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Social Ecology and Recidivism: Implications for Prisoner Reentry

ABSTRACT

Despite the marked increase in incarceration over the past thirty years and the fact that roughly two-thirds of released offenders are rearrested within three years of release, we know little about how the social ecology of the areas to which offenders return may influence their recidivism or whether it disproportionately affects some groups more than others. Drawing on recent scholarship on prisoner reentry and macro-level predictors of crime, this study examines a large sample of prisoners released to Florida communities to investigate how two dimensions of social ecology—resource deprivation and racial segregation—may independently, and in interaction with specific populations, influence recidivism. The findings suggest that ecology indeed is consequential for recidivism, and differentially influences some groups more than others. We discuss these findings and their implications for theory, research, and policy.

Keywords: prisoner reentry recidivism social ecology

INTRODUCTION

In his 2004 State of the Union address, President George W. Bush emphasized the central importance of improving the life chances of inmates released from prison, noting, “America is the land of the second chance, and when the gates of prison open, the path ahead should lead to a better life” (Travis, 2005: 275). The emphasis stemmed from concern about the limited housing and employment prospects of these individuals and, not least, the likelihood that they will commit crime. With over 630,000 inmates returning to communities annually and over two-thirds likely to be rearrested within three years, cause for concern remains (Langan and Levin, 2002; Petersilia, 2003; Sabol, Minton, and Harrison, 2007). Yet, despite considerable investment in research and programs aimed at improving prisoner reentry, much remains unknown about the factors that influence successful returns back into society (Travis and Visser, 2005).

Juxtaposed against the increased scholarly and policymaker attention to prisoner reentry stands a large body of work on social ecology that may provide insight into the reentry process. Although many studies have investigated the salience of ecology for a range of crimes (Sampson, Morenoff, and Gannon-Rowley, 2002), most notably homicide (Mears and Bhati, 2006), this perspective has not systematically been turned to investigations of the recidivism of released prisoners (Kubrin and Stewart, 2006; Visser and Travis, 2003). The research gap is notable given several recent reviews calling for systematic investigation of ecological influences on crime (Pratt and Cullen, 2005; Sampson, Morenoff, and Gannon-Rowley, 2002).

A focus on recidivism is especially opportune given the dearth of analyses investigating the significance of ecology on released prisoners (Kubrin and Stewart, 2006). It also builds off of and can contribute to theory and research pointing to the importance of life events, of which release from prison represents a critical one, for offending (Piquero, Farrington, and Blumstein, 2003; Sampson and Laub, 2005). Few life course studies investigate how ecology may contribute to offending trajectories; thus, evidence that it may play a role in recidivism would underscore the need to develop more nuanced accounts of factors that influence such trajectories.

This paper aims to contribute to the growing literature on social ecology, focusing specifically on how ecology may influence the recidivism of ex-prisoners and how it may amplify the recidivism of young minority males, whose life chances, on average, are held to be less than those of white males due to social inequality and accumulated disadvantage (Wilson, 1987, 1996). To this end, we draw on two prominent ecological perspectives, resource deprivation and racial segregation, to develop hypotheses about the recidivism patterns of a large sample of inmates released from Florida prisons. At the same time, we link these perspectives with arguments about how they may hold particular implications for groups associated with or likely to suffer from accumulated social disadvantage. In doing so, we build off a line of work by such scholars as Haynie and Payne (2006), who show that contextual influences may moderate the effect of individual-level characteristics and that such effects may vary among racial groups. Specifically, we hypothesize that individuals released to resource deprived or racially segregated areas will have an increased likelihood of recidivism, that recidivism will be greater among young nonwhite males, and that the influences of resource deprivation or racial segregation will be greatest for this group of released prisoners.

We begin by discussing prisoner reentry as a general phenomenon that provides opportunities to test and extend theory, then turn to the theoretical foundation used to develop our hypotheses. After describing the data and methods, we present the findings and discuss their implications for theory, research, and policy. In so doing, we draw attention to the need for studies that provide more nuanced accounts of recidivism and that carefully attend to ways in which differential law enforcement across areas and racial and ethnic groups may influence recidivism measures and, in turn, prediction models (Klinger and Bridges, 1997). We also emphasize the notion that ignoring social ecology may unnecessarily undermine efforts to improve reentry.

BACKGROUND

The study of recidivism is of interest for at least two reasons—it affords an opportunity to glean insight into the causes of crime and the findings, where robust, potentially can be used to

inform efforts aimed at reducing post-release offending. On both counts, considerable advances may emerge from systematic attention to factors associated with prisoner reentry outcomes. In recent years, for example, a substantial body of scholarship has turned to studying patterns of persistence of and desistance from patterns of offending (Piquero, Farrington, and Blumstein, 2003; Sampson and Laub, 2005). In this regard, persistence notably constitutes a central feature of ex-prisoner behavior. For example, a Bureau of Justice Statistics' (BJS) study of prisoners released from 15 states found that the median number of prior arrests was 6, with 43 percent of the prisoners having served a prior term of incarceration (Langan and Levin, 2002: 2).

At the same time, prisoner reentry has emerged as a prominent policy concern nationally, reflected in the recent \$100 million federal initiative aimed at promoting effective reentry strategies in each of the 50 states and in the priority that it has been given under both Democratic and Republican presidencies (Travis, 2005). The number of individuals leaving prisons is more than four times greater today than what it was 20 years ago, with roughly 630,000 inmates released to communities each year (Harrison and Karberg, 2003; Travis and Visser, 2005). As of June 30, 2006, 1,556,518 inmates resided in State and Federal prisons and another 766,010 were in local jails (Sabol, Minton, and Harrison, 2007: 2, 5). In the meantime, incarceration rates have continued to increase, which in turn means ever-larger numbers of individuals reentering society after the experience of jail or prison. According to the most recent data available, at midyear 2006, there were 497 prison and jail inmates per 100,000 U.S. residents (Sabol, Minton, and Harrison, 2007: 2), with 1 in every 133 U.S. residents incarcerated in a State or Federal prison or a local jail (p. 8).

The profile of inmates suggests that the prospects for successful reentry are dim. In her analysis of the BJS Survey of Inmates in State Adult Correctional Facilities, Petersilia (2005: 45) concluded: "Many, if not most, [prisoners] . . . did not have much to begin with, and have been born with, or have developed, serious social, psychological, and physical problems," and "will be released to poor inner-city communities with few services and little public sympathy for their plight." Notably, few will have received drug or mental health treatment, educational or vocational training or services (Lynch and Sabol, 2001). Perhaps not surprisingly, recidivism is

common. In the widely-cited Langan and Levin (2002: 3) study, 44 percent of released prisoners were rearrested within one year and 68 percent were rearrested within three years.

Alongside these facts stands one that is equally striking—until recently, little was known about prisoner reentry and how to improve the outcomes of released inmates. An emerging body of work has systematically examined a range of dimensions, such as the profile of released inmates, the contributions ex-prisoners may make to crime rates, the effects of supervision, ways in which in-prison programming and post-release experiences may influence recidivism, and, not least, the impact of reentry on communities (Lynch and Sabol, 2001; Petersilia, 2003; Travis and Visher, 2005). Although any assessment of reentry arguably should include attention to a range of post-release outcomes, such as employment, housing, and family reunification (Travis, 2005), recidivism constitutes an obviously central concern for both criminologists and policymakers. Notably, therefore, and despite an increasingly large set of studies on desistance from crime (Piquero, Farrington, and Blumstein, 2003; Sampson and Laub, 2005), much remains unknown about correlates of recidivism, although a small set of factors has been identified. As Kubrin and Stewart (2006: 166) have emphasized, studies to date point to several factors associated with increased recidivism, including demographic characteristics (men, minorities, and younger offenders recidivate more), offense characteristics and histories (those who have committed serious crimes or who have prior records recidivate more), offender characteristics (those who have drug problems and limited education recidivate more), and supervision (those who are supervised recidivate more) (see Cullen and Gendreau, 2000, Piehl and LoBuglio, 2005).

Given the salience of social ecology to studies of social phenomena generally (Massey, 2001) and to crime in particular (Pratt and Cullen, 2005; Sampson, Morenoff, and Gannon-Rowley, 2002), an especially notable gap in the literature is the extent to which ecological conditions influence recidivism outcomes. That may be due to a belief among policymakers, practitioners, and perhaps some scholars as well, that, fundamentally, “the risk for reoffending is individually determined” (Kubrin and Stewart, 2006: 166). To illustrate, risk prediction instruments used in correctional systems typically focus primarily, if not exclusively, on individual-level characteristics (Cullen and Gendreau, 2000). Similarly, some mainstream criminological

theories and emphases, such as research on the persistence of and desistance from offending, tend to focus primarily on individual-level factors. Regardless, “almost no studies have measured contextual effects” on recidivism (Kubrin and Stewart, 2006: 171), even though such factors may contribute to the offending patterns of ex-prisoners or to the type and degree of law enforcement to which they are subjected. By extension, there has been limited investigation of the extent to which ecology exerts a differential effect on recidivism among select sub-groups of released prisoners. This research gap is important because studies suggest that social ecology may affect some groups differently than others, depending on the outcome, with race presenting one potentially clear divide along which differential effects may arise (Earls and Carlson, 2001).

That issue assumes particular salience when thinking about social ecology and reentry, given that racial minorities are substantially overrepresented in the correctional system relative to their representation in society at large. As a general matter, racial divides in American society continue to persist and feature prominently as a focus in social scientific research (Chiricos, Welch, and Gertz, 2004; McPherson, Smith-Lovin, and Cook, 2001). This focus certainly exists within criminology, especially in studies of violent crime, law enforcement, and sentencing laws and practices (Behrens, Uggen, and Manza, 2003; Huebner and Bynum, 2006; Parker, Stults, and Rice, 2005; Peterson and Krivo, 2005; Sampson and Lauritsen, 1997; Spohn, 1994). Here, again, however, few investigations of prisoner reentry and recidivism have systematically examined the role of race beyond identifying whether race is correlated with subsequent arrest, conviction, or incarceration, and often it simply is treated as a statistical “control.” Left largely unaddressed is whether race may interact with other factors and, in turn, with social ecology, in predictable directions. The importance of this question lies in the fact that if indeed ecology differentially influences certain groups of offenders, reentry programs, policies, and practices might need to be modified to take such conditioning effects into account to be effective.

This paper contributes to theoretical and empirical research on prisoner reentry by focusing attention on the salience of social ecology for recidivism and by examining the differential effects ecology may have for some groups. In particular, it builds off of efforts to explore ecology and recidivism (e.g., Kubrin and Stewart, 2006) and scholarship that emphasizes the

salience of race (e.g., Wilson, 1987, 1996) and cumulative disadvantage (Sampson and Laub, 1997). At the same time, it responds to calls to examine how certain criminogenic factors may amplify the effects of others (Agnew, 2005; Haynie and Payne, 2006). Our goal is to advance knowledge about factors that contribute to successful reentry outcomes and to stimulate investigations into the salience of ecology and race for recidivism and, more generally, offending patterns and trajectories (Piquero, Farrington, and Blumstein, 2003; Sampson and Laub, 2005).

THEORETICAL PERSPECTIVES

Criminologists have undertaken many studies of ways in which social ecology influences crime, especially violent crime (see, e.g., Akins, 2003; Eitle, D'Alessio, and Stolzenberg, 2006; Liska, Logan, and Bellair, 1998; Lee and Ousey, 2005; Messner, Baumer, and Rosenfeld, 2004). Yet, analysis of the contexts to which released prisoners return or how these may influence recidivism generally, much less for specific sub-groups of prisoners, remains rare (Clear, Waring, and Scully, 2005; Gottfredson and Taylor, 1985, 1988; Kubrin and Stewart, 2006; Uggen, Wakefield, and Western, 2005). A central question that remains largely unaddressed is whether and to what extent various types of ecological conditions affect prisoner reentry, and recidivism in particular, and, in turn, whether identified effects vary across particular groups.

A plethora of ecological measures can be found in criminological research, as Pratt and Cullen's (2005) recent review has documented. Broadly, the measures fall into different theoretical perspectives, including social disorganization, anomie/strain, resource/economic deprivation, routine activity, deterrence/rational choice, social support/social altruism, and subcultural theories (pp. 392-394). Here, we focus on two of the most commonly used measures in ecological studies—resource deprivation and racial segregation—for several reasons.

First, in Pratt and Cullen's (2005) review, these measures, or indicators of them, not only were frequently used in studies of social ecology but also were among those that had the strongest associations with crime (pp. 399-403; see also Sampson, Morenoff, and Gannon-Rowley, 2002). Second, resource deprivation arguably constitutes a fundamental staple of

ecological studies of crime, as Land, McCall, and Cohen's (1990) analysis showed almost two decades ago, and is reflected in its use, directly or in derivative measures, in many contemporary studies (e.g., Eitle, D'Alessio, and Stolzenberg, 2006; Mears and Bhati, 2006; Parker, 2004). Resource or economic deprivation, however measured, is expected to increase crime through a range of mechanisms indicated by several ecological theories, and the logic of these mechanisms applies equally well to released prisoners as it does to the general population. Some theories, such as social disorganization (Bursik and Grasmick, 1993; Shaw and McKay, 1942) and collective efficacy (Sampson, Raudenbush, and Earls, 1997), suggest that resource deprivation disrupts patterns of informal social control and perhaps gives rise to criminal subcultures (Akers and Sellers, 2004; Sampson, Morenoff, and Gannon-Rowley, 2002). In addition, strain theories (Merton, 1938) emphasize resource deprivation as a key indicator of blocked economic opportunities—living in a resource-deprived area separates an individual from the legitimate economic opportunities necessary for conventional success. In short, the prominent place of resource deprivation in criminological theorizing and its status as a strong predictor of crime suggests that a more complete account of recidivism likely should include this measure.

Racial segregation stands as another central pillar of ecological research, one especially salient to studies of crime and reentry (Krivo and Peterson, 2000; Peterson and Krivo, 2005; Travis, 2005). Resource deprivation and racial segregation frequently are correlated, but they need not be and may contribute to crime in different ways (Peterson and Krivo, 1993). Much research points to high levels of racial segregation in the United States that can not be explained by racial differences in income, but instead are linked to patterns of discrimination in which whites geographically isolate themselves from disadvantaged racial groups (Massey and Denton, 1993). A key result of race-based social isolation is that racially segregated areas often are marked by high levels of joblessness, mortality, and marital disruption, as well as the presence of dilapidated housing and poorer schools (LaVeist, 1989; Massey and Denton, 1993; Wilson, 1987). Racial segregation is positively related to crime rates as well (Logan and Messner, 1987; Parker and McCall, 1999; Peterson and Krivo, 1993; Sampson, 1985). Here, again, social disorganization and strain theories often are offered to explain this pattern. From a social

disorganization perspective (Shaw and McKay, 1942), racial segregation leads to a breakdown in community organization and informal social control, in part because residents perceive that social investments in the community are either not possible or would not make a difference (Sampson and Wilson, 1995). From a strain perspective, racial segregation blocks economic opportunities for disadvantaged groups, including racial minorities as well as economically disadvantaged whites (Blau and Blau, 1982).¹ The social isolation that is implied by racial segregation serves as a significant barrier to upward mobility for disadvantaged groups, producing frustrations and hostile motivations that lead to crime (Logan and Messner, 1987).

Juxtaposed against these theoretical perspectives stand several strands of work, such as Haynie and Payne's (2006), that argue for investigation of how contextual effects may vary among racial groups. Here, we argue specifically that social ecology may have differential effects among young minority males. First, as a general matter, scholars have long called for investigation of how social ecology may not only directly influence recidivism but also exert stronger effects on some populations. However, what Gottfredson and Taylor (1988: 133) noted twenty years ago about recidivism research remains true today—little is known about person-environment interactions. Indeed, one of the few exceptions, as Kubrin and Stewart (2006: 171) have observed, was research undertaken by Gottfredson and Taylor (1985, 1988), who drew on data from a study of Baltimore neighborhoods. Their preliminary exploratory study identified no direct ecological effects on individual-level recidivism but did reveal “person-environment” interactions between individual risk-level and neighborhood-level physical incivilities (1985: 147). In follow-up analyses—which included survey data and involved 57 Baltimore neighborhoods and 487 offenders (when observer-recorded information about physical incivilities was used, 67 neighborhoods and 619 offenders were examined)—they again found no evidence of direct effects of ecology on recidivism or, in contrast to the earlier study, of interactions (1988: 73-79). Almost twenty years after this study, Kubrin and Stewart (2006) conducted one of the few other studies of person-environment interactions in their analysis of recidivism in Multnomah County, Oregon, and found no significant interactions (p. 185).

Second, calls from the broader criminological community for examining interaction effects

have increased in recent years, stemming from the insight that the effects of many mainstream criminological variables may vary across different groups or depend on the level of some other variables. More specifically, and of relevance here given our focus on two ecological factors that may influence recidivism through strain-producing mechanisms, strain theorists have advocated the investigation of strain-related interaction effects (Agnew, 2005: 113-114).

Third, today, any focus on prisoner reentry and recidivism almost necessarily leads to the observation that young, minority males are overrepresented in prisons relative to their presence in society (Gabbidon and Greene, 2005; Sabol, Minton, and Harrison, 2007). The reason may lie in part with greater levels of serious offending among this population, as reflected in self-report and official records data (Sampson and Lauritsen, 1997: 330). Proposed explanations for this difference are many, including the fact that social disadvantage is more pronounced among minorities in amount and effect. That in turn may contribute to greater exposure to groups, settings, or beliefs conducive to criminal behavior (pp. 330-333; see also Agnew, 2005: 141-147; Kempf-Leonard, Chesney-Lind, and Hawkins, 2001: 258-261; Sampson and Laub, 1997), and, more generally, may diminish the life chances of young minority males (Wilson, 1987, 1996). Anderson (1999: 81) has written, for example, that “the hard reality of the world of the streets can be traced to the profound sense of alienation from mainstream society and its institutions felt by many poor inner-city black people, particularly the young” (emphasis added).

Common to such explanations is the insight that there may be something unique to this age- and race-specific group and its experiences, which in turn may lead contextual factors to have differential effects on them (Spencer and Jones-Walker, 2004; Sullivan, 2004). In a national study of youth, for example, Haynie and Payne (2006:796) found that the “structural and behavioral characteristics of adolescents’ peer networks” largely accounted for race-specific differences in violent offending committed by young people and also that racial heterogeneity in social networks exerted a greater crime-reducing effect among black youth as compared to whites. The argument was that “increasing racial heterogeneity and exposure to more popular friends increases feelings of integration and provides access to greater and more positive sources of social capital, which in turn inhibit violence” (p. 796). By contrast, for whites, racial

heterogeneity “may be highly correlated with lower socioeconomic status among friends,” which in turn would “account for higher involvement in violence” (p. 797). It is precisely this type of pattern that we anticipate may arise when other types of contextual influences are examined.

HYPOTHESES

Collectively, these observations point not only to the importance of investigating the direct effects of social ecology on individual-level offending but also its conditioning effect among particular groups, especially young, minority males. Here, drawing on the discussion above, we examine three related hypotheses that focus on the influence of social ecology. Our first is that ex-prisoners returning to areas with higher levels of resource deprivation or racial segregation will have higher levels of recidivism, net of individual-level controls, including post-release supervision, and of ecological-level criminal justice resources. Although we anticipate such an effect for all types of recidivism, prior research suggests that these ecological conditions should be especially salient for violent crime and, by extension, recidivism (Mears and Bhati, 2006).

Our second hypothesis is that young nonwhite males will have disproportionately higher recidivism rates relative to young white, older nonwhite, and older white males, net of individual- and ecological-level controls. Here, we anticipate that the effect will be more evident for violent and drug offending than for property offending, given that studies point to the greater involvement of young minority males in more serious and chronic offending (Kempf-Leonard et al., 2001; Petersilia, 2003; Sampson and Lauritsen, 1997).² Our main substantive focus is hypothesis three, which holds that resource deprivation and racial segregation will have greater effects on young, minority males. As a prelude to examining that hypothesis, however, we first test whether young, minority males are in fact disproportionately likely to recidivate.³ Our goal is not to test whether an interaction can be explained by social ecology. Rather, our focus is on social ecology and its direct and conditioning effects on recidivism. That said, it can be argued that young minorities may be especially likely to recidivate because of the social conditions in which they reside. Thus, one might anticipate that any differences in recidivism could be

explained by controlling for such conditions. On the other hand, the possible theoretical avenues that might give rise to higher levels of recidivism among this group go beyond social ecology, including the cumulative individual-level disadvantage members of the group may have or face relative to other groups. Below, we discuss analyses that bear on that question, but here reiterate that our focus is on the potential conditioning effects of ecology on young minorities.

This distinction bears further elaboration. Typically, in recidivism models, and more generally in crime causation studies, age or race are included as controls. Our focus here differs in that we view the combination of being both young and minority as a unique marker of the accumulation of individual-level disadvantage and life experiences that place this group at a greater risk of offending relative to other groups. Ideally, we would have data that permitted testing that idea, but we do not. However, one can indirectly test the idea by examining a hypothesis premised on the logic. That is what hypothesis three below does—it anticipates that a greater effect of social ecology will occur among young minorities precisely because of the unique disadvantage and life experiences among this group. Should such an effect arise, it supports the notion that disadvantage or adverse life experiences, or, at the very least, some shared condition or experience among this group, contributes to their greater levels of offending.

Our third hypothesis is that the interaction between age and race will be moderated by social ecology. Specifically, we expect not only that young nonwhite males will be disproportionately likely to recidivate relative to other groups of ex-prisoners but that this difference will be greater among released prisoners living in areas marked by higher levels of resource deprivation or racial segregation. Our reasoning is that young minority males occupy a particularly unstable situation in which cumulative disadvantage and diminished life chances, relative to that of whites, and of white males in particular, is acute (Agnew, 2005; Wilson, 1987, 1996). For this reason, residing in disadvantaged or racially segregated communities, where life chances may be further diminished or where social isolation is greater, can be expected to disproportionately influence them. We do not expect the effect to be greater for any one type of recidivism.

In the case of resource deprivation, reduced informal social controls may be expected to provide disproportionately greater freedom to young minorities to commit crime. More

generally, they may have greater motivation to commit crime due to higher levels of cumulative disadvantage and, in turn, strain. Thus, any weakening of informal controls may provide a disproportionately wider window of opportunity for young minorities to offend. Viewed somewhat differently, during a crucial life stage—early adulthood—young minority ex-prisoners not only have accumulated considerable disadvantage, but they also face situations in which prison experiences are considered normal among residents in their communities (Petersilia, 2003: 28). For these reasons, any diminishment in social controls due to increased resource deprivation might well produce substantially increased recidivism among young minorities.

In the case of racial segregation, young minorities may be especially influenced by the lack of exposure to other groups and by the isolation that separates them from the opportunities, real or perceived, to become a contributing member of society. Here, again, this group typically is characterized by high levels of cumulative disadvantage. By dint of their age, they face a situation in which they may place special emphasis on whether they will be able to succeed in life, and, as they look forward in time, may see limited prospects for employment, helping their families, or otherwise succeeding in life. In short, this is a group for whom isolation may have especially pernicious effects in closing real or perceived opportunities for advancement. Haynie and Payne (2006) make an analogous argument, finding that exposure to more racially diverse social networks has a stronger crime-reducing effect among blacks as compared with whites. We submit that a similar logic may hold for young minority males and lead racial segregation to more strongly increase their recidivism relative to other groups.⁴

DATA AND METHODS

Data for this study come from information about males released from Florida prisons between January 1998 and June 2001 (N=49,420). The average number of inmates released to each of the state's 67 counties was 738, with a low of 14 and a high of 5,807. Inmate profiles and histories were obtained from the Department of Corrections' Offender-Based Information System. County data were obtained from several sources. U.S. Census Bureau 2000 decennial

census data were used to capture county variations in social structural characteristics. Data on racial residential segregation were obtained from the Population Study Center at the University of Michigan. The Florida Department of Law Enforcement provided data on county police deployments, and the Bureau of Economic and Business Research at the University of Florida provided data for county expenditures on public safety. Below, we describe each variable we used. Table 1 provides details on the precise coding used, and the appendix provides the zero-order correlations of all the study variables.

DEPENDENT VARIABLES

Recidivism is defined as instances where inmates were convicted of a new felony that resulted in correctional supervision (i.e., local jail, state prison, or community supervision) any time within two years following release. A recent comprehensive review conducted for the Campbell Collaboration emphasized that most recidivism studies use reconviction as the measure of recidivism (Villettaz, Killias, and Zoder, 2006: 8). Our use of reconviction to measure recidivism thus accords with the bulk of studies in this area. More importantly, we are interested in the commission of serious offenses after prison release and therefore believe that focusing on felonies that result in a conviction is warranted.⁵ Our review suggests that there is no basis for anticipating substantively or statistically different results when using reconviction rather than rearrest as a measure of recidivism (see, e.g., Spohn and Holleran, 2002).

For each released inmate, we had a full two years of follow-up data. Although the bulk of recidivism occurs within the first year after release (Kurlychek, Brame, and Bushway, 2006; Langan and Levin, 2002), a two-year follow-up ensures that we are not restricting our focus to inmates most likely to fail in the first year. We disaggregated reconviction into three categories: violent crimes (homicide, aggravate assault, robbery, and sex offenses, including forcible rape), drug-related crimes (possession, sale, or distribution of illegal substances), and property crimes (burglary, motor vehicle theft, and larceny).⁶ Each type of reconviction was dummy coded (1=yes, 0=no)—5.5 percent of the sample was reconvicted for a violent offense within two years

of release, 15.2 percent for a drug-related offense, and 12.2 percent for a property offense.

Insert table 1 about here

INDIVIDUAL-LEVEL VARIABLES

We examine the likelihood of three offense-specific reconviction outcomes for four age and race groups (young nonwhite, old nonwhite, young white, and old white), controlling for educational background, criminal record, incarceration profile, and community supervision (see discussion below).⁷ Consistent with our hypotheses about age and race interactions and with prior research (e.g., Steffensmeier, Ulmer, and Kramer, 1998: 765), respondents who were 29 years old or less were coded as “young.” (We investigated different age cut-offs to assess how the results might, if at all, differ.⁸) In our main analyses, we investigate how two measures of ecology—resource deprivation and racial segregation—separately interact with the four age-race groups in predicting reconviction. We also conducted analyses in which females and larger numbers of age categories were included, but had to restrict the focus to males. Even with the large sample size, the inclusion of females, who comprised a small percentage of the releasee population, spread the data too thin, especially when examining age and race interactions.

CONTEXTUAL VARIABLES

We focus on two ecology measures, resource deprivation and racial segregation, with the latter operationalized using the Index of Dissimilarity. This measure, used in ecological-level studies of violence (e.g., Parker, 2004; Wadsworth and Kubrin, 2004), reflects the evenness with which whites and blacks are distributed across the census tracts that make up a county. More specifically, it measures the extent to which two groups are distributed evenly across an area, with values closer to 0 indicating lower levels of segregation and values closer to 100 indicating higher levels. A given value indicates the percentage of the overrepresented group that would have to move from tracts in which they are overrepresented to other tracts to achieve equal representation (i.e., a value of 0). Data from the Census Bureau’s 2000 decennial census were

used to create the resource deprivation variable, which drew on measures—including median family income, percent female-headed households, percent unemployed, percent of population living below the official poverty line, and percent of population receiving public assistance—similar to those used in prior research (Land et al., 1990; Pratt and Cullen, 2005).⁹

Although other ecological-level units of analysis could be used (Peterson and Krivo, 2005), we focus on counties because social and economic conditions vary considerably between counties, and, more importantly for our purposes, because law enforcement and courtroom practices often are organized at a county level (see, e.g., Johnson, 2006). Counties do not constitute communities by some definitions (Sampson, Morenoff, and Gannon-Rowley, 2002), but they do reflect a social ecological context to which offenders return and have been used in studies of crime and sentencing (Baller et al., 2001; Johnson, 2006; Osgood and Chambers, 2000). Although we can not demonstrate that released inmates remain in the counties to which they return, studies suggest that mobility is low, and that any moves typically occur within a county. Schachter, Franklin, and Perry (2003: 2) reported, for example, mobility patterns for the general U.S. population over a five-year period and found that more than half of residents who move remain in the same county. Research focusing on released inmates suggests that a minimal level of county-to-county migration occurs (La Vigne and Parthasarathy, 2005: 2).

CONTROL VARIABLES

We control for offender characteristics to increase confidence that our estimates of the effects of age, race, and the ecology measures on the three reconviction outcomes are not spurious. Prior research consistently shows that prior criminal activity and having a prior record may contribute to recidivism (see, e.g., Gendreau, Little, and Goggin, 1996: 581-586). For this reason, we examined several measures of these constructs using principal components analysis. As expected, two latent constructs emerged. The first, criminal record, consists of the number of prior felony convictions resulting in state correctional supervision, number of prior recidivism events (i.e., the number of times an inmate previously was released from prison and subsequently

both convicted of a new felony offense and readmitted to a Florida prison), and an overall prior felony conviction seriousness score.¹⁰ The second, incarceration profile, exhibited high loadings for the number of months served in prison, the number of prison disciplinary infractions, and the custody level at the time of release.¹¹ Both criminal record and incarceration profile were operationalized as weighted factor scores. Education level was operationalized using scores from the Test of Adult Basic Education (TABE), which measures a person's grade level in three subjects (i.e., reading, math, and language), and is administered to inmates prior to release.

A potential problem in studies of recidivism using official records data is that the outcome may reflect both offending and law enforcement behavior (Blalock, 1970; Kubrin and Stewart, 2006; Liska and Chamlin, 1984).¹² We therefore included individual- and ecological-level measures of formal social control capacity and resources. At the individual-level, we included a variable that indicates whether released inmates were under some form of supervision at the time they were released; this variable addresses the possibility that some inmates are more likely to be caught purely by virtue of greater exposure to supervision. At the ecological-level, and following Sampson and Laub (1993: 298), criminal justice system resources is a composite variable, produced through principal components analysis, that taps per capita county revenues, resources allocated to public safety, and police presence, as measured by the number of law enforcement officers per 100,000 residents. This variable, too, controls for the possibility that the recidivism of some individuals may result from differential exposure to law enforcement. It does not include an explicit measure of court expenditures (though it does include information on county revenues), and thus is likely to primarily reflect law enforcement, not court, activities.

ANALYTIC STRATEGY

With multilevel data and a binary outcome, Raudenbush and Bryk (2002) recommend the use of hierarchical generalized linear modeling (HGLM), which incorporates a unique random effect into the statistical model for each county and produces more robust standard errors than non-hierarchical models allow (p. 100).¹³ Furthermore, to assess the moderating effect of social

context on age and race, cross-level (or macro-micro) interaction techniques were employed (see Kreft and de Leeuw, 1998: 12).¹⁴ For the analyses, we used HLM 6.0 and present the model estimates with robust standard errors.¹⁵ Because the theoretical logics underlying the hypothesized effects of resource deprivation and racial segregation on recidivism differ, we present separate sets of models, one for resource deprivation and one for racial segregation.¹⁶ However, we also report the results of analyses in which the measures were included simultaneously; substantively, the findings were largely the same, regardless of whether one or both measures were included in the same models. When these measures were omitted, the results also were the same for the test of an age and race interaction. We discuss these analyses when presenting the results of the tests of our three hypotheses.

SPATIAL DEPENDENCE

A concern in studies of social ecology is the potential problem of spatial dependence (Kubrin and Weitzer, 2003: 393-395). Following Baller et al. (2001: 572), a nearest neighbor criterion was calculated from the distance between county centroids. Using different neighbor weight matrices for 5, 6, and 10 nearest neighbors (all weights equal 1, with larger counties having larger weights), Global Moran's I statistics on the raw offense-specific conviction rates were calculated. Then the S-plus spatial module for 1,000 permutations for each Moran's I statistic was used. In addition, Moran's I statistics using Empirical Bayes adjusted rates were also computed. As indicated by Moran's I statistics, spatial autocorrelation was not statistically significant for either violent conviction or property conviction. However, significant spatial autocorrelation emerged when drug conviction was examined. As a result, for the drug conviction models, we included a spatial lag specific to drug conviction.¹⁷

RESULTS

Before proceeding to a discussion of the findings that bear directly on our hypotheses, brief mention of the individual-level effects (presented in model 1 in tables 2 and 3) is warranted.

Recall that our hypotheses do not directly focus on these variables, but instead treat them as controls. Nonetheless, it is notable that the statistical significance and direction of effects are consistent with prior research. Specifically, the following characteristics were generally associated with increased recidivism—being young or nonwhite, having less education, and having a prior record or more serious incarceration profile (e.g., having a higher custody level, more infractions, or serving a lengthier sentence). In addition, post-release supervision was not statistically significant or, for drug and property offending, was associated with less recidivism.

Insert table 2 about here

Insert table 3 about here

We turn now to the test of our first hypothesis, which anticipated that resource deprivation and racial segregation would be positively associated with recidivism. Inspection of model 1 in table 1 shows that resource deprivation is, as expected, associated with an increased risk of violence—that is, released prisoners returning to resource-deprived areas are significantly more likely to be reconvicted of a violent crime. We expected that the effect would be stronger for this type of recidivism than for drug and property recidivism. In fact, resource deprivation is negatively associated with drug recidivism and statistically insignificant for property recidivism. (In separate analyses, available upon request, similar results emerged when racial segregation was included as a control; the main difference was that, in the drug model, resource deprivation was not statistically significant.) Inspection of model 1 in table 3 shows that the level of racial segregation is not statistically significant in predicting any of the three types of recidivism.

For our second hypothesis, we anticipated an interaction effect between race and age such that recidivism would be disproportionately greater among young nonwhite males, especially for violent and drug crimes. Model 2 in tables 2 and 3 suggest mixed support for this hypothesis. The two-way interaction terms are statistically significant in all six instances—that is, in the violent, drug, and property reconviction models, respectively, for resource deprivation (table 2) and racial segregation (table 3), respectively. To show graphically what the terms indicate, figure 1 presents predicted reconviction probabilities for each of four race and age groups using

the table 2 results. Since the pattern is similar to the results from table 3, the one figure serves to illustrate the findings, regardless of whether deprivation or segregation is examined.

Insert figure 1 about here

An inspection of figure 1 shows that, as expected, the probability of violent reconviction is markedly higher among young nonwhite males as compared with all three other groups, especially younger and older white males. A more striking contrast is evident with drug reconviction, where the probability of reconviction is almost three times greater for young nonwhite males as compared with young and older white males. By contrast, and unexpectedly, property recidivism is greatest among young white males, with all three other groups having relatively similar probabilities of such recidivism.

Recall that our focus is simply on establishing whether young minority males are disproportionately more likely to recidivate relative to other groups as a logical prelude to testing the hypothesis that resource deprivation and racial segregation may more strongly increase recidivism among this group relative to the others. However, a reasonable, but logically different, question is whether either measure of social ecology substantially diminishes the interaction effect. If so, it might be concluded that any such interaction is due, if only in part, to differential exposure to resource deprivation and racial segregation, respectively. In separate analyses, we found no reduction in the magnitude and statistical significance of the age and race interaction. That is, the young minority male effect emerged regardless of whether either resource deprivation or racial segregation, or both, were included as controls.

Finally, model 3 in tables 2 and 3 provides a test of our third hypothesis—namely, the expectation that the age-race interaction effect will itself interact with each of our two measures of social ecology (resource deprivation and racial segregation). Review of table 2 shows that no statistically significant three-way interaction effect emerged—that is, resource deprivation did not moderate the effect of the race and age interaction. However, a significant three-way interaction surfaced in table 3 for both drug and property recidivism, indicating that racial

segregation moderates the race and age interaction effect.¹⁸ Here, again, to facilitate discussion, we present these results graphically in figures 2 and 3.

Insert figure 2 about here

Insert figure 3 about here

The figures suggest that the moderating influence of ecology varies depending on the type of offense. Inspection of figure 2 shows that young nonwhite males indeed have substantially greater probabilities, relative to the other ex-prisoner groups, of recidivating for a drug crime, a difference that diminishes as racial segregation increases. More important, however, is the fact that, contrary to what we hypothesized, the effect of racial segregation is not greater among young nonwhite males; indeed, higher levels of segregation are associated with less, not, more recidivism for this group. By contrast, increased racial segregation increases the recidivism of the other groups, especially old nonwhites.

When we turn to property offending, inspection of figure 3 provides partial support for our hypothesis. Young nonwhites are at increased risk of recidivism as racial segregation increases, but a similar effect holds for older whites as well. By contrast, the risk of recidivism decreases among young whites and old nonwhites as racial segregation increases. Notably, at almost all levels of racial segregation, the probability of property recidivism among young nonwhite males is lower than that for the other groups.

CONCLUSION

Despite the dramatic increase in the numbers of prisoners returning to U.S. society, we know little about the factors that contribute to recidivism, especially how social ecology may influence released inmates. Building off of recent work by Kubrin and Stewart (2006), and heeding calls for greater understanding of the post-release experiences of prisoners (Petersilia, 2003; Travis and Visher, 2005), this paper contributes to the emerging literature on reentry by examining the salience of social ecology, and its potentially differential effects on young minority males, for the

study of recidivism. Our emphasis on ecology stems from the fact that many criminological studies emphasize the role that ecology can play in offending (Sampson, Morenoff, and Gannon-Rowley, 2002). We gave particular attention to resource deprivation and racial segregation because of their centrality to many crime theories and because studies find these factors to be among the strongest ecological predictors of crime (Pratt and Cullen, 2005). At the same time, we focused on the question of whether these ecological influences exert a greater effect among young minority males given that this population typically suffers from considerable cumulative disadvantage, has a unique set of life experiences, and engages in more serious and chronic offending. In addition, policy concerns about disproportionate incarceration of minorities, especially those who are young and male, makes this a group of particular relevance to attempts to understand the causes of recidivism (Travis, 2005). Finally, should ecology not only influence recidivism but also increase the risk of offending among select groups, it would point to the possibility that effective recidivism policies should take ecology into consideration and develop risk prediction efforts that contemplate conditional ecological effects.

Briefly, we anticipated that (1) recidivism, especially offending involving violent crimes, would be higher among individuals released to resource deprived or racially segregated areas; (2) recidivism, especially offending involving violent or drug crimes, would be higher among young nonwhites; and (3) the interaction of race and age would itself interact with social ecology, and, in particular, with levels of resource deprivation or racial segregation.

With respect to the first hypothesis, we found that resource deprivation indeed was associated with higher levels of recidivism for violent crime but not for property crime. Unexpectedly, however, it was associated with lower rather than higher levels of drug crime, although this effect disappeared when racial segregation was included. There was no evidence of a direct effect of racial segregation. With respect to the second hypothesis, we found, as expected, that violent and drug recidivism, especially drug recidivism, was disproportionately greater among young nonwhite males. Although not our focus, we also found that this effect was not due to differential exposure to higher levels of resource deprivation or racial segregation. Notably, recidivism involving property crime was greatest among young whites, with all other race-age

groups having relatively comparable levels of recidivism for such crime. Finally, in testing the third hypothesis, we found that resource deprivation did not condition the race-age interaction but that racial segregation did for drug and property recidivism. Specifically, we found that young nonwhite males were more likely than other groups to be reconvicted of drug crimes but, contrary to our prediction, this difference decreased in more segregated areas while for other groups increased segregation was associated with an increased risk of recidivism, especially among older nonwhites. For property reconviction, the recidivism of not just young nonwhite males, but also older white males, increased in areas of greater segregation, whereas young whites and older nonwhites were less at risk of recidivism in areas marked by more segregation.

What accounts for these findings? At the individual level, the fact that violent and drug recidivism was disproportionately greater among young nonwhite males likely reflects greater exposure to criminogenic influences, of which incarceration itself may be one, that accumulate and amplify one another (Agnew, 2005). That this effect persisted regardless of social ecology—specifically, resource deprivation or racial segregation—suggests that, for ex-prisoner populations, cumulative disadvantage or other such factors may account for the greater risk of offending, not differential exposure to criminogenic environments, as some have speculated (e.g., Agnew, 2005: 169). The fact that increased resource deprivation was associated with increased violent offending accords with our theoretical expectations. However, it is unclear why it would be associated with decreased drug offending, though, again, there was no such effect when we controlled for racial segregation.

A symbolic threat explanation (Chiricos, Welch, and Gertz, 2004; Mears, 2006; Steffensmeier, Ulmer, and Kramer, 1998) might potentially explain the findings, although, as compared with prior studies, we incorporated relatively strong controls for differential law enforcement. Nonetheless, the fact that greater levels of resource deprivation were associated with a lower likelihood of drug recidivism may reflect the possibility that law enforcement efforts do not target drug crimes in such areas or that residents in such communities are less likely to report such crimes to the police (Gottfredson and Taylor, 1985, 1988; Klinger and Bridges, 1997). The explanation is plausible, though it appears unlikely that such a pattern

would exist for drug crimes but not for violent crimes.

A differential reporting or law enforcement explanation may help explain why the drug recidivism of young minority males was lower in more racially segregated communities while for other groups greater segregation was associated, as we anticipated, with increased recidivism. It strikes us as unlikely that increased segregation actually reduces the drug offending of young minorities, and it is difficult to envision a coherent theoretical explanation for such a differential effect. Assuming that segregation has an equal effect across groups, the results might well emerge in a situation where law enforcement efforts are guided by considerations of places and groups. They may, for example, be more prone to ignore or downplay drug offending among young minorities in racially segregated communities, viewing it perhaps as a problem about which little can be done. Residents in such communities may have similar feelings. In both cases, the result would be that young minorities would be less likely to emerge in any profile involving official records statistics. Any such possibility must remain speculation (see, however, Klinger and Bridges, 1997). Even so, it bears emphasizing that many accounts exist of minority communities that have felt overwhelmed by drug offending and the behavior of their younger residents, that have not trusted law enforcement to take their concerns seriously, and that have faced the burden of accommodating a disproportionate number of returning prisoners (Anderson, 1998; Blumstein, 1995; Clear, Waring, and Scully, 2005; Saxe et al., 2001). In such circumstances, residents, as well as law enforcement, might well turn their attention to other groups over whom they may feel that they may exert greater control (cf. Petersilia, 2003: 29).

A differential reporting or law enforcement explanation also may help explain the property reconviction findings. Perhaps in racially segregated communities, law enforcement places more priority on property offending among young minorities, possibly in the belief that, relative to attempts to fight drug offending, a significant effect might result. By contrast, as the first half of figure 2 intimates, law enforcement may feel that a greater impact can be had in racially heterogeneous areas by focusing on drug crimes among young minority offenders. Any such explanations must, of course, remain speculative absent independent measures of ex-prisoner offending and of community resident reporting and law enforcement and court practices.

These observations give rise to a more general concern—namely, recidivism studies frequently draw minimally on criminological theory, and yet many opportunities exist to test and extend theory by examining the offending patterns of released prisoners. Such a focus is especially warranted given the discipline’s increasing emphasis on patterns of persistence and desistance (Piquero et al., 2003) as well as on how social ecology influences criminal behavior (Sampson, Morenoff, and Gannon-Rowley, 2002). In fact, the nexus of these two theoretical orientations provides a particularly unique opportunity to extend criminological theory. To date, research on individual-level trajectories has given almost exclusive attention to individual-level predictors, yet clearly social ecology may be a contributing factor to such trajectories. Indeed, as the present study found, social context (i.e., resource deprivation and racial segregation) is associated, directly or in interaction with other factors, with recidivism. This finding in turn echoes that of other recent studies (e.g., Kubrin and Stewart, 2006) arguing for greater attention to the role of social ecology in contributing to the offending patterns of released prisoners.

Here, a comment on aggregation bias is in order. In any ecological study, a critical question centers around the appropriate unit of analysis (Zatz, 2000). Studies that involve a focus on communities and neighborhoods typically must adopt relatively random boundary markers (e.g., tracts, blocks, zipcodes) and consequently do not necessarily incorporate meaningful socially delimited spatial areas (see, however, Sampson, Raudenbush, and Earls, 1997). The more fundamental issue is that certain variables (e.g., percent poverty) can be computed at different units of analysis (e.g., tracts, blocks, zipcodes, cities, counties, states, countries), yet may constitute operationalizations of distinct phenomena (Firebaugh, 1978; Land, Cantor, and Russell, 1995; Lieberman, 1985; Liska, 1990). To illustrate, intra-country variation in inequality may be caused by different factors than inter-country variation (Firebaugh, 1999). Similarly, as scholars of unemployment and crime have noted, “the key effect of aggregation bias pertains to the meaning of the unemployment rate at different analytic levels” (Land, Cantor, and Russell, 1995: 57; emphasis in original).

For our study, and others aimed at examining the influence of social ecology on individual-level recidivism, the critical question is how best to measure ecology. Without doubt, the

approach taken in our study—examining the influence of county-level measures of resource deprivation and racial segregation—precludes examination of whether residing in particular areas within a county characterized by a given level of resource deprivation or racial segregation influences recidivism. More generally, counties undoubtedly do not capture key dimensions relevant to discussions of community or neighborhood effects, but, as we discussed, they nonetheless reflect a meaningful difference in how diverse areas are socially organized. Moreover, the concern about aggregation bias can equally be applied to a study that uses communities, however defined within a county, given that in many areas, the composition of a community can vary dramatically from one street to the next. Ultimately, there should be a theoretically meaningful basis for any given unit of analysis; at the same time, the power of any theory lies in its ability to generate predictions across a range of units of analysis (Gibbs, 1997). In short, as scholars begin to examine the social ecological factors that influence recidivism, they should consider a wide range of potential factors (see, generally, Pratt and Cullen, 2005) and units of analysis. When a body of studies has accumulated that takes this broad-ranging approach, it then will be possible to identify consistencies across various measures of ecology and levels of aggregation and, in turn, to develop more powerful theories.

A focus on released prisoners provides a strategic venue for testing and extending criminological theories. Clearly, for example, race remains a central factor in American society (Warren et al., 2006), and symbolic and racial threat theories, along with work on “focal concerns” (Huebner and Bynum, 2006; Steffensmeier, Ulmer, and Kramer, 1998), increasingly point to the salience of select populations who are especially at risk of severe sanctioning. As applied to the impacts of these sanctions, such a focus logically gives rise to the notion that these groups may be more exposed to criminogenic social conditions or subject to more vigilant law enforcement. When coupled with the emphasis on social ecology, this theoretical focus gives rise to an area of research in which considerable prospects for theoretical advances exist, particularly investigations into how individual and ecological factors intersect to influence both individuals’ behaviors and the responses of the criminal justice system to them.

From a policy perspective, the findings here illustrate the problems associated with an

individual-level bias in risk prediction efforts to identify individuals most likely to recidivate (Kubrin and Stewart, 2006). This bias ignores the possibility that social ecology may influence recidivism rates through an influence on offending or law enforcement behavior (Beckett, Nyrop, and Pfingst, 2006). In either case, cause for concern arises. If community conditions contribute to offending, then such conditions ideally should be taken into account when developing release plans. In addition, if they disproportionately influence some groups more than others, such influences should also be considered in efforts to reduce the likelihood of recidivism. Not least, if differences in recidivism result from differential law enforcement, then fairness would indicate that law enforcement, courts, and other criminal justice system agencies take steps to ensure that certain groups are not targeted, consciously or unconsciously, disproportionate to other groups.

Finally, this study underscores the need for increased attention to a basic methodological issue confronting studies of prisoner reentry—the extent to which officially recorded recidivism rates among individuals reflect true offending versus law enforcement efforts and priorities. Most recidivism studies proceed on the assumption that such measures as rearrest, reconviction, and reincarceration reflect offending only, not the differential likelihood of certain groups or communities to report crime or the differential attention or responsiveness of law enforcement, court, and correctional system agencies. These assumptions are problematic, as many authors have noted (e.g., Blumstein et al., 1986: 100-107; Gottfredson and Taylor, 1985: 149-150; see, more recently, Sampson, Laub, and Wimer, 2006: 475). Consider, for example, the literature on community and “intelligence-led” policing, which indicates that police indeed target certain areas, and such areas almost invariably will have unique social, economic, and racial and ethnic characteristics (Grinc, 1994; Ratcliffe, 2003; Skogan, 2003). In the present study, we introduced individual- and ecological-level controls to address these possibilities. Ultimately, however, additional sources of information—such as self-report survey data from released prisoners and objective assessments of the beliefs, focus, and actual practices of law enforcement and the courts—will be required to disentangle precisely how much recidivism differences reflect offending versus formal social control efforts.

ENDNOTES

¹ Sampson (1985) found that racial segregation had a slightly greater effect on crime for whites.

² Prior work linking race and criminal behavior may not be generalizable to a study of recidivism. Nonetheless, it seems reasonable to anticipate that a similar pattern may exist.

³ Disproportionality here will be assessed using interaction terms, where a statistically significant effect indicates an influence on recidivism greater than would arise in an additive model.

⁴ For young minority males returning to racially segregated communities that are predominantly white—the exception rather than the rule—we expect racial isolation of nonwhites contributes to greater strain by, for example, amplifying perceptions of blocked upward mobility, in turn increasing offending (see also Anderson, 1999: 95; cf. Haynie and Payne, 2006).

⁵ Rearrest data for creating recidivism measures were not available. Arrest data in Florida come from the Department of Law Enforcement’s Computerized Criminal History File, which has a field for whether the crime at arrest was a felony or misdemeanor. However, for many cases, this field is missing. Rearrest is not, notably, an unproblematic recidivism measure. After reviewing a range of issues related to measuring and analyzing recidivism, Maltz (1985) identified two problems. First, “police may have a policy of harassing ex-offenders to encourage them to leave the jurisdiction” (p. 57). Second, with the pressure to clear arrests, police may make more arrests of ex-offenders regardless of their culpability in a crime.

⁶ A reviewer wondered whether motion-to-revoke hearings might result in the reconviction measure missing cases wherein a new offense or technical violation resulted in reincarceration but no new conviction. The State of Florida eliminated parole in 1983, and only 36 percent of the releases examined had any type of post-release supervision. Thus, the possibility for motion-to-revoke proceedings is low. In addition, many inmates in Florida prisons were incarcerated under the State’s minimum sentence law—85 percent of a sentence must be served. As a result, the length of post-release supervision under this second program typically is short in duration, further reducing the opportunities for motion-to-revoke cases to occur in lieu of reconvictions.

⁷ Among nonwhites, 91 percent were Blacks and 9 percent were Hispanics.

⁸ In analyses of two-way interactions between age and race, and three-way interactions between age, race, and ecology, a younger age cut-off (29/30) was more likely to reveal statistically significant interactions, as compared with older cut-offs (34/35, 39/40). The results, available upon request, indicate the need to examine varying age cut-offs in interactional analyses.

⁹ Resource deprivation and racial segregation are predicted to influence recidivism in similar ways—increases in both are anticipated to increase recidivism, and this effect is expected to be greater for young, minority males—but for different reasons. With the data at hand, we can not distinguish one causal pathway from another, though ultimately identifying an effect and the reasons for one will be critical for differentiating how resource deprivation and racial segregation may contribute to recidivism. In our study, the two measures are only modestly correlated (see Appendix), so it is unlikely that they measure the same underlying construct.

¹⁰ Under Florida's Criminal Punishment Code, sentencing points are assigned based on the primary (most serious) offense before the court. Our seriousness scores reflect the 1999 and 2000 sentencing guidelines offense points assigned to 52 different offenses (Burton et al., 2004).

¹¹ Custody level is coded so that higher scores reflect higher levels of custody (i.e., 1=community, 2=minimum, 3=medium, and 4=close).

¹² This issue, while often noted, rarely is addressed in recidivism studies and, when it is, the potential impacts on model estimates clearly emerge. In Kubrin and Stewart's (2006) bivariate analyses, for example, one of their ecological measures (ICE) has a positive effect on recidivism. After controlling for individual-level factors, the effect becomes slightly negative (the expected effect). The question arises, what would the effect have been with, say, different individual-level characteristics or community police presence measures? Kubrin and Stewart's (2006) analyses stand out precisely because they attempt to address this issue; few extant recidivism studies do.

¹³ One reviewer wondered if perhaps cohort effects might exist. During the period of time in which inmates were released, there were no changes in Florida release policies; also, the proportion of releases, by the method of release, did not change to any appreciable degree (Florida Department of Corrections, Annual Reports, FY1998-99, FY1999-00, FY2000-01,

<http://www.dc.state.fl.us/pub/index.html>). In ancillary analyses (available upon request), we re-estimated all analyses using dummy variables for 1998, 1999, and 2000, holding year 2001 as the reference year. The statistical and substantive significance of the results remained the same.

¹⁴ We ran models in which we allowed the slopes of young, nonwhite, and young \times nonwhite to vary across counties for violent, drug, and property reconviction. Only the slope of nonwhite for drug reconviction varied significantly ($p < .05$). Raudenbush and Bryk (2002) have indicated that in such cases the possibility of a nonrandomly varying specification for the corresponding variables (in this case, young, nonwhite, and young \times nonwhite) is not precluded. Indeed, homogeneity tests for slopes are, they have noted, only a guide (p. 129), and “if theoretical arguments suggest that such effects might be present, the analyst should proceed with posing level-2 models for these slopes” (p. 258). Because of our theoretical focus, we proceed with investigating cross-level interactions. When cross-level interactions were estimated in model 3 in tables 2 and 3, only the slope of nonwhite, for the drug reconviction outcome, was random.

¹⁵ Given the multiple comparisons we make in examining three types of recidivism, some researchers might argue for the use of Bonferroni-adjusted p values. However, others have suggested that such adjustments are not necessary or appropriate in some contexts, especially with ecological studies (Moran, 2003) and situations where there are small sample sizes or specific hypotheses are being examined (Book, Quinsey, and Langford, 2007; Perneger, 1998). In addition, such adjustments increase the risk of type II errors (Moran, 2003; Perneger, 1998). Finally, although we have a large size of ex-prisoners ($N=49,420$), we have a small size of counties ($N=67$). The latter constitutes a particular concern when cross-level interactions are examined. Given the goal of assessing specific hypotheses and the relative small sample size at the county level, we do not include Bonferroni adjustments.

deprivation (table 2), the model fit improved significantly for drug reconviction but not for violent or property reconviction. When examining racial segregation (table 3), the fit improved significantly for drug and property reconviction but not violent reconviction (results available upon request). Because the slope of nonwhite for drug reconviction varies significantly, race appears to have a differential effect across counties with respect to drug recidivism. However, neither resource deprivation nor racial segregation explains the variance of the nonwhite slope for drug reconviction, given that the interaction between nonwhite and each of the social ecology measures was statistically insignificant (see model 3 in tables 2 and 3). We should emphasize that our focus is on resource deprivation and racial segregation exerting differential effects on specific variables, and specifically the age and race groups we specify, not differential effects of race across counties, though the latter certainly bears investigation in future studies.

¹⁷ The spatial lag specific to drug reconviction was constructed by averaging the raw drug reconviction rates for the five nearest neighboring counties of each county; most counties in Florida have no more than five such counties. It bears emphasis that if our theoretical focus were lag effects, a different approach, such as a Simultaneous Autoregressive (SAR) model, would be indicated (Land and Deane, 1992). Here, however, our focus simply is the use of the spatial lag of drug reconviction as a control for substantive and/or nuisance autocorrelation. Mears and Bhati (2006: 521) recently employed a similar approach and observed: “To the extent that the lags are included merely as controls, simple Conditional Autoregressive (CAR) specifications . . . should be sufficient since they account for all the excess variation (see Anselin, 2003).”

¹⁸ The results were the same regardless of whether, in table 2, racial segregation was included as a control or whether, in table 3, resource deprivation was included as a control.

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Table 1. Variable Descriptions and Descriptive Statistics

Variable	Definition and Coding	Mean	SD
<i>Dependent Variables</i>			
Violent Reconviction	Whether ex-prisoners were convicted of a new violent offense resulting in correctional supervision (i.e., local jail, state prison, or community supervision) for the two years following release from prison (1=yes, 0=no).	.06	.23
Drug Reconviction	Whether ex-prisoners were convicted of a new drug-related offense resulting in correctional supervision for the two years following release from prison (1=yes, 0=no).	.15	.36
Property Reconviction	Whether ex-prisoners were convicted of a new property offense resulting in correctional supervision for the two years following release from prison (1=yes, 0=no).	.12	.33
<i>Ex-prisoner level Independent Variables</i>			
Young	1=Age (in years) at the time of release from prison < 30, 0=otherwise.	.43	.50
Non-White	1=Nonwhite, 0=white.	.64	.48
Education	Scores from the Test of Adult Basic Education (TABE), which measures a person's grade level in three subjects (i.e., reading, math, and language), that was administered prior to release.	7.33	3.24
Criminal Record	Weighted factor score extracted from number of prior recidivism events, total number of prior convictions, and seriousness scores ($\lambda=2.22$, factor loadings > .75; Cronbach's alpha=.819).	.00	1.00
Incarceration Profile	Weighted factor score extracted from custody level, number of disciplinary infractions, and length in prison ($\lambda=1.63$, factor loadings > .60; Cronbach's alpha=.567).	.00	1.00
Post-Release Supervision	Whether the offender is supervised by a parole, probation, or a community control officer for a specified time period after release (1=yes, 0=no).	.36	.48
<i>County-level Independent Variables</i>			
Resource Deprivation	Weighted factor score extracted from median family income, percent female-headed households, percent unemployed, percent poverty, and percent receiving public assistance ($\lambda=3.25$, factor loadings > an absolute value of .60; Cronbach's alpha=.848).	.00	1.00
Index of Dissimilarity (Racial Segregation)	White/black within county segregation using census tracts as the subareas. Scores range from 0 to 100, where larger values reflect higher levels of racial segregation.	43.29	15.62
Criminal Justice System Resources	Weighted factor score extracted from police presence, per capita county revenues, and per capita spending on public safety ($\lambda=1.95$, factor loadings > .76; Cronbach's alpha=.729).	.00	1.00

N=49,420 within county; N=67 between county.

Table 2. Regression of Violent, Drug, and Property Reconviction on Age and Race Interaction and Resource Deprivation

	Violent Reconviction			Drug Reconviction ^a			Property Reconviction		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3 ^b	Model 1	Model 2	Model 3
Intercept	-3.19** (.06)	-3.10** (.06)	-3.10** (.07)	-2.97** (.09)	-2.86** (.08)	-2.89** (.07)	-1.93** (.03)	-2.01** (.04)	-2.02** (.04)
Young	.58** (.05)	.41** (.08)	.41** (.08)	.37** (.07)	.10 (.06)	.10 (.07)	.16** (.03)	.34** (.06)	.33** (.06)
Nonwhite	.15** (.05)	.01 (.06)	.01 (.06)	1.21** (.08)	1.07** (.08)	1.12** (.07)	-.33** (.04)	-.20** (.06)	-.19** (.07)
Education	-.04** (.01)	-.05** (.01)	-.05** (.01)	-.04** (.00)	-.04** (.00)	-.04** (.00)	-.02** (.00)	-.02** (.00)	-.02** (.00)
Criminal Record	.07** (.02)	.07** (.02)	.07** (.02)	.21** (.02)	.22** (.02)	.22** (.02)	.35** (.03)	.34** (.02)	.34** (.02)
Incarceration Profile	.23** (.02)	.23** (.02)	.23** (.02)	-.07** (.01)	-.07** (.01)	-.07** (.01)	.05** (.01)	.05** (.01)	.05** (.01)
Post-release Supervision	-.02 (.04)	-.02 (.04)	-.02 (.04)	-.51** (.03)	-.51** (.03)	-.51** (.03)	-.32** (.05)	-.33** (.05)	-.33** (.05)
Resource Deprivation	.08* (.04)	.08* (.04)	.08 (.06)	-.08* (.04)	-.08* (.04)	.06 (.07)	-.01 (.03)	-.01 (.03)	-.03 (.04)
Young × Nonwhite		.26** (.09)	.26** (.09)		.32** (.06)	.32** (.05)		-.32** (.10)	-.30** (.10)
Young × Resource Deprivation			-.01 (.09)			-.06 (.11)			-.04 (.08)
Nonwhite × Resource Deprivation			-.00 (.07)			-.10 (.06)			.07 (.08)
Young × Nonwhite × Resource Deprivation			.02 (.10)			-.04 (.06)			-.00 (.13)
Random effect									
Intercept, τ_{00}	.04	.04	.04	.04	.04	.07	.03	.03	.03
χ^2	152.79**	153.90**	153.63**	401.44**	397.73**	178.77**	167.69**	168.68**	172.10**

Note: N=49,420 within county; N=67 between county. Standard errors in parentheses. Each model includes criminal justice system resources as a measure of county-level formal social control.

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

^a Spatial lag specific to drug reconviction is included due to spatial autocorrelation, revealed when drug reconviction was considered.

^b The slope of nonwhite is allowed to vary across counties because the variance of the nonwhite slope is significant at $p < .01$.

Table 3. Regression of Violent, Drug, and Property Reconviction on Age and Race Interaction and Index of Dissimilarity

	Violent Reconviction			Drug Reconviction ^a			Property Reconviction		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3 ^b	Model 1	Model 2	Model 3
Intercept	-3.18** (.06)	-3.09** (.07)	-3.06** (.08)	-2.97** (.09)	-2.87** (.08)	-3.01** (.08)	-1.93** (.04)	-2.01** (.04)	-2.06** (.05)
Young	.58** (.05)	.41** (.08)	.32** (.11)	.37** (.07)	.11 (.06)	.15 (.09)	.16** (.03)	.34** (.06)	.44** (.06)
Nonwhite	.15** (.05)	.02 (.06)	.02 (.09)	1.20** (.08)	1.06** (.08)	1.15** (.09)	-.33** (.04)	-.20** (.06)	-.08 (.08)
Education	-.04** (.01)	-.05** (.01)	-.04** (.01)	-.04** (.00)	-.04** (.00)	-.04** (.00)	-.02** (.00)	-.02** (.00)	-.02** (.00)
Criminal Record	.07** (.02)	.07** (.02)	.07** (.02)	.21** (.02)	.22** (.02)	.22** (.02)	.35** (.03)	.34** (.02)	.34** (.02)
Incarceration Profile	.23** (.02)	.23** (.02)	.23** (.02)	-.07** (.01)	-.07** (.01)	-.06** (.01)	.05** (.01)	.05** (.01)	.05** (.01)
Post-release Supervision	-.02 (.04)	-.02 (.04)	-.02 (.04)	-.52** (.03)	-.51** (.03)	-.51** (.03)	-.32** (.05)	-.33** (.05)	-.32** (.05)
Index of Dissimilarity (Racial Segregation)	-.01 (.00)	-.01 (.00)	-.01 (.01)	.00 (.00)	.01 (.00)	.01* (.00)	.00 (.00)	.00 (.00)	.01 (.00)
Young × Nonwhite		.26** (.09)	.30* (.13)		.32** (.06)	.46** (.09)		-.32** (.10)	-.54** (.09)
Young × Index of Dissimilarity			.01 (.01)			-.00 (.01)			-.01 (.00)
Nonwhite × Index of Dissimilarity			.00 (.00)			-.00 (.01)			-.01* (.00)
Young × Nonwhite × Index of Dissimilarity			-.00 (.01)			-.01* (.00)			.02** (.01)
Random effect									
Intercept, τ_{00}	.04	.04	.04	.04	.05	.06	.03	.03	.03
χ^2	155.41**	155.87**	155.64**	480.58**	479.70**	148.18**	169.76**	170.24**	169.34**

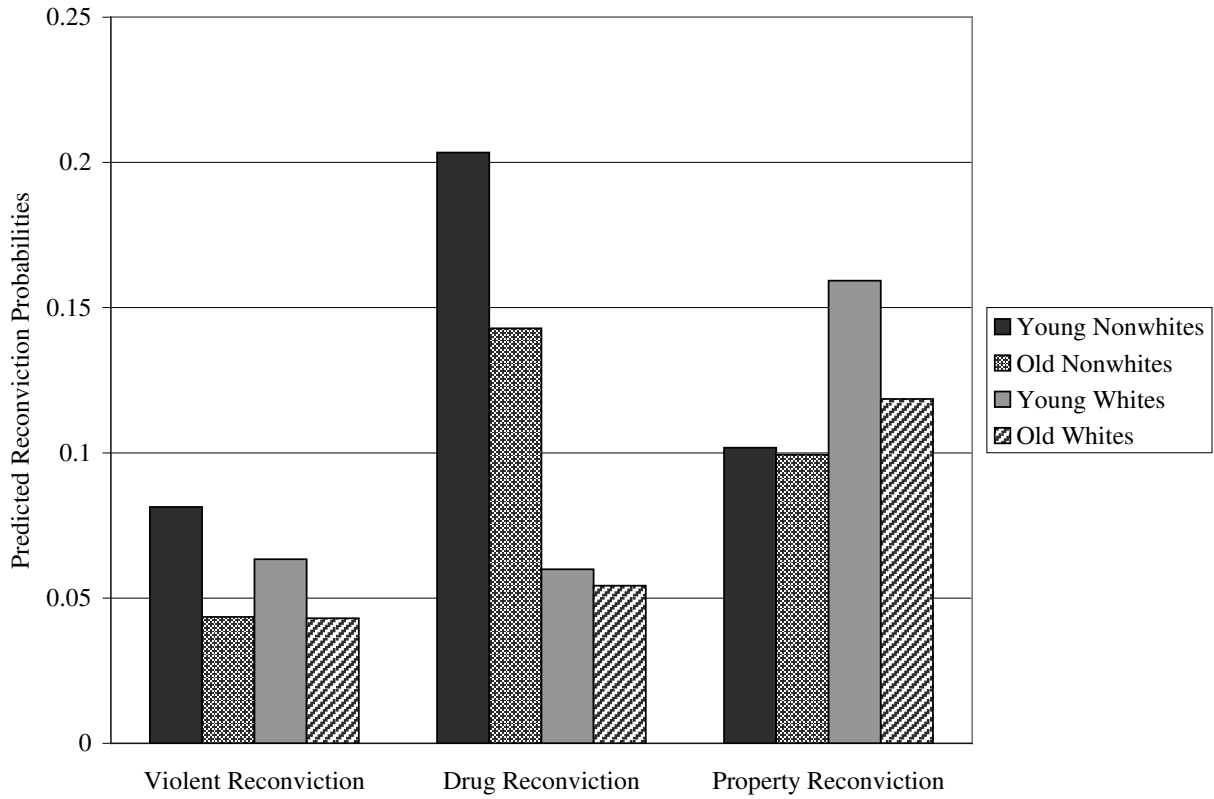
Note: N=49,420 within county; N=67 between county. Standard errors in parentheses. Each model includes criminal justice system resources as a measure of county-level formal social control.

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

^a Spatial lag specific to drug reconviction is included due to spatial autocorrelation, revealed when drug reconviction was considered.

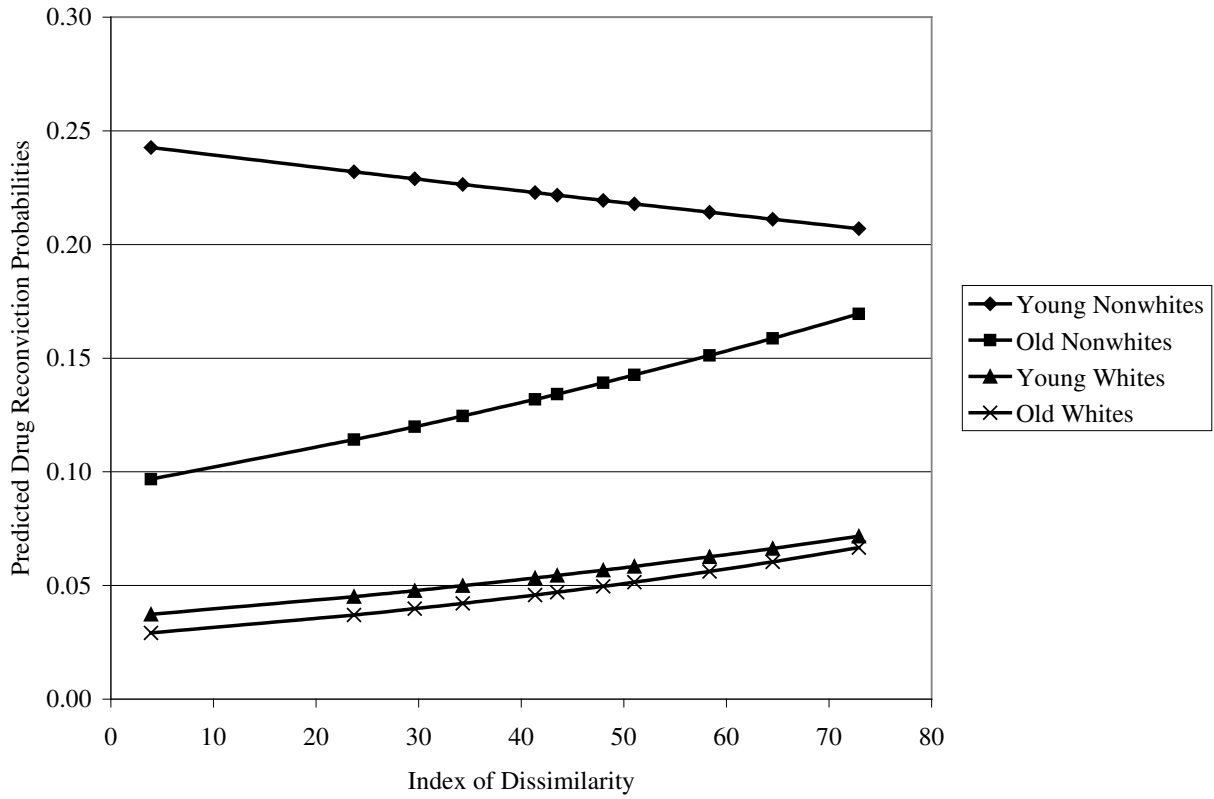
^b The slope of nonwhite is allowed to vary across counties, because the variance of the nonwhite slope is significant at $p < .01$.

Figure 1.
Predicted Reconviction Probabilities for Four Age and Race Groups*



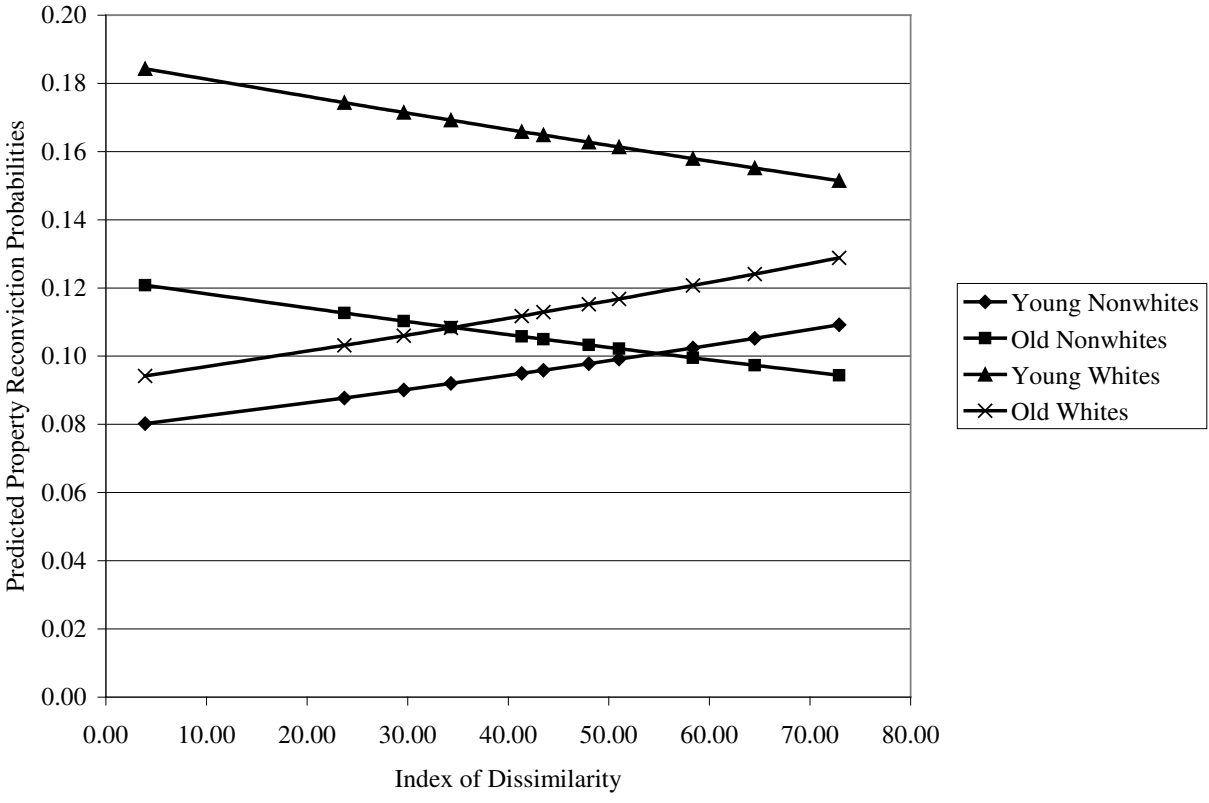
* Based on table 2, model 2.

Figure 2.
Predicted Drug Reconviction Probabilities for Four Age and Race Groups



* Based on table 3, model 2.

Figure 3.
Predicted Property Reconviction Probabilities for Four Age and Race Groups



* Based on table 3, model 3.

Appendix: Zero-Order Correlations among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1 Violent Reconviction	---											
2 Property Reconviction	-.09**	---										
3 Drug Reconviction	-.10**	-.16**	---									
4 Young	.06**	-.01**	.05**	---								
5 Nonwhite	.04**	-.03**	.19**	.07**	---							
6 Education	-.04**	-.01*	-.10**	.10**	-.38**	---						
7 Criminal Record	.01	.11**	.06**	-.30**	.10**	-.08**	---					
8 Incarceration Profile	.08**	.03**	-.00	.05**	.11**	-.06**	.18**	---				
9 Post-release Supervision	.01	-.03**	-.09**	-.06**	-.04**	.04**	.13**	.20**	---			
10 Resource Deprivation	.03**	-.01	-.02**	.01	.16**	-.09**	.04**	.05**	.03**	---		
11 Index of Dissimilarity	-.01	.00	.07**	.01	.14**	-.04**	.06**	.06**	-.02**	.02**	---	
12 Criminal Justice Resources	.01	.00	.01*	-.00	.16**	-.06**	-.03**	.07**	-.01*	.23**	.44**	---

* $p < .05$, ** $p < .01$ (two-tailed test)