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Does a Rising Tide Lift All Boats?
Labor Market Changes and Their Effects on the Recidivism of Released Prisoners*

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BIOGRAPHICAL NOTES

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Does a Rising Tide Lift All Boats?

Labor Market Changes and Their Effects on the Recidivism of Released Prisoners

ABSTRACT

The dramatic growth in incarceration nationally has increased attention to the factors that influence recidivism among ex-prisoners. Accordingly, scholars have called for research that identifies factors, such as employment opportunities, that may influence reentry experiences. Few studies, however, have examined how changes in labor market conditions affect ex-prisoner offending. Drawing on prior scholarship, this study examines the effect of such changes on the recidivism of ex-prisoners and, in particular, how the recidivism among blacks and whites may be differentially affected by changes in labor market conditions in the areas to which they return. The analyses indicate that, among black male ex-prisoners, labor market declines increase violent recidivism. They also indicate that, among white male ex-prisoners, the effects are more tenuous, influence only property recidivism, and are moderated by prior labor market conditions and criminal history. Implications of the study are discussed.

Key words: unemployment recidivism prisoner reentry

A rising tide lifts all boats. — [President John F. Kennedy, Jr. \(October 3, 1963\)](#)

INTRODUCTION

Over 735,000 prisoners return to society annually (Sabol et al. 2009) and roughly two-thirds will be arrested for a new offense within three years of release (Langan and Levin 2002). The dramatic growth in prison populations and the impact that they may have on the families and communities to which they return (Travis and Visher 2005; Clear 2007) has engendered increased interest in understanding the factors that contribute to successful reintegration, including reduced recidivism (see, e.g., Nagin et al. 2009; Lattimore et al. 2010; Rosenfeld and Messner 2010; Berg and Huebner 2011). Scholars have focused particular attention on labor markets and how they affect the transition of released prisoners back into society (Bushway et al. 2007; Weiman 2007; Holzer 2009a; Wang et al. 2010; Bellair and Kowalski 2011). This work highlights that ex-prisoners experience considerable difficulty obtaining employment and that the difficulty is more pronounced among blacks (Western 2006; Pager 2007a-b; Holzer 2009b). In addition, it suggests that the labor market context into which released prisoners return can affect employment (Sabol 2007) and recidivism (Raphael and Weiman 2007; Wang et al. 2010).

Despite significant advances in scholarship on labor markets and reentry (see, e.g., Bushway et al. 2007; Apel and Sweeten 2010), a dearth of research exists that examines how recidivism may be affected by social conditions, such as changes in labor markets, in the areas to which ex-inmates return. This gap is notable because declines in employment opportunities signal diminishing job prospects for released prisoners and the attendant potential that the areas to which they return will have experienced a sustained or continuing diminishment not only of jobs but also of social support and social control in the affected areas. What is needed, then, are studies that illuminate how the recidivism of ex-prisoners is affected by labor market changes in the areas to which they return (Sabol 2007:298). At the same time, research is needed that takes into account the possibility that such changes do not equally lift or lower all boats (Weiman

2007:593). That is, a return to areas that have experienced labor market declines may not affect all ex-prisoners to the same extent. In particular, black ex-prisoners may be more vulnerable to contexts in which labor market opportunities are both poor and worsening (Western 2006; Pager 2007a-b; Parker 2008), and such differences in turn may be more pronounced among younger ex-prisoners and those who have more extensive criminal records (Holzer 2009a-b).

Given these possibilities and the limited research on ecological conditions and their effects on ex-prisoners, the goal of this paper is to contribute to scholarship aimed at understanding how labor market conditions affect recidivism and, more generally, at illuminating ways in which social environments may affect prisoner reentry. To this end, we draw on prior scholarship to develop hypotheses that we test using data from a release cohort of Florida prisoners. Before proceeding, however, we discuss the broader context and prior scholarship that motivates this study. We then present the hypotheses and discuss the data and methods, the findings, and the study's implications for research and policy.

PRISONER REENTRY AND CHANGES IN LABOR MARKETS

The dramatic growth in prison populations in recent decades—or “mass incarceration” (Gottschalk 2010)—and the resulting growth in the numbers of prisoners who return to society has generated scholarly interest in advancing knowledge about the factors that contribute to successful reentry outcomes, such as reduced recidivism. Although progress has been made, much remains unknown (Petersilia 2003; Travis and Visser 2005; Clear 2007; Nagin et al. 2009; Lattimore et al. 2010). One area that has garnered increasingly greater attention is the effect of social ecology on recidivism (Gottfredson and Taylor 1985, 1988; Kubrin and Stewart 2006; Reisig et al. 2007; Mears et al. 2008; Kirk 2009; Hipp et al. 2010; Wehrman 2010). Particular attention has been given to the effect of labor markets on prisoner reentry. Scholars have built on the insights from a broader body of work on labor market conditions and crime (e.g., Sampson and Wilson 1995; Bellair et al. 2003; Parker 2004) to advance arguments that barriers

to employment, including limited opportunities to obtain meaningful work, decrease the likelihood that prisoners will reintegrate into society and increase the likelihood that they will recidivate (see, e.g., Bushway et al. 2007; Raphael and Weiman 2007; Weiman 2007; Uggen and Wakefield 2008; Holzer et al. 2009a; Wang et al. 2010; Bellair and Kowalski 2011).

Warrant for this argument derives from several lines of theory and research. Merton's (1938) strain theory and Cloward and Ohlin's (1960) opportunity theory, as well as variants of the two, have provided the central theoretical underpinnings for research on the criminogenic effects of adverse economic conditions (Uggen 1999). At the individual level, criminal behavior, what Merton termed deviant innovation, constitutes a mode of adaptation to economic conditions that do not allow successful attainment of societal goals. More broadly, from a general strain theoretical perspective, a lack of viable employment opportunities gives rise to frustration and anger, which ultimately finds expression through criminal behavior (see Agnew 2001). Accordingly, when opportunities to obtain gainful employment are limited, criminal behavior should be more likely (Bushway et al. 2007). Rational choice theories and routine activity theories, too, suggest that limited access to legitimate or meaningful employment should increase the likelihood of offending (Uggen and Wakefield 2008). In addition, and as implied by social structural theories of crime (Pratt and Cullen 2005), weak or worsening economic conditions may undermine informal and formal social controls in the areas to which ex-prisoners return.

These arguments assume greater salience given prisoner reentry research on the many barriers to employment that prisoners face upon release. Incarceration itself typically reduces involvement in prosocial activities that generate social capital; at the same time, it creates an employment gap that can raise red flags in job applications. In addition, new "get tough" laws preclude ex-felon employment in certain occupations. Irrespective of such laws, employers are less likely to hire individuals with a history of incarceration because of the risks to them and their companies, concerns about liability, and questions about the potential reliability of ex-prisoners (Sviridoff and Thompson 1983; Western 2006; Holzer et al. 2007; Pager 2007a-b; Bushway et al. 2007; Holzer 2009b; Apel and Sweeten 2010). Studies also show that in areas

with higher unemployment rates, ex-prisoners are less likely to obtain work (Bushway et al. 2007:14). By contrast, lower unemployment rates may result in a situation in which “employers may dip in the ex-prisoner pool to meet their demands for labor” (Sabol 2007:290).

Collectively, this body of work suggests that ex-prisoners who return to areas with limited employment opportunities should recidivate more. Few studies, however, have examined this possibility. One exception is Raphael and Weiman’s (2007) research, which studied California prisoners who were paroled; the authors found “moderate effects of county unemployment rates at the time of release on the likelihood that a paroled offender is returned to custody” (p. 305). Their study stands out because it examined the link that has been assumed to exist between labor market conditions and recidivism. At the same time, the cross-sectional, static focus, like that of a recent study by Wang et al. (2010) and Bellair and Kowalski (2011), did not allow for investigation of the effect of changes in employment opportunities on ex-prisoner offending.

A focus on change is important because much of the work on employment and crime rates, and on macro-micro linkages that affect individuals, emphasizes a logic in which it is a worsening of labor market conditions—and the dynamic processes attendant to such change (King and Wheelock 2007; Kirk 2009; Stewart et al. 2009)—that is consequential. For example, the changes may lead not only to reduced employment opportunities but also to increasing disengagement of individuals and the communities where they live from the labor force. Put differently, increases in unemployment ultimately contribute to a setting where it is not just that fewer jobs may be available but rather that job prospects have been worsening and may be expected to worsen. Information about unemployment rate levels, the main focus in prior work, provides a measure of absolute amounts of work opportunities, but it does not directly capture the historical or temporal context within which such levels occur. A focus on changes in employment opportunities, by contrast, better captures this context.

The salience of change in unemployment rates is underscored by other considerations. For example, one result of residing in areas experiencing greater declines in employment prospects is that residents in these areas may experience even greater economic strain and concomitantly

develop a greater tolerance for crime as an alternative to gainful employment. That does not mean that residents endorse criminal activity, only that it may be viewed as an understandable or even necessary activity in a context of worsening job prospects. Increases in unemployment do not only create more unemployed individuals and a setting in which communities increasingly become or feel detached from the labor market. They also can create a social climate in which social support and informal social control mechanisms become increasingly weak. Ex-prisoners who return to areas in social and economic decline may find, for example, that the likelihood of family support has been deteriorating and continues to do so (Berg and Huebner 2011). In addition, as discussed below, a worsening of unemployment rates may cement the types of social and cultural isolation that Wilson (1987, 1996) and others (e.g., Anderson 1999; Sampson 2009) have identified, especially among blacks, that may be criminogenic (Bushway and Reuter 2002).

The end result, then, of worsening unemployment rates can be a cascading of adverse effects, including systemic and increasingly greater disengagement of citizens from the labor market, increasingly more strain, and increasingly less informal social control (see, generally, Chiricos 1987; Fagan and Freeman 1999; Cantor and Land 2001; Bushway and Reuter 2002; Kleck and Chiricos 2002; Pratt and Cullen 2005; Wallman and Blumstein 2006; Weiman 2007; Parker 2008; Holzer 2009b; Bushway 2011). Indeed, it is this situation that led Bushway and Reuter (2002), in their review of the literature on labor markets and crime, to observe that “the lack of labor market demand has worsened many of the problems in [depressed urban areas],” thus creating “a *cycle* of decline . . . that jobs by themselves will not solve” and that requires “solutions that deal with social problems such as alcoholism, lack of family cohesion, welfare dependency, [and] lack of community leadership” (p. 220; emphasis added). And it may be, as we argue below, that it is a combination of worsening labor market conditions in areas where the labor market historically has been weak that is especially criminogenic for released prisoners.

LABOR MARKETS, PRISONER REENTRY, AND RACE

The racial divides in America suggest that the labor market contexts into which black ex-prisoners return may be substantially different from their white counterparts. As the previous discussion highlighted, research has found that shifts in labor markets vary by race and that economic downturns may have greater criminogenic effects on blacks (Crutchfield 1995:205; see also Holzer et al. 2005; Parker 2008). Scholars also have found divides among ex-prisoners seeking employment; black ex-prisoners, for example, find it more difficult to obtain jobs. As Holzer (2009a:249) has emphasized: “men with criminal records—and in particular black men—face much weaker demand for their labor than do comparable men without these records” (see also Pager 2007a-b). This situation in turn may lead to further disengagement from labor markets (Holzer 2009b:57; see also Wilson 1987; Western 2006; Pager 2007; Weiman 2007; Parker 2008; Sampson 2009), creating a vicious cycle that results in adverse effects on the life chances of minorities, especially black ex-prisoners (Sampson 2009:272; see also Clear 2007; Holzer 2009a; Wang et al. 2010; Bellair and Kowalski 2011; cf. Wehrman 2010).

The possibility of racial divides in employment contexts, changes in these contexts, and their effects is underscored by recent scholarship (e.g., Wang et al. 2010; Bellair and Kowalski 2011) and the work of Wilson (1987, 1996), Sampson (2009), and others (e.g., Parker 2008). Wilson (1987) argued that a myriad of forces, including increased unemployment in urban areas in the 1980s, contributed to violence committed by black males. Limited employment opportunities are central to this argument, and so, too, is the salience of increasingly greater social isolation of blacks and black communities. According to this argument, the isolation not only reduces available jobs, it also creates social and cultural conditions that engender more crime. As Wilson (1987) averred, this isolation undermines the development of “good work histories” among blacks (p. 60) and leads, for example, to the greater likelihood that “job performance will be characterized by tardiness, absenteeism, and, thereby, low retention” and the likelihood that blacks will turn to “underground illegal activity or idleness” (p. 61).

Wilson’s (1987) argument rests fundamentally on a logic in which worsening conditions eventually give rise to social and cultural conditions conducive to crime, and is one that finds

resonance in related lines of work. Sampson (2009), for example, has drawn attention to the intertwining of race and inequality and to the pernicious consequences of sustained increases in poverty for collective efficacy and moral cynicism (p. 278). Similarly, Blau and Blau (1982) have identified the acute vulnerability of blacks to declines in unemployment opportunities (see, generally, Parker 2004, 2008; see also Wang et al. 2010; Bellair and Kowalski 2011).

HYPOTHESES

Collectively, prior work suggests several interrelated hypotheses. The first is that ex-prisoners who return to areas where unemployment rates have increased will be more likely to recidivate. This expectation derives from research on labor markets and reentry (e.g., Sabol 2007; Raphael and Weiman 2007; Wang et al. 2010; Bellair and Kowalski 2011) and arguments made by Wilson (1987, 1996) and others (Sampson and Wilson 1995; Clear 2007; Parker 2008) about the dynamic unfolding of macro-level processes and their consequences for crime.

The second is that the criminogenic effect of returning to such areas will be amplified when the increases occur in areas where unemployment rates have been higher. This hypothesis is a logical corollary to the first: specifically, areas that historically have had fewer employment opportunities may be more sensitive to declines in the labor market. The social conditions in such areas may place them in a precarious position that makes them more vulnerable to changes in employment opportunities (see Sampson 2009:277; see, generally, Western 2006; Clear 2007; Hipp et al. 2010), thus further diminishing job prospects for ex-prisoners who return to these areas and concomitantly reducing informal social support and informal social control in them.

The third is that the effect of returning to areas that have experienced declines in the labor market will be more pronounced for black male ex-prisoners as compared to white male ex-prisoners, an effect in turn that may be more pronounced among young blacks. Black males in general, and those in prisons in particular, typically have weaker ties to the labor market; this phenomenon is more acute among young blacks. Holzer's (2009b:52) analyses have shown that,

since the 1980s, there has been a steady “deterioration of employment among young black men” relative to their white counterparts and that the contrast is even more pronounced when the focus turns to correctional populations. For black male ex-prisoners, then, especially young black males, it can be expected that returning to areas that have experienced decreased employment opportunities may have a greater effect on recidivism. Their ties to the labor market are weaker, which in turn may make them more vulnerable to declining employment opportunities, especially if such declines lead employers to be even more selective in who they hire.

Accounts of prisoner reentry, labor markets, and racial divides point to a related line of reasoning, one that suggests that criminal history, too, may condition the effect of returning to areas that have experienced decreased employment opportunities and that this effect may be more pronounced among black male ex-prisoners. As noted above, an official record of offending, as evidenced by felony convictions, can impose substantial barriers to employment for ex-prisoners. Employers increasingly use background checks, for example, to screen out risky applicants (Holzer et al. 2007:145; see also Bushway et al. 2007; Pager 2007a-b). Sabol (2007) has observed that labor market conditions may dictate that employers become more flexible or accommodating in who they are willing to hire, but, in contexts where unemployment rates have increased, the opportunities to be selective become greater. In short, an official criminal record can create barriers to employment and this effect may be especially prominent for black men (Holzer 2009a:249; see also Bushway et al. 2007; Pager 2007a-b; Holzer 2009b). For these individuals, a return to an area that has experienced sustained declines in labor market conditions may engender greater frustration and strain, as well as the very real possibility of failing to obtain gainful employment, and thus increase the likelihood of engaging in crime.

DATA AND METHODS

To test the above hypotheses, we examine data from a cohort of Florida black male prisoners (N=13,272) and white male prisoners (N=8,648) released between January 2000 and June 2001

to the state's 67 counties. (Females comprised only 9.7 percent of the 25,803 releasees; Hispanic male ex-prisoners comprised 6 percent of the 23,313 male releasees. In both cases, there were too few cases to support the multi-level interactional analyses needed to provide robust tests of the hypotheses.) The prisoner data came from the Florida Department of Corrections. The county-level data were obtained from four sources and then merged with the ex-prisoner-level data. To measure county-level changes in unemployment rates, we use 1990 and 2000 U.S. Census Bureau data. Florida's unemployment trends during this period paralleled those for the country (U.S. Bureau of Labor Statistics 2000; Clark and Weismantle 2003), suggesting that Florida is not an anomalous setting in which to undertake the study. The Bureau also provided measures of two structural characteristics included in the analyses: resource deprivation and urbanism. The analyses include an index of dissimilarity, a measure of racial residential segregation, obtained from the University of Michigan's Population Study Center. County-level police deployment data and public safety expenditure data were accessed from the Florida Department of Law Enforcement and the University of Florida's Bureau of Economic and Business Research, respectively. Table 1 provides race-specific descriptive statistics for each measure used in the analyses; the appendix provides definitions, codings, and additional statistical information. Below, we discuss the measures and analyses.

Insert table 1 about here

Dependent Variables

We examine three types of recidivism—violent, property, and drug. Recidivism is measured as reconviction for a new felony that results in a sanction any time within two years after release from prison. The Campbell Collaboration's review found that recidivism is most frequently operationalized using reconviction (Killias et al. 2006); the approach here thus is consistent with that taken in the bulk of other recidivism studies. In addition, by examining felony convictions,

we ensure that the focus is on more serious offending. We use a two-year follow-up period for each released prisoner because prior research indicates that recidivism is more likely to occur in the first one to two years after release (see, e.g., Langan and Levin 2002; Kurlychek et al. 2006).

There is little consistent evidence concerning the impact of employment on the type of reoffending. At the same time, prior research suggests warrant for examining offense-specific measures of recidivism (Wang et al. 2010). For example, strain theory arguments imply that residing in areas where social structural strains are greater should translate into more property and drug crimes to obtain what cannot otherwise be garnered through legitimate opportunities (Chiricos 1987; Weiman et al. 2007). Some studies find support for this view. Farrington et al. (1996), for example, found that individuals who were unemployed were more likely to engage in property offending, and, at the macro level, some research has identified a positive association between unemployment rates and property crime rates (Hines et al. 2001; Gould et al. 2002). By contrast, many studies argue that adverse economic conditions, and strain more generally, should result in greater violence (see, e.g., Messerschmidt 1986; Crutchfield and Pitchford 1997; Anderson 1999; Baron 2004; Krivo and Peterson 2004). Many of these arguments suggest that the effects vary by race (see, e.g., Shihadeh and Ousey 1998; Wang et al. 2010). Collectively, such considerations underscore the importance of examining different types of recidivism.

Independent Variables

The main focus of the analyses is on the effect of changes in unemployment rates on ex-prisoner recidivism. As research on labor markets emphasizes (Crutchfield 1995; Crutchfield and Pitchford 1997; Bellair et al. 2003; Raphael and Weiman 2007; Parker 2008; Wang et al. 2010; Bellair and Kowalski 2011), unemployment rates are a useful measure of economic conditions in general and competition for employment in particular. As Sabol (2007:271) has noted, these rates provide “a measure of the local demand for labor” (see also Western 2006:88). Thus, and heeding calls by prior research (e.g., Bellair et al. 2003; Sabol 2007; Parker 2008), we

examine race-specific county-level measures of unemployment rates. We use counties because Bellair et al. (2003:14) have argued that counties “more adequately capture the geographic boundaries of labor market areas” (see also Parker 2008:84). The measure for blacks is defined as the number of black male unemployed civilians by the number of black male civilians in the labor force 16-years-and-older (employed or unemployed). A parallel measure is created that focuses on white male unemployed civilians. The resulting measures reflect the number of individuals who were seeking work but were unemployed. Although some debate exists about this approach—for example, it excludes individuals who could seek work but have ceased to try (Western 2006:89)—it is frequently used in studies of employment and crime as a proxy for labor force markets (see, generally, Bushway et al. 2007; Bushway 2011).

Consistent with the approach taken in other work (e.g., Green et al. 1998; King and Wheelock 2007; Stewart et al. 2009), change measures were created by subtracting 1990 unemployment rates from 2000 unemployment rates. This approach reflects the focus on examining the effect of longer-standing, more enduring change, a focus of relevance especially when examining black ex-prisoners. Existing scholarship highlights, for example, that enduring economic change is slow to occur, especially in black communities (Sampson 2009; see also Partridge and Rickman 2006:25-26). We use the 1990 unemployment rates as a control to identify the net effects of changes in unemployment rates—a conservative step given that reviews show that “unemployment levels are typically not tightly correlated with rates of change in employment” (Kingsley et al. 2010:21)—and we further examine whether the effects of such changes are conditioned by prior unemployment levels. Inspection of table 1 reveals that, across counties, the average percentage of males who were unemployed in 1990 was greater for blacks (12.1 percent) than for whites (4.8 percent) and increased more between 1990 and 2000 (2 percent for blacks and .5 percent for whites). (Nationally, the economy improved between 1990 and 2000, but unemployment rates, especially for black males, did not—Western 2006:94; Holzer 2009b:52.) The magnitude of such differences is consistent with prior research, which establishes that racial divides in American society are persistent and stark (Sampson 2009).

In all analyses, we control for factors that might bias the estimated effect of unemployment rate changes. At the individual level, we introduce controls for age at prison release (in years) and education, measured using scores from the Test of Adult Basic Education, which assesses performance in reading, math, and language. Given prior research that demonstrates that criminal history strongly predicts recidivism (Gendreau et al. 1996; Jones et al. 2010; Huebner and Berg 2011), we created criminal history measures for blacks and whites, respectively, through a principal components analysis of three items: number of prior felony convictions (factor loading=.93 for blacks, .91 for whites); number of prior prison releases that resulted in a new felony conviction and admission to prison (loading=.81 for blacks, .74 for whites); and a prior conviction seriousness score¹ (loading=.89 for blacks, .90 for whites). For black ex-prisoners, the eigenvalue for the weighted factor score (λ) was 2.29; for whites, it was 2.19.

Given the potential for in-prison experiences to affect recidivism (Visher and Travis 2003; Nagin et al. 2009), we created an incarceration profile score for each inmate. Here, again, we employed, once for black ex-prisoners and then again for white ex-prisoners, principal components analysis on three measures: time served in prison (in months) (factor loadings=.72 for blacks, .75 for whites); number of disciplinary reports for rule violations (loadings=.85 for blacks, .83 for whites); custody level (1=community, 2=minimum, 3=medium, and 4=close) at the time of release (loadings=.61 for blacks, .56 for whites). For black ex-prisoners, the eigenvalue for the resulting weighted factor score was 1.61; for white ex-prisoners, it was 1.57.

In addition to these individual-level measures, we control for post-release supervision, given that supervision may increase the probability that ex-prisoners will find employment (Sabol 2007; Pettit and Lyon 2007). It also can increase the likelihood that ex-prisoners who offend will be caught (Kubrin and Stewart 2006). We therefore include in the models a dummy variable that indicates whether ex-prisoners were under any form of supervision upon release from prison.

The analyses also include county-level controls. The first, resource deprivation, is incorporated into the models because of studies that demonstrate a strong association between resource deprivation and crime (Land et al. 1990; Sampson et al. 2002; Pratt and Cullen 2005;

Eitle et al. 2006; Parker 2008). We again used principal components analyses on race-specific measures from the 2000 Census, including: percent below poverty (factor loadings=.95 for blacks, .91 for whites); percent receiving public assistance (loadings=.79 for blacks, .93 for whites); median family income (loadings=-.94 for blacks, -.82 for whites); and percent female-headed household (loadings=.83 for blacks, .52 for whites). The eigenvalue for the weighted factor score was 3.09 for the county-level black population; it was 2.64 for the white population.²

Because of the prominent role of racial segregation in both crime and prisoner reentry (Krivo and Peterson 2000; Peterson and Krivo 2005; Travis 2005; Mears et al. 2008), we included the index of dissimilarity as a control. This index has been used in ecological-level studies of crime (see, e.g., Parker 2004; Wadsworth and Kubrin 2004). It captures the relative distribution of whites and blacks in a given area, with values closer to 0 indicating lower levels of racial segregation and values closer to 100 indicating higher levels of segregation.

We also included a measure of urbanism because population density varies across counties and may be associated with crime and prisoner reentry, and, by extension, recidivism (Reisig et al. 2007). In keeping with prior studies (see, e.g., Sampson and Laub 1993), we operationalize urbanism using a weighted factor score ($\lambda=2.21$) derived from a principal components analysis on the following U.S. Census measures: total population (loading=.89), percent of population living in urban areas (loading=.81), and population density (loading=.88).

Finally, we control for county-level variation in criminal justice system resources since such variation may affect the probability of ex-prisoner supervision or the likelihood that law enforcement will detect criminal behavior. To this end, we created a weighted factor score ($\lambda=1.95$) similar to one employed by Sampson and Laub (1993:298), using three measures obtained from the Florida Department of Law Enforcement and Bureau of Economic and Business Research: number of law-enforcement officers per 100,000 residents (loading=.78) and per capita county revenues (loading=.77) and spending on public safety (loading=.87).

Analyses

The analyses include both ex-prisoner-level measures and county-level measures as well as binary recidivism outcomes. We thus use hierarchical generalized linear modeling (HGLM) (Raudenbush and Bryk 2002); the analyses were conducted with HLM 6.0 and all model estimates are presented with robust standard errors. To test the hypotheses, we present hierarchical logistic regression models that use changes in the black male unemployment rate to predict violent, property, and drug recidivism outcomes for black male ex-prisoners (table 2). We then present similar analyses for white male ex-prisoners but use changes in the white male unemployment rate as the main predictor (table 3). This approach responds to a large body of research that points to fundamental differences in the social contexts in which blacks and whites reside (see, generally, Shihadeh and Ousey 1998; McPherson et al. 2001; Western 2006; Parker 2008; Sampson 2009). Krivo and Peterson (2000:557), for example, have argued that it is “imperative that models of crime . . . be explored separately for blacks and whites because the similarity of conditions required for combining groups (observing uniform effects) does not exist in the vast majority of places.” The respective tables present models that examine the direct effect of changes in unemployment rates on recidivism and whether this effect varies depending on the baseline unemployment rate levels. We discuss interactional analyses that investigate whether the effect of unemployment rate changes is greater among ex-prisoners who are younger and among ex-prisoners with more extensive prior records.³

FINDINGS

First, as inspection of model 1 in table 2 shows, black male ex-prisoners who return to areas that have experienced greater increases in black male unemployment rates are more likely, net of the individual-level and county-level control measures, to recidivate for a violent offense. As the coefficient indicates, for every one percentage point increase in the change in the black male unemployment rate, there is a 5 percent increase in the probability of a black male ex-prisoner

recidivating for a violent felony. However, returning to such areas has no effect on property or drug recidivism. In addition, and as shown in model 2, there is no evidence that the identified effect for violent recidivism is moderated by (i.e., interacts with) baseline unemployment rates. Thus, we find evidence that, when focusing on blacks, a return to areas that have experienced increased unemployment is associated with an increased likelihood of violent recidivism, but we find no evidence that increases in unemployment rates exert a relatively greater effect or lesser effect in areas that historically have experienced higher levels of unemployment.⁴

Insert table 2 about here

Second, a different picture emerges in table 3, which examines the recidivism of white male ex-prisoners. When similar models are specified for this group, there is no evidence of an effect of white male unemployment rate levels or changes on violent recidivism.⁵ In addition, it appears that white male ex-prisoners who return to areas that have experienced increased white male unemployment are more likely to recidivate for a property offense ($p < .10$). Notably, a significant interaction between changes in unemployment rates and baseline levels of unemployment rates emerges. It bears emphasizing that, when using a conventional p-value of .05, the direct and interactive effects are not statistically significant. However, given the limited research on ecological change effects in recidivism studies, we believe the use of a .10 p-value is warranted to underscore the potential for ecological change to influence recidivism outcomes. Even so, we emphasize that the results should be interpreted with caution.

Insert table 3 about here

Because interaction effects can be difficult to interpret, we evaluated the model using different amounts of unemployment rate changes and baseline levels, and present the results in figure 1. As can be seen in the figure, white ex-prisoners who return to areas that have

experienced worsening economic conditions are more likely to engage in property offending, and this effect is more pronounced if the changes occur in areas that historically have experienced higher unemployment rates. By contrast, the effect of transitioning to areas that have experienced increased unemployment rates is not as criminogenic among white ex-prisoners who return to areas that historically have experienced relatively lower rates of unemployment. Here, then, we find some evidence for arguments that downturns in labor markets can have greater criminogenic effects in areas where these markets have been worse than other areas.

Insert figure 1 about here

Third, we next examined whether the effect of returning to areas that have experienced employment declines is conditioned by ex-prisoners' age. Recall here that the expectation is that young black males may be more vulnerable to a situation in which they return to areas that have experienced sustained declines in employment prospects. To test this argument, we examined 24 different two-way interactions, based on multiplying each of eight age measures (age as a continuous measure and seven age cut-offs, including ages 24, 25, 26, 27, 28, 29, and 30) and the unemployment rate change measure for each of the three recidivism measures. The use of the different age cut-offs stems from the fact that—beyond scholarship that suggests that young people, young minorities in particular, may face more daunting employment prospects or respond to employment opportunities differently (see, e.g., Uggen 2000; Holzer 2009a)—there exists little theoretical or empirical guidance about how to operationalize “young.” We also examined 24 different three-way interactions by extending the above two-way interactions to include baseline unemployment rate levels. In total, then, 48 interactional models were conducted for white ex-prisoners and another 48 for black ex-prisoners. In all but six of the models, approximately what one would expect if all the models involved experiments that used randomization, we found no evidence of statistically significant two-way or three-way interactions. Among the cases in which a statistically significant interaction surfaced, there was

no consistent pattern of results. (The results are available upon request.) Thus, contrary to what was anticipated, we found little evidence that the effects of changes in labor market conditions are conditioned by the age of ex-prisoners or that this effect is greater for younger black males.

Last, we examined whether the effect of changes in unemployment rates is moderated by criminal history and whether this moderating effect is more pronounced for blacks. The logic parallels that for investigating an interaction between unemployment rate changes and ex-prisoners' age. Here, however, we assessed whether returning to areas that had greater increases in unemployment was more criminogenic for ex-prisoners with more extensive criminal histories. Analyses using two-way interactions of change in unemployment rates and ex-prisoners' criminal history identified statistically significant interactions for property recidivism and drug recidivism among blacks, but the effects were substantively trivial. Comparison of plotted slopes, for example, identified nearly identical effects of changes in unemployment rates for black male ex-prisoners who had low, average, or extensive criminal histories, respectively.⁶

By contrast, a statistically and substantively significant interaction surfaced among white ex-prisoners. To simplify the discussion, we present the results of the statistically significant interactions in figure 2.⁷ This figure was produced by setting all covariates at their means, introducing different percentage change values for the unemployment rate, and using three values for criminal history (low=1 standard deviation below the mean, mean=criminal history mean, high=1 standard deviation above the mean). As inspection of the figure shows, the criminogenic effect of changes in the unemployment rate on property recidivism among white ex-prisoners is in fact more pronounced for individuals with more extensive criminal histories.

Insert figure 2 about here

CONCLUSION

Prisoner reentry stands as one of the paramount social problems in twenty-first century

America. Although substantial advances have been made in understanding the factors that influence desistance, there remain considerable research gaps. Scholars have called, in particular, for greater attention to investigating the social environment, such as labor market conditions—and, in particular, changes in such conditions—that may influence reentry outcomes. In addition, a large body of work emphasizes the salience of race to discussions of the labor market, reentry, and offending. The importance of understanding the role of the labor market in affecting reentry is of particular importance because of the sustained downturn in the U.S. economy in recent years. Accordingly, the goal of this study was to contribute to an emerging body of theory and research aimed at understanding how social ecology, and labor market conditions in particular, affect the recidivism of black male ex-prisoners and white male ex-prisoners, and to test arguments that changes in these conditions may exert a greater effect, especially for blacks, among those who are younger or have more extensive criminal histories.

The results of the analyses can be summarized briefly. First, among black ex-prisoners, returning to areas that have experienced greater declines in black unemployment rates increased the likelihood of violent recidivism; it had no effect on property or drug recidivism. Contrary to what we anticipated, this effect was not moderated by baseline levels of unemployment rates, age, or prior criminal history. Second, among white ex-prisoners, returning to areas that experienced increased white unemployment rates did not affect violent or drug recidivism but it did increase the likelihood of property recidivism; this effect, significant using a p-value of .10 to ensure that we did not overlook potentially relevant labor market effects, was moderated by baseline unemployment rate levels and by prior criminal history but not age at release.

These results suggest partial support for the hypotheses and underscore the importance of examining changes in labor market conditions and how they may influence the recidivism of ex-prisoners. They indicate that, as prior theory and research anticipates, some ex-prisoners may be more likely to recidivate if they return to areas where the labor market is deteriorating. They also underscore the importance of race-specific analyses that examine types of offending and that consider the potential for labor market downturns to exert a greater criminogenic effect on

certain segments of the ex-prisoner population. The results for white ex-prisoners were less robust, highlighting the need for further research on labor market change effects on recidivism.

The findings raise several questions. For example, we found that black males who returned to areas marked by increased black male unemployment rates were more likely to engage in violent recidivism. Why? One possibility flows from research showing that incarceration results in a greater percentage of black ex-prisoners experiencing unemployment relative to white ex-prisoners (Weiman 2007:590) and that the level and intensity of social and economic deprivation in the areas to which black ex-prisoners return is greater (Wilson 1996; Anderson 1999; Western 2006; Kaufman et al. 2008). It may be that these types of dynamics, such as the combination of greater unemployment and returning to contexts of persistent and worsening deterioration of social conditions, elevate the frustration that black ex-prisoners feel relative to whites. That may result in more expressive criminal behavior, such as greater violence (Agnew 2007; Kaufman et al. 2008). This explanation, too, might account for why no evidence of a conditioning effect of prior labor market conditions surfaced for black ex-prisoners. It may be that black ex-prisoners return to areas that are persistently mired in concentrated disadvantage (Sampson 2009). Here, then, a further deterioration of the labor market may be criminogenic but not appreciably more so for communities that had high unemployment rates in prior years.

An inverse logic may account for why we found evidence that labor market declines affected only white property recidivism. White ex-prisoners may have greater expectations that they will successfully reenter society and become financially independent (Case and Fasenfest 2004). When they fall short of these expectations, they may “solve” the problem through instrumental (i.e., property) crime. By this same reasoning, we can expect that factors that further inhibit achieving goals through conventional means—such as a criminal record that reduces the likelihood of gainful employment or a return to an area where employment prospects historically have been anemic—may amplify the effect of returning to settings where unemployment rates have increased. That logic accords with the findings in this study but needs to be investigated.

Prior research on strain theory suggests support for both arguments, thus reinforcing the

importance of conducting research that can adjudicate whether the above mechanisms indeed account for the different effects of race-specific labor market changes. For example, studies that have tested the theory find that strain increases the likelihood of many types of criminal behavior, but many exceptions exist that identify greater effects on just violent offending or just property offending, respectively (see, e.g., Baron 2004; Hay et al. 2010; Piquero and Sealock 2010). It may be that the types of strain that black ex-prisoners and white ex-prisoners experience upon release differ. This difference itself may stem from their return to different labor market contexts (Wang et al. 2010) and different expectations about employment upon release, and these in turn may translate into different types of offending (see Kaufman et al. 2008). Ultimately, research on ex-prisoners in other states using a broader array of measures is needed to test these possibilities and to assess the generalizability of this study's results.

Implications for Research

The study's findings broadly support arguments that emphasize the influence of social ecology and, in particular, labor markets, on offending (see, generally, Gottfredson and Taylor 1985, 1988; Sampson et al. 2002; Bellair et al. 2003; Kubrin et al. 2006; Mears et al. 2008; Apel and Sweeten 2010). They also underscore the importance of examining social change (Green et al. 1998; Sabol 2007; Weiman 2007; Kirk 2009). For white ex-prisoners, no evidence of an effect of unemployment rate levels surfaced. However, further research is needed to unpack the relative effects of unemployment rate changes and levels and how they may interact.

The study's results also underscore the importance of conducting analyses of change that incorporate race-specific analyses (Parker 2008; Wang et al. 2010; Wehrman 2010). Few studies examine how race-specific changes in labor markets influence recidivism, even though theoretical accounts typically imply a logic that points to a dynamic unfolding of a causal force—such as the erosion of informal social control—that is criminogenic and even though research demonstrates that racial divides in American communities have persisted over time

(Western 2006; Peterson and Krivo 2005; Parker 2008). Sampson (2009:260), for example, in his analyses of Chicago neighborhoods, found that poverty is “stubbornly persistent in its ecological concentration with other social disadvantages, especially in the black community” and opined, based on this finding and others, that “certain urban neighborhoods get locked into structural dynamics that generate systematic social dynamics, such as mistrust and cynicism, that in turn may contribute to their further stigmatization, disorder, out-migration, crime, withdrawal of civic involvement, and eventually the deepening of poverty” (p. 278).

Recidivism studies to date have not typically taken such possibilities into account. Indeed, few studies of ex-prisoners have included assessments of the ways in which ecological conditions may influence offending among released inmates (see, however, Kubrin and Stewart 2006; Reisig et al. 2007; Mears et al. 2008; Hipp et al. 2010; Wang et al. 2010; Bellair and Kowalski 2011) or, by extension, how changes in such conditions may influence it (Raphael and Weiman 2007). There is, accordingly, considerable room for advancing scholarship on reentry, the effects of social context on inmate transitions to society, and research on desistance. Several particular avenues for future research to investigate include an examination of a broad range of employment-related measures, such as the effects of changes in unemployment rates by industry (Wang et al. 2010; Bellair and Kowalski 2011), and a broad range of economic and social indicators (see, generally, Pratt and Cullen 2005). There is also a need for studies that identify the lags, that is, the time between changes and the return of ex-prisoners, that most contribute to recidivism. Not least, there is a need for studies that examine how these effects may vary for different groups, including both racial and ethnic minorities as well as immigrant groups.

In a related vein, there is a need, as Raphael and Weiman (2007) have emphasized, for research that links individual-level employment and labor market conditions—including measures of unemployment, ex-prisoner willingness to seek work, and employer willingness to hire—with offending experiences (see, e.g., Staff et al. 2010). Absent such work, it will remain difficult to disentangle what it is about returning to areas characterized by deteriorating labor markets that contributes to recidivism. Ex-prisoners may have difficulty finding employment

(Sabol 2007:258). However, they also may be returning to areas that suffer from significant reductions in labor force participation and, by extension, increasingly weakened social support and informal social control. It also is possible that ex-prisoners who are most likely to recidivate return to areas in which labor market conditions are more likely to have deteriorated.

There also is a need to unpack further the ways in which the effects of racial and ethnic inequality may be amplified by the “get tough” criminal justice policies that have ascended into prominence in recent decades (Pratt 2009). A growing body of research highlights, for example, the ways in which incarceration itself may be criminogenic (Nagin et al. 2009) and identifies many barriers to employment that blacks, felons in particular, face (Pager 2007a-b). The ability of black prisoners and other minority populations to reintegrate into society may be severely diminished not only by the structural disadvantages that minorities experience but also by the barriers imposed on ex-prisoners (Western 2006; Clear 2007; Sampson 2009). As Lauritsen and Heimer (2010:671) have emphasized: “Because race and ethnic minorities are more likely than Whites to be low-skilled, low-income workers, their unemployment and economic well-being tends to be more sensitive to recession and recovery periods. Moreover, within the low-skilled male population, minorities seem to be affected more profoundly by economic downturns.”

Finally, further investigations into the conditioning effects of age and criminal records are needed (Apel and Sweeten 2010). Pager’s (2007a-b) work, for example, has highlighted the stigmatizing influence of a felony conviction on an individual’s employment prospects and, in a related vein, that the influence is substantially greater among blacks. And Holzer’s (2009a-b) work has drawn attention to the possibility that incarceration exerts a greater negative effect on the employment and earnings of young people, especially young black males. The results of this study do not speak directly to these arguments, but indirectly they lend credence to the notion that racial differences warrant more careful attention. They also lend credence to the view that particular attention should be given to unpacking the ways in which changing social and economic conditions may exert different effects on different types of recidivism among black ex-prisoners and white ex-prisoners, respectively (Mears et al. 2008).

Implications for Policy

The salience of labor market changes and their influence on ex-prisoner recidivism stems from the opportunity to investigate how offending may be influenced by ecological conditions. It stems also from the fact that in recent years, labor market conditions have considerably worsened (Inman 2010), raising the concern that such changes may be adversely affecting the successful reentry of an ever-growing population of ex-prisoners (Gottschalk 2010). As Bushway et al. (2007:1) have emphasized, “Poor labor-market prospects make ex-prisoners more likely to fall into a vicious cycle, a revolving door of prison release, crime, and reincarceration.”

The findings from this study, along with those from a growing body of research (see, e.g., Bushway and Reuter 2002; Western 2006; Pager 2007a; Bushway 2011), underscore the potential importance of policies aimed at improving ex-prisoner participation in the labor market. The findings also suggest that such programs alone may not suffice or may not be the only option. Bushway and Reuter (2002:221) have noted, for example, that “an individual’s lack of work orientation can be directly tied to the social problems of their neighborhoods.” Accordingly, efforts may be needed that attempt to improve labor market conditions in general, especially in the areas to which ex-prisoners return. The record of success in such undertakings is weak (Sabol 2007:298; see, generally, Bushway 2011). As Sampson (2009) has emphasized, change is difficult to achieve in areas with persistent and profound disadvantage. Nonetheless, even modest improvements in labor market conditions might improve reentry outcomes and, in turn, reduce the collateral consequences that ex-prisoner unemployment can have on families and communities through reduced earnings and fear of crime (Holzer 2009a:257).

That said, until further research is undertaken, it will be important to proceed with caution. For example, this study found that black ex-prisoner drug recidivism was lower among individuals who returned to areas with higher black unemployment rates and resource deprivation levels. This pattern is consistent with the notion that in such areas residents may be

less willing to call law enforcement agencies, in turn creating a setting in which drug offending may thrive yet not register in official records as recidivism events (Mears et al. 2008). A body of studies that systematically investigates this possibility and the issues noted above would provide a stronger foundation for efforts that focus on labor markets to improve reentry outcomes.

ENDNOTES

¹ Sentencing points are assigned according to the Florida Criminal Punishment Code and are based on the primary (most serious) offense. Following Burton et al. (2004), we use the 1999 and 2000 sentencing guidelines offense points assigned to 52 different offenses.

² Parker (2008:ix) has argued that resource deprivation and labor markets tap “different aspects of the local urban economy.” We found no statistically significant correlation between the race-specific measures of unemployment rates and resource deprivation (.022 for black males and .184 for white males) or between change in these rates and deprivation (.007 for black males and .050 for white males). In addition, all VIFs were below 4, and the largest VIF was 2.192.

³ To address concerns about spatial dependence, we used the nearest-neighbor criterion (Baller et al. 2001) and neighbor weight matrices for 5, 6, and 10 nearest neighbors (all weights equal “1”; larger counties were assigned larger weights), with proximity defined as the distance between county centroids. We computed global Moran’s *I* statistics using offense-specific reconviction rates for black male and white male ex-prisoners, respectively. Using S-plus’s spatial module, we undertook 1,000 permutations for each Moran’s *I* statistic and found no evidence of statistically significant spatial autocorrelation for white ex-prisoner recidivism outcomes. For black ex-prisoners, there was evidence of spatial autocorrelation for property recidivism and drug recidivism, respectively, and so we included the spatial lag specific to each offense. The lag was created by taking the average of the reconviction rates for the five nearest counties neighboring each county; few counties in Florida have more than five counties that adjoin them.

⁴ The negative effect of the 1990 unemployment rate on black male ex-prisoner drug recidivism in table 2 is surprising. We do not discuss it here because the focus centers around changes in employment contexts, but speculate that, as suggested by Mears et al. (2008), black ex-prisoners may return to areas in which illegal drug activity is more entrenched and defended. In such a context, individuals may be more likely to engage in drug offending but less likely to be caught.

⁵ To assess whether the effects of changes in race-specific unemployment rates on violent

recidivism were different for black vs. white male ex-prisoners, we performed a z test (Brame et al. 1998). This test indicated that the effect of increases in black unemployment rates among black ex-prisoners ($b=.05$) was not significantly greater than the effect of increases in white unemployment rates among white ex-prisoners ($b=-.00$) ($z=.98$, $p>.05$). Per Bushway et al. (2006), we compared 95 percent confidence intervals associated with these coefficients. The true coefficient of changes in black unemployment rates ranges from .03 to .07; the true coefficient of changes in white unemployment rates ranges between -.1 and .1. The comparison highlights that increases in black unemployment rates increase black violent recidivism, whereas increases in white employment may either increase or decrease white violent recidivism.

⁶ To conserve space, we report here the main and interactive effect estimates, less the controls, from the two-way interaction models, which used HGLM regression models similar to the ones in table 2. For black property recidivism, the estimates were as follows: criminal history ($b=.31$, $se=.03$, $p<.01$), change in black male unemployment rate ($b=.00$, $se=.01$, $p>.05$), and criminal history x change in black unemployment rate ($b=.02$, $se=.01$, $p<.05$). For black drug recidivism, the estimates were: criminal history ($b=.22$, $se=.03$, $p<.01$), change in black male unemployment rate ($b=-.02$, $se=.02$, $p>.05$), and criminal history x change in black unemployment rate ($b=-.02$, $se=.01$, $p<.01$). For both models, the cross-level interaction between criminal history and the change in black male unemployment rate was included. Analyses involving three-way interactions, where the unemployment rate in 1990 was included, revealed no statistically significant three-way interactions. (All interaction model results are available upon request).

⁷ As per note 6, we report here only the main and interactive effect estimates to conserve space. For white property recidivism, the estimates of the main effect and interaction terms were as follows: criminal history ($b=.43$, $se=.03$, $p<.01$), change in white male unemployment rate ($b=.06$, $se=.04$, $p>.05$), and criminal history x change in white male unemployment rate ($b=.05$, $se=.02$, $p<.05$). No evidence of a three-way interaction, one that included the unemployment rate in 1990, surfaced. (All interaction model results are available upon request).

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Table 1. Descriptive Statistics

	Black Males		White Males	
	N	Percent	N	Percent
<i>Dependent Variables</i>				
Violent recidivism (reconviction)	773	5.80	374	4.30
Property recidivism (reconviction)	1,479	11.10	1,170	13.50
Drug recidivism (reconviction)	2,783	21.00	542	6.30
	Mean	S.D.	Mean	S.D.
<i>Ex-Prisoner (Individual-Level) Independent Variables</i>				
Age	32.29	9.18	33.86	9.91
Education	6.31	2.89	9.00	3.10
Criminal history	.00	1.00	.00	1.00
Incarceration profile	.00	1.00	.00	1.00
Post-release supervision	.32	.47	.36	.48
<i>County-Level Independent Variables</i>				
Change in black male unemployment rates (1990-2000)	-1.92	4.67		
Change in white male unemployment rates (1990-2000)			-.53	1.68
Baseline level of black male unemployment rates (1990)	12.05	3.92		
Baseline level of white male unemployment rates (1990)			4.79	1.23
Resource deprivation (2000)	.00	1.00	.00	1.00
Index of dissimilarity (2000)	43.29	15.62	43.29	15.62
Urbanism (2000)	.00	1.00	.00	1.00
Criminal justice system resources (2000)	.00	1.00	.00	1.00

Notes: N=13,272 black male ex-prisoners and 8,648 white male ex-prisoners; N=67 counties.

Table 2. Regression of Violent, Property, and Drug Recidivism on Black Male Unemployment Rates for Black Male Ex-Prisoners^a

	Model 1			Model 2		
	Violent	Property	Drug	Violent	Property	Drug
Intercept	-2.74** (.07)	-2.07** (.06)	-1.65** (.06)	-2.71** (.09)	-2.07** (.07)	-1.65** (.07)
<i>Ex-Prisoner-Level Variables</i>						
Age	-.06** (.01)	-.01** (.00)	-.03** (.01)	-.06** (.01)	-.01** (.00)	-.03** (.01)
Education	-.05** (.02)	-.02* (.01)	-.05** (.01)	-.05** (.02)	-.02* (.01)	-.05** (.01)
Criminal history	.12** (.04)	.33** (.03)	.20** (.03)	.12** (.04)	.33** (.03)	.20** (.03)
Incarceration profile	.23** (.03)	.09** (.03)	-.09** (.03)	.23** (.03)	.09** (.03)	-.09** (.03)
Post-release supervision	-.00 (.08)	-.18** (.06)	-.58** (.03)	-.00 (.08)	-.18** (.06)	-.58** (.03)
<i>County-Level Variables</i>						
Change black unemp. rate	.05** (.01)	.01 (.01)	-.02 (.02)	.05** (.01)	.01 (.01)	-.02 (.02)
Level black unemp. rate	.04* (.02)	.01 (.02)	-.04* (.02)	.04* (.02)	.01 (.02)	-.04† (.02)
Change x level				.00 (.00)	-.00 (.00)	.00 (.00)
Black resource deprivation	.12† (.07)	.03 (.06)	-.19* (.07)	.12† (.07)	.03 (.06)	-.19* (.07)
Index of dissimilarity	-.00 (.01)	.00 (.00)	.02* (.01)	-.00 (.01)	.00 (.01)	.02* (.01)
Urbanism	-.08 (.05)	-.09* (.04)	-.05 (.05)	-.09 (.06)	-.09* (.04)	-.05 (.06)
Criminal justice resources	.05 (.06)	.07 (.07)	-.01 (.08)	.05 (.05)	.07 (.07)	-.01 (.08)
Random effect intercept τ_{00}	.02	.03†	.05**	.02	.03*	.06**
χ^2	58.62	76.84	139.24	58.73	77.10	139.46

Notes: The unstandardized coefficients are presented in the table with standard errors in parentheses.

† $p < .10$; * $p < .05$; ** $p < .01$ (two-tailed test)

^a Hierarchical logistic regression is used because the dependent variables are binary and ex-prisoners are nested within counties. A spatial lag specific to property recidivism and drug recidivism is included because spatial autocorrelation was present when property recidivism and drug recidivism were examined.

Table 3. Regression of Violent, Property, and Drug Recidivism on White Male Unemployment Rates for White Male Ex-Prisoners^a

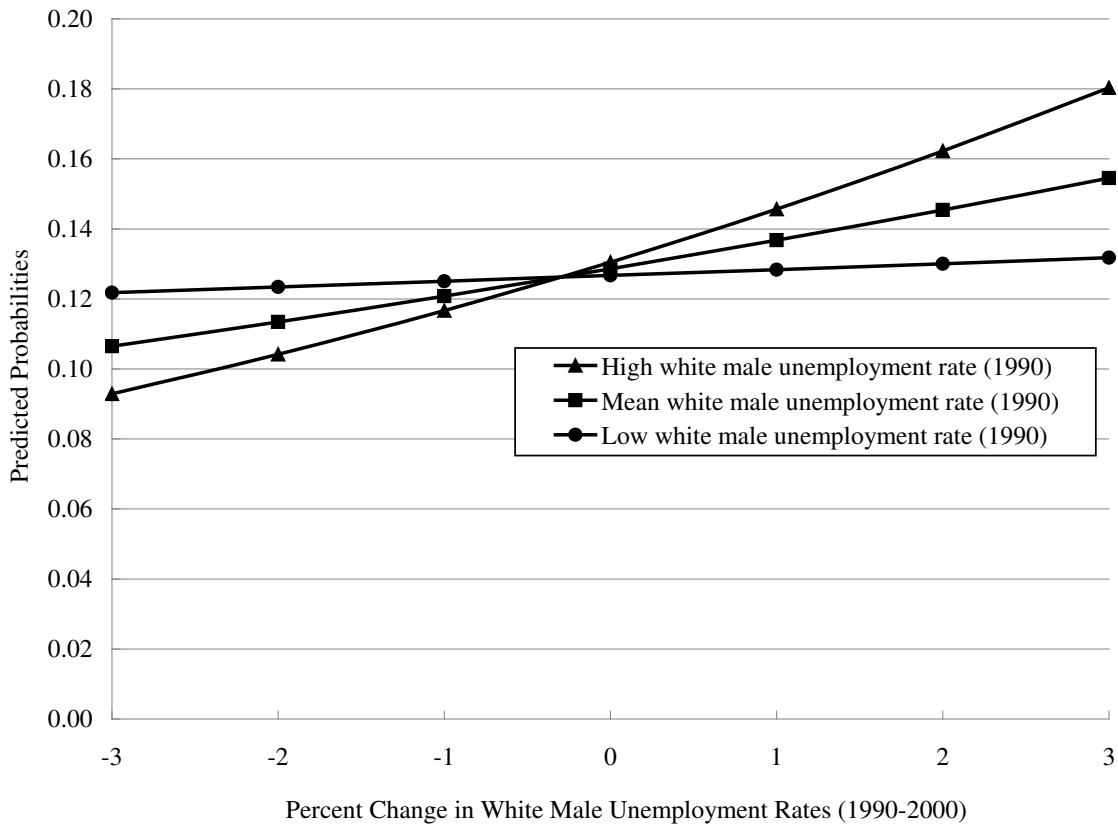
	Model 1			Model 2		
	Violent	Property	Drug	Violent	Property	Drug
Intercept	-3.12** (.09)	-1.99** (.06)	-3.17** (.08)	-3.13** (.10)	-1.95** (.07)	-3.18** (.08)
<i>Ex-Prisoner-Level Variables</i>						
Age	-.04** (.01)	-.04** (.00)	-.02** (.00)	-.04** (.01)	-.04** (.00)	-.02** (.00)
Education	-.06** (.02)	-.02* (.01)	-.00 (.01)	-.06** (.02)	-.02* (.01)	-.00 (.01)
Criminal history	.10** (.04)	.43** (.03)	.23** (.03)	.10** (.04)	.43** (.03)	.23** (.03)
Incarceration profile	.17** (.03)	.02 (.03)	-.16** (.05)	.17** (.03)	.02 (.03)	-.16** (.05)
Post-release supervision	-.01 (.10)	-.40** (.09)	-.56** (.09)	-.01 (.10)	-.40** (.09)	-.56** (.09)
<i>County-Level Variables</i>						
Change white unemp. rate	-.00 (.05)	.06† (.03)	-.04 (.05)	-.00 (.05)	.07† (.04)	-.04 (.05)
Level white unemp. rate	.02 (.08)	-.03 (.06)	.03 (.07)	.01 (.08)	-.01 (.05)	.02 (.08)
Change x level				-.01 (.03)	.05† (.02)	-.02 (.03)
White resource deprivation	.05 (.10)	.01 (.07)	.03 (.08)	.05 (.10)	-.01 (.07)	.03 (.09)
Index of dissimilarity	-.00 (.01)	-.00 (.00)	.03** (.01)	-.00 (.01)	-.01† (.00)	.03** (.01)
Urbanism	-.00 (.07)	.05 (.04)	.03 (.07)	-.00 (.07)	.05 (.04)	.03 (.07)
Criminal justice resources	-.09 (.07)	.07† (.04)	-.03 (.06)	-.09 (.07)	.07* (.03)	-.03 (.06)
Random effect intercept τ_{00}	.05	.01†	.06*	.05	.01†	.06*
χ^2	68.37	76.24	83.44	68.26	73.33	83.12

Notes: The unstandardized coefficients are presented in the table with standard errors in parentheses.

† $p < .10$; * $p < .05$; ** $p < .01$ (two-tailed test)

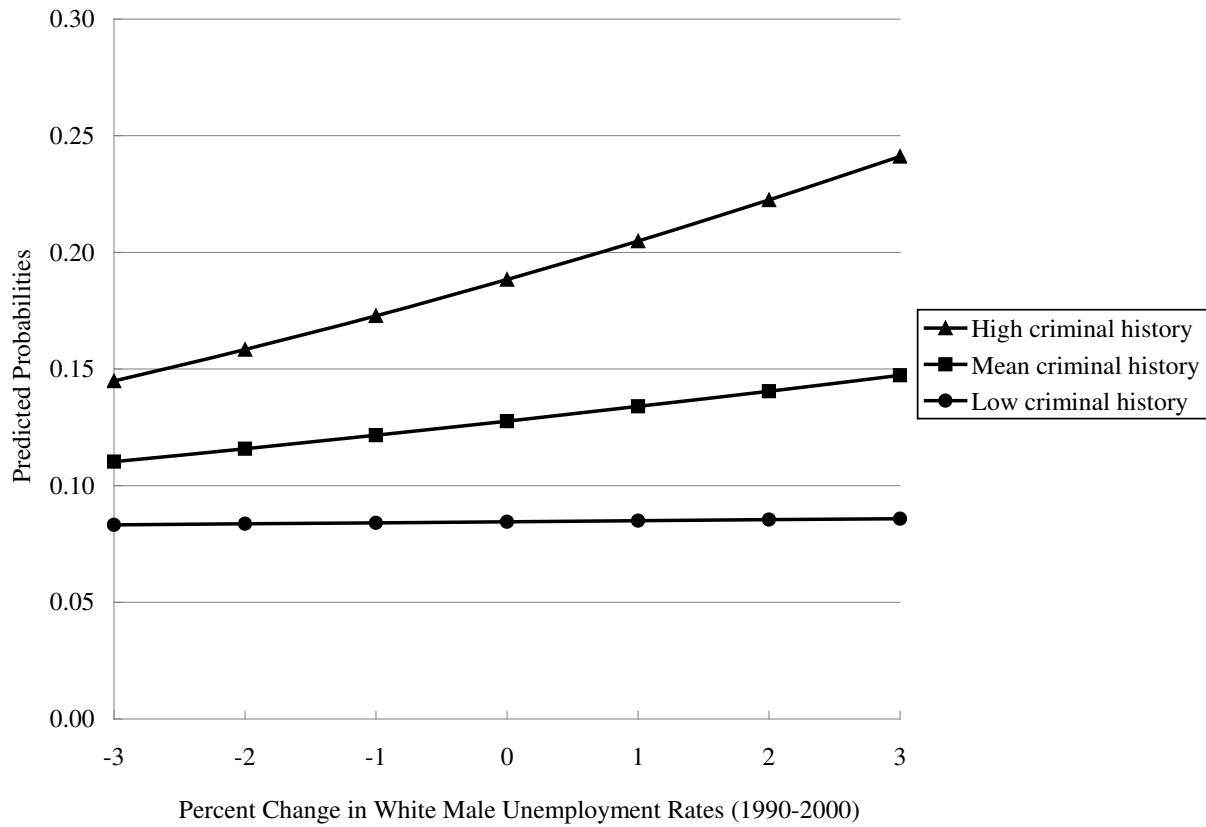
^a Hierarchical logistic regression is used because the dependent variables are binary and ex-prisoners are nested within counties.

Figure 1. Predicted Property Recidivism Probabilities for White Male Ex-Prisoners at Different Change and Baseline Levels of White Male Unemployment Rates*



* Based on results from table 3, model 2, predicting property recidivism.

Figure 2. Predicted Property Recidivism Probabilities for White Male Ex-Prisoners at Different Levels of Criminal History and Changes in White Male Unemployment Rates



Appendix. Variable Descriptions

<i>Variable</i>	<i>Definition and Coding</i>
<i>Dependent Variables</i>	
Violent recidivism	Whether ex-prisoners were convicted of a new violent offense (e.g., homicide, aggravate assault, robbery, or sex offenses, including forcible rape) resulting in correctional supervision (i.e., jail, prison, or community supervision) for the 2 years after release from prison (1=yes, 0=no).
Property recidivism	Whether ex-prisoners were convicted of a new property offense (e.g., burglary, motor vehicle theft, or larceny) resulting in correctional supervision (i.e., jail, prison, or community supervision) for the 2 years after release from prison (1=yes, 0=no).
Drug recidivism	Whether ex-prisoners were convicted of a new drug offense (e.g., possession, sale, or distribution of illegal drugs) resulting in correctional supervision (i.e., jail, prison, or community supervision) for the 2 years after release from prison (1=yes, 0=no).
<i>Ex-Prisoner (Individual-Level) Independent Variables</i>	
Age	Age (in years) at the time of release from prison.
Education	Scores from the Test of Adult Basic Education, measuring a prisoner's grade level in three subjects (reading, math, language) and administered prior to release.
Criminal history	Weighted factor score extracted from three measures (number of prior convictions, number of prior recidivism events, seriousness scores) (black male $\lambda=2.29$, all factor loadings $> .80$; white male $\lambda=2.19$, all loadings $> .73$).
Incarceration profile	Weighted factor score extracted from three measures (custody level, number of disciplinary infractions, time served) (black male $\lambda=1.61$, all factor loadings $> .60$; white male $\lambda=1.57$, all loadings $> .56$).
Post-release supervision	Whether the offender was supervised by a parole, probation, or a community-control officer after release (1=yes, 0=no).
<i>County-Level Independent Variables</i>	
Change in black male unemployment rates	Change in percent black male civilians unemployed from 1990 to 2000; it is obtained by subtracting percent black male civilians unemployed in 2000 from percent black male civilians unemployed in 1990.
Change in white male unemployment rates	Change in percent white male civilians unemployed from 1990 to 2000; it is obtained by subtracting percent white male civilians unemployed in 2000 from percent white male civilians unemployed in 1990.
Baseline level of black male unemployment rates	Percent of black male civilians unemployed in 1990.
Baseline level of white male unemployment rates	Percent of white male civilians unemployed in 1990.
Resource deprivation	Weighted factors score extracted from four measures (percent below poverty, percent receiving public assistance, median family income, percent female-headed household) (black $\lambda=3.09$, all factor loadings $> .78$; white $\lambda=2.64$, all loadings $> .52$).
Index of dissimilarity	White/black within-county segregation using census tracts as the subareas; scores range from 1 to 100, with larger values reflecting higher levels of racial segregation.
Urbanism	Weighted factor scores extracted from three measures (total population, percent of population living in urban areas, density) ($\lambda=2.21$, all factor loadings $> .80$).
Criminal justice system resources	Weighted factor scores from three measures (police presence, per capita county revenues, per capita public safety spending) ($\lambda=1.95$, all factor loadings $> .76$).