------------|--------------------------------|--------|-----|------|-------|
| <i>Client-level</i> | b | SE | IRR ^a | p ^b | <i>Client-level</i> | b | SE | IRR | p |
| Mills selection ratio | -1.56* | .10 | 0.21 | .0001 | Mills selection ratio | -1.56* | .10 | .21 | .0001 |
| Parole supervision | -.05 | .16 | .95 | .7579 | Parole supervision | -.05 | .16 | .95 | .7363 |
| Citywide unit | .04 | .18 | 1.04 | .8087 | Citywide unit | .06 | .18 | 1.06 | .7322 |
| East-northeast unit | .01 | .16 | 1.00 | .9849 | East-northeast unit | .05 | .16 | 1.05 | .7643 |
| West-northwest unit | -.17 | .17 | .84 | .3160 | West-northwest unit | -.17 | .17 | .85 | .3378 |
| South-central unit | -.06 | .20 | .94 | .7580 | South-central unit | -.06 | .21 | .94 | .7634 |
| Nonwhite | .17 | .09 | 1.19 | .0618 | Nonwhite | .15 | .09 | 1.17 | .0941 |
| Latino | -.01 | .09 | .99 | .8850 | Latino | .01 | .09 | 1.00 | .9602 |
| Age | -.02* | .01 | .98 | .0001 | Age | -.02* | .01 | .98 | .0001 |
| Felony conviction | -.20 | .08 | .82 | .0074 | Felony conviction | -.20 | .08 | .81 | .0063 |
| 1 positive drug test | .59* | .06 | 1.81 | .0001 | 1 positive drug test | .59* | .06 | 1.80 | .0001 |
| 2+ positive drug tests | .52* | .06 | 1.67 | .0001 | 2+ positive drug tests | .51* | .06 | 1.67 | .0001 |
| High-risk | -.83* | .23 | .43 | .0002 | High-risk | -.84* | .23 | .43 | .0002 |
| Constant | -1.97* | .13 | .14 | .0001 | Constant | -1.92* | .13 | .15 | .0001 |
| Exposure | 1 | | | | Exposure | 1 | | | |
| <i>Neighborhood level</i> | | | | | <i>Neighborhood level</i> | | | | |
| Proportion black | -.04 | .03 | .96 | .1645 | Proportion black | -.08 | .04 | .92 | .0603 |
| Residential stability | .06 | .03 | 1.06 | .0157 | Residential stability | -.05 | .03 | .95 | .0639 |
| Partic Average | -.42 | .22 | .66 | .0631 | Soc clim change 08-10 | .08 | .03 | 1.08 | .0040 |
| Violent incidents | .01 | .01 | 1.00 | .8668 | Socioeconomic status | .02 | .06 | 1.02 | .7998 |

Note. Results from count analysis of 4,614 male probationers and parolees assigned to county-level supervision beginning August 1, 2009 - July 31, 2010.

a. IRR = Incident rate ratio

b. Unadjusted *p* value

* Unadjusted *p* value < Holm adjusted *p* value used to indicate a significant relationship

Additional Supervision Days for Probationers (n = 5,597)

An ANOVA model showed significant variation in additional supervision lengths across the 45 PHMC neighborhoods for probationers ($\sigma^2 = .03$, SE of $\sigma^2 = .02$; $p < .01$). After accounting for exposure to time under supervision, about 1.01 percent of the variance in additional supervision days was explained between neighborhoods. Table 18 shows that the most parsimonious and best fitting model predicting additional supervision time is still the client-level only model. This model was an improvement over the ANOVA and Mills selection-only model. The client-level model was also preferred over the static and dynamic neighborhood social processes models and the gender interaction models, given those BIC values.

Table 18

Bayesian Information Criteria (BIC) of Fit and Complexity and Log Likelihoods (-LL) for Count Models of Supervision Adjustment Length Type that Include Male and Female Probationers

| | ANOVA | Mills only | Client only | Static | Dynamic | Gender |
|-----|------------|------------|-------------|------------|------------|------------|
| BIC | 58,623.51 | 56,368.92 | 55,827.7 | 55,844.36 | 55,849.63 | 55,861.13 |
| -LL | -29,303.05 | -28171.5 | -27,849.12 | -27,835.88 | -27,838.52 | -27,835.63 |

Table 19 shows that the expected number of additional supervision days was 28 percent higher ($p < .0001$) for male compared to female probationers, after controlling for conviction type and risk (hypothesis 4a). Once assigned additional supervision time, males were more at risk of having longer additional periods compared to female probationers. This finding suggests that males are either perceived as riskier than females, therefore, deserving of more supervision time, or that females are perceived as

more capable of having a supportive social network, and therefore not in as much need of additional supervision.

Table 19

Best Fitting Count Model of Additional Supervision Days for Locally Supervised Male and Female Probationers Using Client Only Predictors

| | b | SE | IRR ^a | p ^b |
|-----------------------|--------|-----|------------------|----------------|
| Mills selection | -1.77* | .10 | .17 | .0001 |
| Male | .252* | .06 | 1.28 | .0001 |
| Citywide unit | .065 | .18 | 1.07 | .7226 |
| East-northeast unit | .096 | .16 | 1.10 | .5412 |
| West-northwest unit | -.23 | .12 | .79 | .0611 |
| South-central unit | -.12 | .22 | .88 | .5618 |
| Nonwhite | .07 | .07 | 1.07 | .3406 |
| Latino | .07 | .06 | 1.07 | .2611 |
| Age | -.01* | .01 | .99 | .0001 |
| Felony conviction | -.15 | .08 | .86 | .0416 |
| 1 positive drug test | .62* | .06 | 1.85 | .0001 |
| 2+ positive drug test | .56* | .07 | 1.75 | .0001 |
| High-risk | -.80* | .22 | .45 | .0001 |
| Constant | -2.07* | .09 | .13 | .0001 |
| Exposure | 1 | | | |

Note. Results from negative binomial logistic analysis of 5,597 male and female probationers assigned to county-level supervision beginning August 1, 2009 - July 31, 2010.

a. IRR = incident rate ratio

b. Unadjusted *p* value

* Unadjusted *p* value < Holm adjusted *p* value used to indicate a significant relationship

The expected number of additional supervision days decreased 55 percent for high-risk probationers compared to moderate- and low-risk clients ($p < .0001$). Findings pertaining to the responsiveness of the agency are similar to the male only model previously described. Across subgroups, the agency responded to client performance measures, which was to be expected (research question 6), but it did not vary by subunit (research question 6).

Table 20 provides the best fitting neighborhood level models for comparison. This model includes gender interaction terms and neighborhood social processes. The following chapter picks up this discussion by highlighting major findings, discussing potential implications for the findings, and concluding with some limitations and directions for future research.

Table 20

Multilevel Count Models of Additional Supervision Days for Locally Supervised Male and Female Probationers Using Static and Changing Neighborhood Social Processes and Gender Interaction Terms

| Average Neighborhood Processes | | | | | Dynamic Neighborhood Processes | | | | |
|---|--------|-----|------------------|----------------|---|--------|-----|------|-------|
| <i>Client-Level</i> | b | SE | IRR ^a | p ^b | <i>Client-Level</i> | B | SE | IRR | p |
| Mills Selection | -1.78* | .09 | .17 | .0001 | Mills Selection | -1.79* | .09 | .17 | .0001 |
| Male | .23* | .06 | 1.26 | .0001 | Male | .22* | .06 | 1.25 | .0001 |
| Citywide unit | .04 | .15 | 1.04 | .7822 | Citywide unit | .05 | .15 | 1.05 | .7498 |
| East-northeast unit | .08 | .13 | 1.08 | .5365 | East-northeast unit | .10 | .13 | 1.10 | .4325 |
| West-northwest unit | -.21 | .13 | .81 | .1132 | West-northwest unit | -.21 | .13 | .81 | .1133 |
| South-central unit | -.12 | .15 | .89 | .4276 | South-central unit | -.13 | .15 | .88 | .3990 |
| Nonwhite | .08 | .06 | 1.08 | .1672 | Nonwhite | .07 | .06 | 1.07 | .2265 |
| Latino | .06 | .08 | 1.07 | .4230 | Latino | .08 | .08 | 1.08 | .3195 |
| Age | -.01* | .01 | .99 | .0001 | Age | -.01* | .00 | .99 | .0001 |
| Felony Conviction | -.15 | .07 | .86 | .0300 | Felony Conviction | -.15 | .07 | .86 | .0311 |
| 1 positive drug test | .64* | .08 | 1.90 | .0001 | 1 positive drug test | .64* | .08 | 1.89 | .0001 |
| 2+ positive drug tests | .57* | .08 | 1.77 | .0001 | 2+ positive drug tests | .57* | .08 | 1.76 | .0001 |
| High-risk | -.84* | .18 | .43 | .0001 | High-risk | -.84* | .18 | .43 | .0001 |
| African American x Median sei | .14 | .07 | 1.15 | .0279 | African American x Median sei | .16 | .07 | 1.17 | .0166 |
| African American x Female x Median sei | -.09 | .09 | .91 | .3213 | African American x Female x Median sei | -.10 | .09 | .90 | .2769 |
| Constant | -2.04* | .14 | .13 | .0001 | Constant | -2.12* | .14 | .12 | .0001 |
| Exposure | 1 | | 1 | | Exposure | 1 | | 1 | |
| <i>Neighborhood-Level</i> | | | | | <i>Neighborhood-Level</i> | | | | |
| Proportion Black | -.01 | .03 | .99 | .7113 | Proportion Black | -.02 | .03 | .98 | .4912 |
| Residential Stability | .03 | .03 | 1.03 | .2864 | Residential Stability | .05 | .03 | 1.05 | .1477 |
| Average Participation | -.47 | .22 | .62 | .0347 | Social Clim 08-10 | -.01 | .06 | .99 | .9226 |
| Violent incident rate | .01 | .01 | 1.00 | .2667 | Violent incident rate | .00 | .00 | 1.00 | .8782 |

Note. Results from count analysis of 5,597 male and female probationers.

a. IRR = Incident Rate Ratio

b. Unadjusted p value

* Unadjusted p value < Holm adjusted p value used to indicate a significant relationship

CHAPTER 7

DISCUSSION

This research examined the client, case, and agency correlates of post-sentencing supervision adjustments. It also examined whether these correlates explained the lengths of supervision extensions across different subgroups in a local supervision agency. This study examined whether and to what extent neighborhood ecology shaped supervision length adjustments. This chapter reviews the major findings in the context of previous work and policy and practice implications. At the same time, this chapter looks ahead to future research questions raised by the results. Finally, attention turns to the major strengths and weaknesses of the study before concluding remarks.

Summary of Major Findings

Agency Response to Client Performance/Behavior

The agency consistently responded to client behavior and performance across all subgroups. Research question 6 asked whether the agency was responsive to client behavior from a decision-making perspective. That is, it was expected that decision-makers would factor client behavior and performance indicators into the decision to adjust supervision. The findings support that the agency does respond in expected ways to performance measures of supervision, regardless of whether the client was male, female, probationer, or parolee. One or multiple arrests, for example, dramatically increased the risk of having shortened, extended, and ongoing supervisions compared to finishing on time for all subgroups. This finding was similar to a lesser extent for positive drug tests, which increased the odds of having shortened and ongoing

supervision adjustments. It appears that supervising decision-makers are responsive to violations to the rules of supervision. This alone may not be surprising. It is interesting, however, that the agency response does not just include revocations or incarcerations. Agency responses to client behavior also include adjusting post-sentencing supervision lengths.

Subunit Differences

The relative risk of supervision adjustment types did vary by subunit assignment, but it did not explain the length of extended supervisions (research question 5). All the subgroups supervised in the citywide, west-northwest, and south-central units had increased odds of a shortened supervision versus finishing on time. These subgroups also had a lower risk of an extended supervision versus finishing on time. When supervision was extended, however, supervision lengths did not vary significantly across high-risk units. The findings suggest that either ecological processes or supervisory practices, amongst other factors, may be important at explaining these subunit differences.

Gender Differences

A probationer only model revealed that the odds of different supervision adjustment types versus finishing on time were similar for males and females, after controlling for conviction type and risk. At least for probationers, gender did not factor into supervision adjustment types.

When examining supervision extensions, males were more likely to have more days added compared to females. One possibility for this finding is that among clients whose behavior warranted additional supervision time, supervising officers perceived

male probationers as more of a threat to public safety and therefore in need of a greater supervision extension. Additionally, some models including gender interaction terms were the best combination of fit and simplicity. The findings here, therefore, partially support the idea that females and subgroups of females have different outcomes than their male counterparts.

Another finding revealed no significant differences in the odds of supervision outcome types or the length of additional supervision time for African American females living in lower socioeconomic status neighborhoods. It is worth noting, however, that the models including gender interaction terms were the best at explaining supervision outcome types. The findings here, therefore, leave open the possibility that females and subgroups of females have differential outcomes than their male counterparts.

Supervision Status Differences

A male only model revealed that there were supervision adjustment differences between probationers and parolees, even after controlling for conviction type and risk. Parolees were more at risk of having shortened and ongoing supervisions relative to finishing on time compared to probationers. Parolees, however, were no more at risk of having supervision extended relative to finishing on time compared to probationers. When looking specifically at the amount of time supervision was extended, supervision status was not a factor. There was no significant difference in the expected number of additional supervision days between probationers and parolees, even after controlling for case conviction seriousness and risk-level. In other words, when supervision was extended, male parolees compared to probationers had about the same amount of

additional time added. Considering these findings, there are several theoretical and practical implications to consider.

Null Findings for Neighborhood Social Climate

No neighborhood feature modeled in this study related to supervision adjustments or additional supervision lengths for males versus females or probationers versus parolees. This finding was somewhat surprising given the importance of structural and social features on supervision outcomes found in other studies. Although it is not possible to make inferences regarding null findings, it is possible to posit ways to address this in future research.

Theoretical Implications of Findings

The findings of this dissertation built on prior research by including measures of neighborhood social climate to contrast subgroups of probationers and parolees. It was also a more stringent test by including both ecological and organizational factors, which are often examined separately. This study, however, was unable to reject the null hypothesis that ecological processes matter.

Ecological Processes

There has been recent interest in understanding how the community context of probationers and parolees relates to supervision outcomes (Clear, 2005; Hipp, 2010; Kubrin & Stewart, 2006; Sampson, Morenoff, & Gannon-Rowley, 2002). Understanding the connections between complex processes of social climate, social ties, client features and, organizational factors provide evidence of how individual supervision outcomes, including supervision adjustments, are shaped. Prior empirical studies have shown that

ecological factors including measures of, economic disadvantage (Hipp et al., 2010a; Huebner & Pleggenkuhle, 2013; Mears et al., 2008; Kubrin & Stewart, 2006; Wang et al., 2013), residential stability (Hipp et al., 2010; Huebner & Pleggenkuhle, 2013; Wang et al., 2013), racial composition (Hipp et al., 2010a; Mears et al., 2008; Wang et al., 2013), and other structural factors (Hipp et al., 2010a; Wang et al., 2013) are important. These studies, however, have primarily focused on parolees. The one exception is Kubrin and Stewart (2006) who examined a sample of probationers and parolees. They, however, did not compare the two subgroups. Furthermore, these studies have not considered important neighborhood social processes. This study addressed this gap by including basic social climate measures to assess whether they shape supervision adjustment lengths.

Another important consideration for future research is the conceptualization of neighborhood, which can be ambiguous and subjective. Ecological units used in probation and parole research have ranged from neighborhoods (Gottfredson & Taylor, 1986; Kubrin & Stewart, 2006), to census tracts (Hipp et al., 2010a), to counties (Mears et al., 2008; Wang et al., 2013). This study carefully selected the 45 PHMC neighborhoods as an ecological unit of analysis because of the longstanding historical definition of neighborhood boundaries (PHMC, 2005). These neighborhoods, however, may be too large and too few in number.

There are many issues to consider with spatial scaling (Hipp, 2007). For one, it is unclear what social scale is relevant for some local processes, like coercive mobility. Secondly, the neighborhoods where parolees and probationers concentrate are quite similar to one another. Another look at Figure 5 shows that many probationers and

parolees come from a small number of neighborhoods. These neighborhoods, in turn, do not vary much in social climate. Therefore, although social climate does change dramatically across the urban landscape, it does not vary in the areas where most probationers and parolees reside.

A slightly different future research question may ask whether social processes are important to particular subgroups of probationers and parolees. There are some hints that social processes affect classes of individuals differently. Huebner and Pleggenkuhle (2013) found that ecological factors were gender specific. When looking at technical violations, they found that ecological factors only influenced male parolees and not females.

This could mean that officers perceive probationers living in certain areas as more capable of succeeding due to neighborhood resources. When supervision is extended, therefore, it is not for lengthy periods. There is some support for this in McCulloch's (2005) ethnographic study on parolees' social contexts. One of the points made by McCulloch is that officers were aware of the parolee's social context. In fact, one of the main findings was that officers acknowledge and address the parolees' social climate to reduce future offending.

Organizational Structure

Another area addressed by this dissertation was subunit assignment. Research has examined how organizational features like officer orientation (Blasko et al., 2015; Bonta et al., 2008; Skeem et al., 2007), caseload size (e.g., Carter & Wilkins, 1976; DeMichele, 2007), supervision intensity (Lowenkamp et al., 2006; MacKenzie, 2006; Petersilia &

Turner, 1993), and even risk prediction (Latessa et al., 1998; Paparozzi & Gendreau, 2005; Taxman, 2008) are important to supervision. No research took up unit assignment, even though organizational deployment is important in other areas, like policing (Klinger, 1997). Following Klinger's policing work, examining how district-level features shape police norms and vigor, this research began to address whether organizational geography also shaped probationer and parolee supervision, by looking at subunit variations in supervision outcomes.

The findings of this research showed that individuals supervised in some high-risk, geographically-based subunits had differences in supervision outcome types. This finding persisted across all the subgroups modeled. Individuals supervised in some high-risk units were more likely to have shortened supervisions relative to on time, extended, or ongoing supervision. Assignment into a geographically-based subunit, however, is not associated with additional time under supervision. Instead, high-risk individuals in geographically-based units compared to others in non-geographically based units are more likely to have the hallmark of a revocation – shortened supervision. At least two possible explanations can guide future exploration of this finding.

The first possibility is that there are specific processes at play within these geographic locations that lead to more shortened supervision, most likely through revocations. It is possible, for instance, that that these subunits cover geographic areas of the city with open-air drug markets. Such markets may attract potential buyers and sellers (Johnson, 2012), which may result in positive drug tests. These areas may also be vulnerable to police crackdowns, which may result in more arrests. Another possibility is that the individuals in these subunits vary in composition from other units. It is possible,

for instance, that many individuals in these subunits are attending drug treatment in a nearby facility. The reasons remain unclear, however, since shortened supervisions are not necessarily synonymous with revocations or incarcerations.

Another possibility is that individuals in these units are supervised differently than others. There is some preliminary support for this position in the findings. Another high-risk unit with different supervision outcomes is not geographically based. The citywide unit is a high-risk unit like the other geographically defined units, but it covers the entire city. This unit, however, had similar outcomes to the geographically based units. Individuals in the citywide unit were more at risk of having shortened supervisions. This leaves open the possibility that the differences lie in aspects of the supervision, rather than the place.

It is not possible from the findings here to say why individuals in some geographically-based subunits vary in supervision outcome from this study. It does open the door for future research on why these differences emerge. One possible future research direction is to test Klinger's (1997) model. Klinger's (1997) theory of police work suggests that crime, deviance, perceived deservedness of victims, police cynicism, and workload at the district level all affect police-citizen interactions and police perceptions of citizen requests. This may also be occurring in probation and parole departments. Supervising officers may base decisions on geographic location and the composition of the subunit.

A significant effect of APPD's organizational subunits on individual supervision outcomes could also indicate a not-yet-tapped spatial component. One such perspective

outlined by Klinger (1997) on police-citizen interactions notes that perceived and actual neighborhood characteristics and division-wide workloads, in part, shape these encounters. This same framework could be tested in a probation/parole setting as well. At the very least, if organizational subunits significantly predict supervision outcome, it would suggest that future research not only consider client-level factors, but also organizational influences on supervision outcomes. Until further work is done, however, it is not yet clear what may be driving this.

Policy and Practice Implications of Findings

An important finding of this study is that there are not equitable outcomes in supervision types or in the length of additional supervision. Findings of this study that should be of interest to policy makers show that supervision outcome types differ for parolees and males. Agency officials should be satisfied, however, that other factors like race and ethnicity are not considerations for supervision adjustments.

Agency Decision-making

One of the findings was the consistency of client behavior and performance on supervision adjustment types and length. We would expect that information available to officers on rule breaking behavior to be influential on sanctioning decisions. It is not surprising, therefore, that supervision adjustments associated with shortened and extended supervision lengths are responsive to client behavior. Gottfredson and Gottfredson (1988) suggest that decision-makers use this type of legal information frequently in criminal justice decisions. Arrests and positive drug tests are behaviors and actions that can lead to shortened supervision and additional time under supervision.

Arrests, in particular, deserve further discussion and may help explain the findings of this study.

Studies have found that drug use is associated with poor supervision outcomes for both males and female and probationers and parolees (Carmichael et al., 2007; Helfgott, 1997; Hepburn & Griffin, 2004; Huebner et al., 2010; Irish, 1976; Landis et al., 1969; Prendergast et al., 1996). The message is that individuals who engage in drug use are more likely to have unsuccessful community supervision outcomes. The current study, however, also included arrest as a predictor of supervision outcome types, rather than an outcome variable. In many of the studies just mentioned, the indicator of supervision failure *is* arrest. Including arrest as a predictor, rather than outcome, of supervision adjustments was purposeful. Arrests are a measure of client behavior.

Supervision Status Differences

There are policy and theoretical implications for different supervision outcomes between male probationers and parolees. This may support the community justice framework asserting that parolees have a particularly difficult time reentering society due to their incarceration experience that disrupts social and financial resources. Shortened supervisions especially may be indicative of parolees who are receiving revocations. Further research into this link is needed, but suggests that incarceration alone makes community supervision failure more likely. From a policy perspective, it may suggest that specific needs of parolees, such as reestablishing social and financial ties needs to be a primary focus. The issue is broader in that stigmatization can follow an individual long after incarceration. Investigating the effects of stigmatization from criminal justice involvement seems a logical extension in future work.

Gender Differences

Another subgroup finding focuses on male and female probationers. When probationers do get additional supervision time, males tend to have longer additional supervision lengths compared to females. Males and female probationers, however, do not vary in the likelihood of receiving different supervision outcome types. This finding poses several implications. First, descriptive statistics show that female and male probationers and parolees from state populations have differential supervision outcomes. The findings support this observation, to a point. Since, there are no gender differences in outcome types within this jurisdiction then it is necessary to compare these results to others who have found gender differences.

Since there are significant differences between male and female probationers in the length of additional supervision, however, then one possible direction for future research concerns the ‘gendered pathways’ to crime model put forth by feminist theorists. They posit that some factors related to supervision failure are similar for men and women (e.g., housing attainment and stable employment). Other factors are gender specific or at the very least affect males and females differently. The ‘gendered pathways’ theory argues that the female experience of interpersonal relationships, romantic partners, the presence of dependent children, and substance abuse may be more likely to contribute to a female’s supervision outcome than that of her male counterpart.

Limitations of the Study

The usefulness of the APPD geographically based subunit variables remains an open question. The inclusion of these dummy variables as predictors of supervision outcome may provide support for the idea that intra-organizational factors influence

individual outcomes, but it stops short of identifying what is driving this influence. If organizational subunit significantly affects supervision outcome, then it opens future research to explore the nature of this influence. One possibility, for instance, is the supervision style of officers. There is longstanding research detailing different supervision styles. What is unclear, however, is how these supervision approaches link to individual performance. Another possibility is to explore Klinger's (1997) work on geographically based organizational officer-citizen interaction norms that develop through officer perception and workloads.

One limitation was the inability to include direct measures of the supervising officer and unit. After all, the supervising officer has direct contact with the probationer or parolee and has discretion to determine official action. However, after extensive discussion and observation at the APPD, it is also apparent that officer reassignments occur frequently. Reasons for transfers vary. In the year following the restructuring of the APPD in 2009, for example, transfers to a different officer occurred for almost every client. Officer turnover, reassignment, and promotions are common reasons to transfer clients. This leaves open the question whether this affects client performance and behavior; the client-officer pairing is an unknown factor.

A related limitation is the usefulness of extending Klinger's (1997) policing work to explain subunit differences. He argued that district-level norms shape individual officer-citizen interactions and outcomes, and an earlier review of this literature linked this same process to probation/parole agencies. While there may be some similarities between probation/parole and police departments, there are also clear differences between the two criminal justice agencies. One difference, for instance, is that the day-

to-day work of police officers involves being in the community and interacting with citizens. Probation/parole officers, on the other hand, are often working from centralized offices with limited interaction with community members. The amount of time probation and parole officers actually spend in the community may vary across and within agencies. Generally, however, probation and parole officers spend less time in communities, interacting with citizens than police officers. It can be argued that the centralized model of probation and parole work is changing, as agencies move towards community focused models of supervision (e.g., McGarry et al., 2014). The relevance of Klinger's work may become increasingly applicable in agencies where probation and parole officers are frequently interacting with citizens in neighborhoods.

Another issue is whether the outcome measure accurately captures what is actually occurring at the APPD. Glaser (1964) points out that simplistic outcome measures of success or failure hides tremendous variation that can exist in supervision performance and that details get lost when simple classifications are used. Addressing this, Vasoli (1967) suggested focusing on 'adjustment criterion' that refers to the adjustment of the probationer or parolee to basic areas of social life. The benefit of this approach is that operating in an adjustment-maladjustment framework accounts for both positive and negative behavior and fits within a rehabilitative goal orientation. However, 'adjustment' is vague, hard to quantify and ultimately may be a highly subjective measure. Perhaps for this reason, there have been no empirical tests in probation and parole using an adjustment-maladjustment framework. The decision to include supervision adjustments used in this study may be a limitation. However, it seems

prudent to extend the prior literature cautiously by using similar measures as others when addressing the research questions.

In fact, the outcome measures may improve upon prior measures for several reasons. Given the analytic plan, the research is not simply predicting classification into ‘success’ or ‘failure’. Rather, this research examined the influence of a multitude of factors – many previously unexamined – on the odds of supervision adjustment types and lengths. The outcome measures also considered different types of ‘failure’ by contrasting shortened and extended supervisions with on-time completions.

A practical argument made, however, is that it is unclear whether shortened supervisions are the result of poor or good behavior. As mentioned, shortened supervisions may be the result of poor behavior that led to a revocation; shortened supervisions may also be the result of good behavior that led to an early termination. Shortened supervisions may also be the result of post-sentencing judicial adjustments in accordance with sentencing guidelines. A judge, for instance, may have originally imposed a lengthy sentence that was not legally permissible.

The same type of argument applies to individuals with extended supervisions. Extended supervisions may be the result of poor behavior or some other unmeasured factor. It is not possible to determine all of the underlying factors that result in a supervision adjustment using these data. There is, however, a way to capture the degree to which client behavior leads to shortened and extended supervisions. Doing so may provide clues to the reasons supervision is adjusted.

Table 21 shows the average number of adjusted supervision days for individuals classified by behavior. In general, this table shows negative behaviors, including drug

use, missing office visits, and arrests, are associated with supervision adjustments. There is clearer support that negative behaviors result in extended supervisions. In general, as poor behavior increases so does the average length of supervision extensions. This link is less clear for individuals with shortened supervisions. Although descriptive, this highlights the need to examine what leads to shortened supervisions.

Table 21

Average Number of Supervision Days Adjusted by Behavior Type

| | Days Shortened | | | Days Extended | | |
|----------------------|----------------|--------|-------|---------------|--------|-------|
| <u>Drug tests</u> | Mean | SD | Obs | Mean | SD | Obs |
| No test | -506.03 | 489.65 | 871 | 59.55 | 97.25 | 4,040 |
| No positive | -542.3 | 504.77 | 418 | 112.23 | 132.95 | 652 |
| 1 positive | -586.74 | 693.68 | 201 | 124.46 | 144.47 | 359 |
| 2 or more | -546.04 | 540.97 | 396 | 115.78 | 134.61 | 467 |
| <u>Office visits</u> | | | | | | |
| No missed | -556.8 | 549 | 1,115 | 59.92 | 96.51 | 4,047 |
| 1 missed | -496.78 | 467.53 | 241 | 95.42 | 133.92 | 703 |
| 2+ missed | -492.56 | 510.68 | 530 | 134.04 | 139.73 | 768 |
| <u>Arrests</u> | | | | | | |
| No arrests | -562.61 | 570.64 | 887 | 45.62 | 76.68 | 4,077 |
| 1 arrest | -521.12 | 496.32 | 212 | 133.83 | 141.23 | 485 |
| 2+ arrests | -498.21 | 486.21 | 787 | 169.05 | 151.34 | 956 |

Note. Data from male and female probationers assigned to county-level supervision beginning August 1, 2009 - July 31, 2010.

Turning to another limitation, according to the gendered pathways literature, males and females have different experiences within the criminal justice system that can lead to markedly different outcomes. Despite the nuanced argument of this perspective, this dissertation was able to do a limited test of subgroup differences in supervision adjustments for poor, African American females compared to others under supervision.

This, of course, is lacking indicators of different experiences that males and females may have in the criminal justice system. According to the gendered pathways perspective, it is not possible to examine gender differences without accounting for different experiences.

Finally, a limitation of using the predicted risk level pertains to how the risk tool was developed to statistically predict the likelihood of committing a serious violent offense (i.e. homicide, aggravated assault, robbery, or any sexual related crime) within two years of supervision (Barnes & Hyatt, 2012). It was not developed to directly account for adjustments to supervision lengths. Therefore, it may inaccurately predict individual supervision outcomes that are not related to violent behavior. A more detailed discussion of the risk instrument can be found in the Appendix.

Conclusion

Together probation and parole agencies in the US supervise over 4 million people; one in fifty US adults. These agencies are under-funded and under-researched compared to other areas of criminal justice. To shed light on supervision practices, this study examined the post-sentencing supervision adjustments made in a local probation/parole agency. Supervision length adjustments exist in an unregulated area of criminal justice where decision-makers can shorten or extend supervision length with little to no oversight. In fact, the practice of community supervision adjustment has only recently been identified and discussed by scholars. The purpose of this dissertation was to cast light on an unstudied discretionary practice. In order to apply a more stringent test, this dissertation also examined potential client, case, performance, and organizational correlates.

The results revealed that local subgroups of male and female probationers and parolees do have post-sentencing supervisions adjusted (i.e. shortened or extended). The most consistent predictor of supervision adjustments in this study were client behavior and performance indicators, like new arrests and drug use. That is, clients who did not adhere to the rules of the agency had increased odds of having supervision adjusted. This indicates that the agency is responsive to client behavior using legal and expected decision-making information. Other agencies can, and perhaps already do, use supervision adjustments as a response to client behavior. This finding points to a rational decision-making process that uses available information tied to regulations to adjust supervision lengths.

Another finding revealed that supervision adjustments varied by high-risk subunit. Individuals supervised in some high-risk units were more likely to have supervision shortened versus finishing on time. This finding raises questions about what leads to subunit differences. It is possible that individuals in these units act differently than clients in other subunits. The presence of a drug market within the subunit's geographic area, for instance, may result in different outcomes. It is also possible, however, that officers supervise clients differently in some subunits. Future research should address the source of supervision adjustments by addressing specifically the process of adjustment. Important questions include who decides to adjust supervision and whether a judge's approval is needed.

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APPENDIX

CLASSIFYING RISK AT APPD

Using self-reported and official police and court data from approximately 50,000 prior supervision cases from 2002-2005, researchers at the University of Pennsylvania used a random-forests method to develop a forecasting tool to predict the risk of homicide for APPD (Barnes & Hyatt, 2012; Berk et al., 2009). A random-forests method is a complex statistical technique that aggregates the results of many classification and regression trees (CARTS) to improve classification accuracy. CARTS are recursive partitioning of the data, or a threshold that splits entered data. Often, partitioning continues until there are no more splits of the data that can improve the model fit (Berk et al., 2009). Terminal nodes are then assigned classifications and ‘out of the bag’ variables – or variables not used in the construction of the random-forests – are then used to validate the model (Berk et al., 2009).

Berks et al. (2009) used two random-forests models during the study period to forecast individual risk of an offender committing homicide. The full list of predictors for Models A – C is shown in Table 22. Model A was used from March 2009 through April 2010, and included thirty-four predictors, including prior criminal justice involvement and neighborhood demographic features that included 5.57 million different decision points (Barnes & Hyatt, 2012). Model B was used to classify new APPD cases from May 2010 through 2011, and unlike Model A this version included measures of juvenile offending which increased the number of predictors to forty-eight.

From APPD's viewpoint, the random-forest risk prediction tool is a beneficial way to direct limited resources to those most at risk (Berk et al., 2009). From an analytic and theoretical viewpoint, however, this method poses some problems. As indicated in Table 22, inclusion of the individual's ZIP code in both Models A and B adds a geographic component to the risk level. Given the complex calculation of risk using a random-forests model, however, it is impossible to parse out this single effect from overall risk. This is an issue for the current study because the risk variable includes the contextual features (ZIP code) that may confound with the social climate and organizational subunit geographies considered in the current study.

As mentioned in the *Gendered Pathways* section of the proposal, there is currently a debate on the appropriateness of applying the same risk factors associated with male recidivism to female recidivism (Huebner & Pleggenkuhle, 2013; Makarios et al., 2010; Rettinger & Andrews, 2010). At the core of this debate is acknowledgement that some factors, such as education, employment, housing, and antisocial personality and peers, may be salient risk factors for men and women, (Makarios et al., 2010; Simourd & Andrews, 1994). Others have argued, however, that life experiences are gendered and qualitatively different for men and women. Exposure to life events such as economic marginalization, drug and alcohol addictions, victimization, and familial responsibilities, may differentially affect women and men (Makarios et al., 2010).

The risk tool used at APPD generally relies on risk factors identified using male samples. Therefore, one criticism is that the current study may be unable to account for female supervision outcomes because certain gendered predictors are not included (Davidson & Chesney-Lind, 2009). While it is not possible to alter the random-forests

data matrix to include gender specific variables, the current study does intend to acquire certain variables from the APPPD that may at least begin to account for gender specific factors related to supervision outcomes. Specifically detailed in the Independent measures section of this document, the current study intends to acquire client-level information on alcohol/drug use, dependents, marital status, mental health issues, and residential status, which gender researchers have argued may be especially potent risk factors for females.

It is unwise to exclude risk level as a predictor because it is so integral to supervision structure and organizational response at APPD. The choice to include risk level, however, may result in underestimated or even null effects from other areal units of interest. Put differently, the risk level may account for the majority or all of the geographic variation left to be explained in supervision outcomes.

In essence, the current study is more theoretically grounded than the risk model currently in place given the geographic units in the current study correspond to the APPD organizational structure and conceptual neighborhood boundaries. The current risk prediction instrument relies on ZIP codes as a proxy for unmentioned social processes. The inclusion of more theoretically grounded areal units, such as neighborhood social climate and subunit organizations, can be more useful than an atheoretical approach. The expectation is that the instrumental risk variable, coupled with neighborhood social climate and organizational geography may actually improve the prediction of supervision outcome.

Related, is a broader criticism of the random-forests risk model, which measures risk using a ‘black box’ approach. This type of model does not allow examination of how predictors combine, interact, or even matter in understanding their influence on outcomes. Although of practical value, this approach lacks a theoretical foundation. The present research may benefit the APPD by providing prediction that is more reflective of their organization, accurate, and a basis to explore future policy.

Table 22

Random-Forests Models to Classify Individual Risk Level at APPD

| | Time used to Forecast: | 3/09- 4/10 | 4/10- 11/11 | 11/11- Present |
|---|------------------------|---------------|----------------|-------------------|
| Items Included: | | | | |
| | Model A | Model B | Model C | |
| Supervision start age | ✓ | ✓ | ✓ | |
| Recorded gender | ✓ | ✓ | | |
| 29 most prevalent ZIP codes in Philadelphia | | | | ✓ |
| Total ZIP population | ✓ | ✓ | | |
| ZIP household income mean | ✓ | ✓ | | |
| ZIP house value mean | ✓ | ✓ | | |
| ZIP persons per household mean | ✓ | ✓ | | |
| ZIP miles from city limit (outside ZIPs only) | ✓ | ✓ | | |
| ZIP outside city limits | ✓ | ✓ | | |
| Age first adult any charge | ✓ | ✓ | | ✓ |
| Age first adult violent charge | ✓ | ✓ | | ✓ |
| Age first juvenile any charge | | ✓ | | ✓ |
| Age first juvenile violent charge | | ✓ | | |
| Instant murder charge count | ✓ | | | |
| Instant serious charge count | | ✓ | | ✓ |
| Instant violence charge count | ✓ | ✓ | | |
| Instant sexual charge count | ✓ | ✓ | | |
| Instant property charge count | ✓ | ✓ | | |
| Instant firearm charge count | ✓ | ✓ | | |
| Instant drug charge count | ✓ | ✓ | | |
| Instant probation sentence count | | ✓ | | |
| Instant probation days concurrent | | ✓ | | |

Table 22

(Continued)

| | Time used to Forecast: | 3/09- 4/10 | 4/10- 11/11 | 11/11- Present |
|--|------------------------|---------------|----------------|-------------------|
| Items Included: | | Model A | Model B | Model C |
| Instant incarceration sentence count | | | ✓ | |
| Instant incarceration days concurrent | | | ✓ | |
| Prior adult charge any count | | ✓ | ✓ | ✓ |
| Prior adult UCR Part I charge count | | ✓ | | |
| Prior adult serious charge count | | | ✓ | |
| Prior adult violence charge count | | ✓ | ✓ | ✓ |
| Prior adult sexual charge count | | ✓ | ✓ | ✓ |
| Prior adult sex offender registration charge count | | ✓ | ✓ | |
| Prior adult property charge count | | ✓ | ✓ | |
| Prior adult weapons charge count | | ✓ | ✓ | |
| Prior adult firearms charge count | | ✓ | ✓ | |
| Prior drug charge count | | ✓ | ✓ | |
| Prior adult drug distribution charge count | | ✓ | ✓ | |
| Prior juvenile any charge count | | | ✓ | |
| Prior juvenile serious charge count | | | ✓ | |
| Prior juvenile violence charge count | | | ✓ | |
| Prior juvenile sexual charge count | | | ✓ | |
| Prior juvenile property crime charge count | | | ✓ | |
| Prior juvenile weapons charge count | | | ✓ | |
| Prior juvenile firearm charge count | | | ✓ | |
| Prior juvenile drug charge count | | | ✓ | |
| Prior juvenile drug distribution charge count | | | ✓ | |
| Years since prior adult serious charge | | ✓ | | |

Table 22

(Continued)

| | 3/09- 4/10 | 4/10- 11/11 | 11/11- Present |
|------------------------------------|---------------|----------------|-------------------|
| | Model A | Model B | Model C |
| Time used to Forecast: | | | |
| Items Included: | | | |
| Years since prior serious charge | | ✓ | ✓ |
| Prior probation count | ✓ | ✓ | |
| Prior failure to appear count | ✓ | ✓ | |
| Prior absconder count | ✓ | ✓ | |
| Prior jail stays | ✓ | ✓ | |
| Prior jail days | ✓ | ✓ | |
| Prior confinement sentence count | ✓ | | |
| Prior incarceration sentence count | ✓ | ✓ | |