Article

Gang Affiliation and Prisoner Reentry: Discrete-Time Variation in Recidivism by Current, Former, and Non-Gang Status

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Abstract

Objectives: Reentry experiences for the 600,000 people released annually from federal and state prisons differ vastly. We contend that gangs, which rose to prominence alongside mass incarceration, are an overlooked source of variation in reentry experiences. Drawing on precepts from the street gang literature, we test whether patterns of recidivism differ by official and survey measures of current, former, and non-gang status. *Methods:* Data from a representative sample of 802 prisoners interviewed

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prior to their release in 2016 were linked to 36 months of post-release arrest, conviction, and imprisonment records. Survival curves and multi-variable discrete-time survival analysis were used to test for differential patterns of recidivism. *Results:* The conditional risk of recidivism varied by gang status. Current gang members maintained the greatest risk for all recidivism types. While former gang members were more likely to get arrested than non-gang members, there were no differences in conviction and imprisonment. Official and survey gang measures mostly told the same story, although official measures appeared to be more reliable determinants of recidivism than survey measures. *Conclusions:* Distinguishing former from current and non-gang members is important for policy, practice, and research. These findings renew calls to understand and respond to social groups and networks like gangs for prisoner reentry.

The dramatic rise in the use and consequences of imprisonment in the United States is well-documented (Clear 2007; National Research Council 2014; Wakefield and Uggen 2010). A central finding in this work is that prisoner reentry experiences display great variation among the 600,000 people released from prisons annually (E. A. Carson 2020). Some experience immediate failure, while others offend after struggling to adjust over prolonged periods, and still others may never offend again patterns that reflect the obstacles involved in reentry and reintegration. Owing to the impact of prison releases on communities, families, the labor market, and crime, researchers have sought to uncover the sources of variation in recidivism. Reviews of this extensive body of research identify multiple domains of influence that cut across the stages of prisoner reentry, including pre-prison, in-prison, and the post-release transition and reintegration process (Mears and Cochran 2015; Visher and Travis 2003; Wright and Cesar 2013). Some influences are confined to specific stages (e.g., "pains of imprisonment": Listwan et al. 2013) while others transcend them (e.g., social supports: Berg and Huebner 2011). We contend that groups rising to prominence concurrent with mass incarceration—gangs in prison—should be theoretically and empirically integrated into the study of prisoner reentry.

The current inventory of explanations for prisoner reentry experiences has largely overlooked the role of gangs in conditioning transitions from the

prison to the community. This is unfortunate because leading micro-level perspectives on crime causation privileging peer influence, social identity, and group process are well supported empirically (McGloin and Thomas 2019; Pratt et al. 2010; Pyrooz et al. 2016). As Taxman (2017:775) noted, social networks are "commonsense" explanations for recidivism. She and others (e.g., Mowen and Boman 2018) have called for more attention to *duality*, that is, how groups and networks help or hinder prisoner successful reentry. Membership or embeddedness in a gang is one such dynamic that may bring about disadvantages while also providing advantages to people reentering society after imprisonment. Indeed, researchers have demonstrated the relevance of street gang membership to a wide range of outcomes, above and beyond delinquent peers and groups. The irony is that far more scholarship has been aimed at gangs on the street than in prison (Pyrooz and Mitchell 2015), yet gangs in prison are arguably more violent, difficult to respond to, and less understood, especially in the transition from prison to the street.

We advance research on prisoner reentry in three core areas. First, we offer an empirical test of the relationship between gang affiliation and recidivism. A small body of qualitative and quantitative research points to rockier reentry experiences and higher rates of recidivism among those who affiliate with gangs in prison. We expand the empirical understanding of recidivism by using official and survey measures of gang affiliation and multiple measures of recidivism. Second, the few studies that have examined this relationship compare recidivism exclusively among fixed categories (i.e., "ever" vs. "never" in a gang). Prison gang membership is perceived as a lifelong commitment, but emerging evidence suggests that gang leaving occurs regularly in prison (Johnson and Densley 2018; Pyrooz and Decker 2019), mirroring findings from research on street gangs. Since leaving a gang on the street is linked to improved attitudes and behaviors (e.g., Melde and Esbensen 2014), it may be important to avoid conflating current and former gang status in empirical research on recidivism, as the pressure to offend is likely attenuated for former gang members. Finally, prior research typically relies on official data sources to measure gang status. Criminologists have long recognized the limitations of such data, especially in gang research (Fagan 1990; Toch 2007). Survey data are arguably better positioned to measure gang status, especially transitions out of gangs, and thus vulnerability to recidivism. Official records are not irrelevant, of course, as they likely reflect the policies and practices of criminal justice agents (Tapia 2011; Toch 2007). Perspectives on gangs have long been characterized by dual realities, one from the view of the

police and a second from survey research (Curry 2000), which is why using both sources of data to measure gang status is perhaps the ideal scenario to study the gang status-recidivism link.

To examine the relationship between prison gang affiliation and recidivism, we use data from the LoneStar Project, or the Texas Study of Trajectories, Associations, and Reentry, which comprise a representative sample of 802 incarcerated adult males interviewed in 2016 just prior to their release from prison. These data were then linked to prison administrative data and three years of post-release criminal records. Both official and survey data sources contain measures of gang status, allowing us to determine if recidivism—including arrest, conviction, and imprisonment—patterns among former gang members are more comparable to those of current or non-gang members. We test this relationship using discrete-time survival analysis, a method that is better attuned to the vicissitudes of reentry than fixed-time (e.g., cumulative probabilities) and continuous-time (i.e., Cox proportional hazards) approaches. Braga and colleagues (2009:428) recognized that "[g]ang membership presents a special policy challenge for prisoner reentry initiatives." The aim of this work is to provide evidence on the magnitude and nature of this challenge. To the extent that the relevance of gang status in prison endures to condition reentry experiences, it raises continued questions about how best to respond to the challenges posed by gangs during and after prison (Griffin 2007).

Gangs and Recidivism

Gangs are an integral part of prison life. They are active in nearly every prison system in the United States and play a key role in prison social order (DiIulio 1987; Pyrooz and Decker 2019; Skarbek 2014). Fifteen percent of the 1.5 million people incarcerated in federal and state prisons are affiliated with gangs (Pyrooz and Mitchell 2020). While this is a minority of the custodial population, gang affiliates are overrepresented in prisons relative to communities by a factor of 50 (Egley, Howell, and Harris 2014). Studies regularly reveal that gang members are involved disproportionately in misconduct, unrest, and serious violence in prisons (Gaes et al. 2002; Huebner 2003; Reiter 2016; Steiner, Butler, and Ellison 2014; Useem and Reisig 1999), making them a difficult population to manage. While there is variation across prison systems in the magnitude of the issues gangs present, it would be a misnomer to conclude that these problems are limited to California, Illinois, or Texas (Association of State Correctional Administrators

2013:22-4; Camp and Camp 1985). The issue of gang membership in prison takes on added importance in the context of prisoner reentry.

There are sound reasons to anticipate that prison gang affiliation elevates the risk of recidivism. Theoretical and empirical precepts developed in street gang research are a good starting place to consider this relationship. Thornberry and colleagues' (1993, 2003) theoretical framework emphasized that the characteristics of people who select into gangs and group processes found within gang contexts create an enhancement effect (see McGloin and Collins 2015). While group process has been examined primarily in street gangs (Decker and Van Winkle 1996; Fleisher 1998; Klein and Maxson 2006; Miller 2001; Short and Strodtbeck 1965; Vigil 1988), it is also believed to distinguish gang and non-gang members in prison samples (McGloin 2007; Pyrooz and Decker 2019). These influences could exacerbate personal deficits due to official responses to gangs that limit access to programming and/or place gang affiliates in solitary confinement, as well as produce stigmatizing labels resulting in enhanced surveillance inside and outside of prison. The group context promotes opportunity structures and routine activities that enhance offending risk, normative orientations that provide scripts to activate or respond to conflict outside of legal channels, and collective identities imposing extra-individual burdens.

A nascent body of research reveals the nature and impact of gang affiliation in the context of prisoner reentry. Prisoner reentry without being affiliated with a gang is hard enough (Petersilia 2003; Western 2018), yet findings from several qualitative studies suggest rockier reentry experiences among gang members. Based on her observations of two generations of gangs in East Los Angeles, Moore (1978, 1991) uncovered stronger connections between prison and neighborhood gang influences corresponding with the rise of mass incarceration. Scott's (2004) field observations and interviews with 19 gang-involved former prisoners in Chicago led him to describe gangs as "self-defeating," as gang exploitation spoils family ties, handicaps employment prospects, and limits prosocial ties, ultimately undermining any benefits accrued in the group context. These findings are echoed in the work of Bender et al. (2016), who, through interviewing former prisoners with a history of gang involvement in Cleveland and Milwaukee, identified a need for programming tailored to gang populations. In his work with gang-involved youth in custody and probationers in the Fresno area, Lopez-Aguado (2018) argued that gangs may play a role in facilitating successful reentry from prison to the community. He identified gangs as one of the few reentry resources available on the street. However, enhanced monitoring by criminal justice authorities based on gang labeling

undercut the utility of gangs in providing such resources, underscoring the duality of gang membership. Additional mixed method scholarship points to the exchange of responsibilities, information, orders, and people from the prison to the street, and vice versa, as indicative of a symbiosis that ultimately extends the influence of gangs beyond their physical location (Hunt et al. 1993; Jacobs 1977; Pyrooz and Decker 2019; Skarbek 2014).

Just four quantitative studies in the United States have explored this relationship to date. These studies universally identify gang affiliation as a correlate of recidivism, although the effect sizes vary.[1] Researchers, relying on administrative records of gang affiliation, have examined this relationship with rearrest and reincarceration in Illinois (Dooley, Seals, and Skarbek 2014; Olson and Dooley 2006), new charges, revocation, and reincarceration in Arizona (Saunders, Sweeten, and Katz 2009), and parole failure in California (McShane, Williams, and Dolny 2003). Whereas the former studies examined the cumulative probability of recidivism, Huebner and colleagues (2007) collected self-reports of lifetime street gang membership during the early months of incarceration to study survival to reconviction in a Midwestern state prison system using Cox proportional hazard models. Examining recidivism across an observation period, rather than an arbitrary fixed point in time, better reflects the fragile reality of the prisoner reentry process (Leverentz 2019; Western 2018). We are unaware of studies giving consideration to whether and how status transitions, including joining *and* leaving gangs, in prison, as opposed to a fixed indicator of gang affiliation, might alter the nature and experiences of prisoner reentry.

Unequal Risk of Recidivism by Gang Status

Gang membership is not a lifelong commitment. Research with street gangs has dispelled the longstanding myth of permanence by documenting fluidity in membership. Panel studies have captured status transitions into and out of gangs, revealing that most people remain in a gang for two years or less (Leverso and Matsueda 2019; Melde and Esbensen 2014; Pyrooz 2014; Weerman, Lovegrove, and Thornberry 2015). These same studies also reveal another important fact about gangs: leaving a gang is associated with a wide range of beneficial changes to attitudes, behaviors, and experiences. Transitioning from current to former gang status corresponds with fewer criminal peer associations and unstructured routine activities, as well as lower antisocial attitudes, impulsivity and risk-taking, criminal offending, and victimization. If the precepts from the street gang literature apply to the

context of prison and reentry, we would anticipate unequal risk of recidivism by gang status.

The belief that once someone joins a gang in prison they can never leave is grounded in anecdotal or non-systematic commentary related to prison policy or gang mythology. Crouch and Marquart (1989:208) cited court transcripts involving the Aryan Brotherhood of Texas stating: "Once in, always in. This holds true even if the member leaves the prison and goes home." Skarbek (2014) cited a criminal indictment of Nuestra Familia in California, which stated: "membership, once achieved, was for life, as symbolized by the organization's membership phrase, blood in, blood out." An early study in Texas (Fong and Vogel 1995) used anonymous questionnaires to understand why 48 defectors, as they were termed, broke ties to the gang. The language of "defector," typically reserved for international relations or political causes, reflects perceptions of what is at stake. Observations such as these could explain why researchers have not sought to distinguish correctional populations by gang status.

Two recent studies shed light on disengagement from gangs in prison, one conducted in Brazil (Johnson and Densley 2018) and the second in Texas (Pyrooz and Decker 2019). These studies revealed that gang leaving occurred far more regularly in prison than originally believed, and while the process of leaving is indeed more complicated in a total institution, the motivations and methods were similar to what has been revealed in the street gang literature (D. C. Carson and Vecchio 2015; Densley and Pyrooz 2019). The reasons for leaving were predominantly disillusionment with the gang, while the methods, although less universal, involved giving notice of intentions, ceasing associations, getting jumped out, or making credible commitments to religion or disengagement programming. If people are leaving gangs while in prison, conflating current and former gang status could mistakenly understate the link between gang affiliation and recidivism, also misrepresenting the risk of recidivism posed by former gang members.

Leaving prison without the enhanced and unique burdens associated with gang affiliation should correspond to a lower risk of recidivism. While incarcerated, former gang members are eligible for counseling, therapy, employment, and programs that facilitate better reentry experiences (Jonson and Cullen 2015). Former gang members should be less likely to spend sustained periods of time in solitary confinement, a marker for problematic reentry (e.g., Mears and Bales 2009). The label of "ex-gang member" is expected to be less stigmatizing than "confirmed gang member." Debriefing and gang renouncement, both of which are practices commonly undertaken for those who leave gangs in prison, are costly and hard-to-fake

signals of rehabilitation (Bushway and Apel 2012; Densley and Pyrooz 2019), blunting the mark of a gang record to relax the suspicions of control agents. Former gang members should also be less susceptible to gang-related group processes inside and outside of prison, including intra- and inter-gang conflicts, directives, and normative orientations. One of the only studies (Pyrooz and Decker 2019) to compare prisoners by gang status found that former gang members fared better than current gang members in many areas, including stress, convict and street code adherence, unstructured socialization, gang embeddedness, criminal peer associations, procedural justice and legitimacy, and misconduct and victimization.

Although there are sound reasons to anticipate unequal risk of recidivism by gang status, researchers have not yet distinguished former from current gang members. Of course, leaving a gang does not necessarily mean that former gang members are equivalent to people who have never been involved in a gang. Persistent heterogeneity based on selection factors into gangs could give rise to an elevated risk of recidivism after release from prison. Dynamic heterogeneity based on residual emotional or social ties to the gang, or enhanced deficits cascading from life in the gang, could bring about differences in recidivism from non-gang members. This leads us to expect that, on balance, the risk of recidivism for former gang members is unequal to both current gang members (lower) and non-gang members (higher). Despite its importance to understanding reentry, this hypothesis remains untested to date, which could be explained in part by the data sources used by researchers.

Advancing Research Using Official and Survey Measures of Gang Status

Prison officials and researchers share the common goal of ascertaining the "true" gang status of prisoners. Beyond this goal, there is little overlap between these parties in the purposes, procedures, and consequences of measuring gang status. For prison officials, gang status is measured for administrative purposes—to facilitate housing assignments, evaluate program eligibility, and respond to brewing conflict. Official classification of prison gang affiliation is based on identifiers such as personal possessions, physical embodiments, observations, associations, and self-admission (Hill 2009). These determinations are typically made by security threat management staff and are subjected to higher-level review before a prisoner is classified as a gang affiliate. In contrast, social scientists measure gang status for the purpose of conducting empirical research, asking study

respondents to self-report their gang status (Fagan 1990; Melde 2016). With these differences in mind, it is likely that official and survey measures of gang status factor into considerations for studying the patterning of recidivism.

Official measures of gang status reflect "public" information. Fleisher and Decker (2001) referred to the official prison record as "jacketing," as gang classification follows prisoners throughout their incarceration. In this sense, it represents a credential inside of prison, where the label imputes, as Goffman (1963:5) put it, "the wide range of imperfections on the basis of the original one." Few labels in criminal justice generate as much stigma— focal concerns of blameworthiness and dangerousness (Walker and Cesar 2020)—as that of "gang member." The gang label can lead to consequences inside prisons, such as poorer interactions with correctional personnel, a higher custody level, a more restrictive housing assignment, or limited access to rehabilitative programming, all of which could elevate risk of recidivism (Cook et al. 2015; Di Placido et al. 2006; Jacobs 2001). Integrated data management systems also mean that gang affiliation can be made available to relevant criminal justice personnel outside of prisons, such as police and parole officers (Fleisher and Decker 2001; Huff and Barrows 2015). As Scott (2004) contended, the label "assists social control agents by clarifying their jobs, making the big world of offending more intelligible, less confusing, less murky" (p. 128). It could also unfold in other ways, intersecting with criminal records to indirectly influence recidivism via housing, employment, or programming, or with parole conditions that forbid associating with people who potentially serve as prosocial influences (Lopez-Aguado 2018).

Comparatively, survey measures of gang status, that is the self-reports of individuals to researchers, represent "private" information. If official measures are signs, manifesting as rigid and stigmatizing labels, survey measures are signals, conveying dynamic and privileged knowledge (Densley 2012). In contrast to official measures, which Toch (2007) likened to the inquisitorial tribunals of witches due to the use of unsound indicators leading to a questionable label, information asymmetry between the respondent and the researcher is solved by prisoners self-reporting their gang status. Self-reports represent a viable methodology to overcome issues with official data, not unlike its application in research on street gangs (Decker et al. 2014). Self-reports should better capture the experiences of gang members, as well as the prospective risk of recidivism. Indeed, those who indicate that they are a current gang member should be most susceptible to gang-related group process, consistent with the enhancement argument promulgated by

Thornberry and colleagues (1993, 2003). Survey data should also better capture former gang status, since the process of becoming officially reclassified as an "ex" gang member is not brief or straightforward and reflects the history of identification that follows an individual through their prison career and into the community. Efforts involving debriefing are fraught with difficulty because they require prisoners to take exceptional and potentially life-threatening steps (Tachiki 1995), while step-down programs are conflated with leaving solitary confinement (Pyrooz 2016); both require a high evidentiary burden and extensive time commitment. Self-reports, alternatively, may better capture identity transformations that occur independent of official recognition.

Despite these differences, two studies indicate that there is a rather high correspondence between official and survey measures of gang affiliation. Maxson and colleagues (2012) observed a 71 percent overlap in these measures among juveniles in state facilities in California, while Pyrooz and colleagues (2020) observed 82 percent correspondence among adults in Texas prisons. At first glance, this is a positive sign since prior research on this topic is based largely on administrative measures of gang affiliation, raising legitimate questions about the need for survey measures. Yet, these findings must be qualified by their focus on "ever" versus "never" measures of gang affiliation, as neither study distinguished former from current or non-gang members. It is possible that gang status, rather than a fixed indicator of gang affiliation, may uncover different results for the very reasons we have outlined above.

Still, it is worthwhile to consider concordance and discordance in gang status. The on-diagonals, where gang status corresponds in both datasets (concordance), should align with our theoretical hierarchy, where former gang members' recidivism risk is lower than current but higher than non-gang members. Off-diagonals (discordance), where gang status conflicts in the respective datasets, present interesting cases to potentially adjudicate between public/private information about gang status. For example, take a self-reported former gang member who is officially labeled as a current gang member. If recidivism risk for such a case is equivalent to concordant current gang members, it could imply official labeling mechanisms are at work. In contrast, if recidivism risk for such cases is equivalent to concordant former gang members, it could imply group process mechanisms are at work. We realize that without random assignment, quasi-experimentation, or the modeling of mediating mechanisms the results produced by this exercise should be viewed as an exploratory, which is why we do not offer hypotheses. Multiple measures offer more than mere triangulation; they

also offer the opportunity to identify and disentangle theoretical puzzles. Since criminologists rarely have access to both, it is important to take a first step that establishes a basic set of facts about concordance/discordance in the understanding of prisoner reentry.

The Current Study

This study examines the relationship between gang status and recidivism, testing the following research questions: (1) Do the conditional risks of recidivism differ by gang status? (2) Do the risks of recidivism differ by official and survey measures of gang status? (3) Do the risks of recidivism differ based on concordant and discordant gang statuses across data sources? We leverage novel data to address these questions: official and survey gang measures that both capture current, former, and non-gang status at the pre-release period and multiple measures of recidivism—arrest, conviction, and imprisonment— over a three-year post-release period. We use discrete-time survival analysis to test our research questions, a method that appreciates the realities of reentry, especially for people with current or former gang affiliations who might find their semblance of stability suddenly unraveled by directives from shotcallers in prison or parole officers conducting gang sweeps. Together, this allows us to examine prospectively the relevance of prison gang status to the reentry experience, focusing specifically on recidivism.

Methodology

Data

We use data from the LoneStar Project, or the Texas Study of Trajectories, Associations, and Reentry, which is representative of adult male prisoners exiting the largest release unit of the Texas prison system between April and December 2016. A disproportionate stratified random sampling design was used to generate a sample of 802 respondents, derived from a population of 15,644 prisoners. Prisoners who were classified as gang affiliated were oversampled by a factor of five to permit comparisons within gang populations, including by gang status.[2] Three waves of interview-based survey data were collected: pre-release baseline, one-month post-release, and 10-month post-release. Owing to our interests in examining the prospective relationship between prison gang status and post-release recidivism, we draw upon survey data solely from the baseline interview. Baseline data collection was facilitated through computer assisted personal interviewing by interviewers from a local university. Respondents were interviewed

around two days prior to their release from prison, and the mean duration of the interview was 110 minutes. Study participation rate (95%), item refusal/ do not know rates (<1%), and respondent evasiveness were statistically indistinguishable between gang and non-gang members. A complete description of baseline data collection procedures is provided by Mitchell et al. (2018). State and prisoner identification numbers were used to make data linkages with administrative data from state agencies. Three years of day-month-year recidivism data were secured for all respondents, providing post-release criminal history through December 2019. Administrative data sources also provided information about our respondents, allowing us to expand and enhance the covariates used to predict recidivism.

These data offer a number of advantages when examining the gang status-recidivism link. The novelty of these data is beneficial because they were collected while the custodial population remains near an all-time high (Bronson and Carson 2019) and gangs are believed to have fractured and become more decentralized (Gundur 2018). They also offer a stronger test by controlling for measures from a survey rather than official records (Dooley et al. 2014:267, 270). Our use of multiple measures of recidivism avoids the overreliance on a single measure that could reflect the behavior of criminal justice agencies (Huebner, Varano, and Bynum 2007:196–97).

Recidivism Variables

Researchers have noted that there is variation in recidivism based on how it is conceptualized, the type of population observed, and the length of follow-up (Maltz 1984). We measure recidivism in three different ways: official measures of arrest, conviction, and imprisonment. This allows us to capture recidivism at varying stages of immersion in the criminal justice system— from the decision to arrest to convict to imprison—minimizing the risk of representing recidivism based on a single discretionary stage (Durose, Cooper, and Snyder 2014; Huebner et al. 2007; Piquero, Schubert, and Brame 2014). We focus on recidivism in the first 36 months after release from prison, which provides enough exposure time to allow for variability in each of the outcomes, as the most representative research indicates that a large majority of former prisoners are rearrested within three years post-release (Alper, Durose, and Markman 2018).

Recidivism data were gathered from state-level administrative records from the Texas Departments of Public Safety (DPS, rearrest and reconviction) and Criminal Justice (TDJC, reincarceration). *Arrest* is whether a respondent was arrested by law enforcement for a new offense. *Conviction*

is an indicator of whether a respondent was found guilty of committing a new offense by Texas courts. *Imprisonment* is measured by whether respondents were incarcerated in a Texas state jail or prison,[3] which can include a new offense or a parole revocation.[4] Each of these measures are derived from the date in which the event occurred.

Our analysis, described below, is based on discrete-time survival. We compare the conditional risk of recidivism by gang status aggregated across monthly post-release periods. Released individuals were considered at risk for recidivism until the person-month they were rearrested, reconvicted, and/or reincarcerated, where respondents are recorded "survive" $(=0)$ until they "fail" $(=1)$. While the person N for our analyses is 802, the person-month $N \times M$ varies based on the outcome since we are examining time-to-failure. Each respondent can contribute as little as 1 month (i.e., recidivated immediately, where $N \times M = 802$) to as many as 36 months (i.e., right censored, where $N \times M = 28,872$). In our sample, 25% of respondents had been rearrested by 12 months, reconvicted by 17 months, and reincarcerated by 33 months post-release. At three-year mark, as reported in Table 1, 52.4% of respondents were rearrested, 35.7% were reconvicted, and 26.8% were reincarcerated. These descriptives demonstrate that more person-months of data are observed with deeper advancement into the criminal justice system.

Gang Status Variables

Researchers are typically forced to rely on official *or* survey data for their key measures, as they rarely have access to both. In contrast, we examine measures of gang status derived from official *and* survey data sources. Both data sources provide nuanced measures of gang status, allowing us to distinguish risk of recidivism by current, former, and non-gang status in prison.

Measures of gang status derived from survey data use self-nomination, a valid method common in gang research (Decker et al. 2014; Esbensen et al. 2001; Maxson et al. 2012; Pyrooz, Decker, and Owens 2020). Respondents were asked whether they had ever been in a street or a prison gang. Those who responded "yes" were later queried about their gang status, including whether they were in a gang while imprisoned and whether they had left the gang. Respondents who reported they had never been in a gang were recorded as *non-gang members*. Respondents who reported that they were in a gang while incarcerated but have since left were recorded as *former gang members*. Respondents who reported that they were in a gang while incarcerated and have not left were recorded as *current gang members*.

Table 1. Descriptive Statistics for the Study Variables (*N* = 802).

	Mean/%	SD	Min	Max
Dependent Variables				
Arrest (36 month)	52.37%		0	1
Conviction (36 month)	35.66%		0	1
Imprisonment (36 month)	26.81%		0	1
Independent Variables				
Survey Prison Gang Status				
Never Gang	56.86%		0	1
Current Gang	16.58%		0	1
Former Gang	26.56%		0	1
Official Gang Status				
Never Gang	54.11%		0	1
Current Gang	27.56%		0	1
Former Gang	14.71%		0	1
Control Variables				
Age	39.05	11.22	18.50	73.26
Race				
White	27.06%		0	1
Latino	36.53%		0	1
Black	26.68%		0	1
Other Race	9.72%		0	1
Education (years)	10.72	2.21	6	18
Married	14.60%		0	1
In a Relationship	16.71%		0	1
Pre-prison Employment	60.79%		0	1
Rural/Urban Continuum				
Urban (metro >1 million)	59.10%		0	1
Mid-Metro (metro 250k–1 million)	19.45%		0	1
Small Metro (metro <250k)	9.60%		0	1
Non-Metro Urban	4.24%		0	1
Rural/Small-Town (<20k)	7.61%		0	1
Street-Only Gang Member[b]	11.85%		0	1
Suspected Gang Member[ac]	3.62%		0	1
# Prior Arrests[a]	9.15	6.04	0	35
# Prison Spells[a]	1.99	1.24	1	9
Incarceration Duration (Years)[a]	4.91	5.64	0.04	34.98
Parole[a]	84.79%		0	1

Note: [a]Measure collected from official-report data. [b]Used in survey gang status models only. [c]Used in official gang status models only.
Abbreviations: (SD) = standard deviation; Min = minimum value; Max = maximum value.

These measures are coded dichotomously (focal category = 1, reference category = 0) and mutually exclusive, with non-gang members serving as the reference category in our multivariable analysis. Just over 40% of respondents reported a history of gang involvement while incarcerated—

16.6% identified as a current gang member and 26.6% identified as a former gang member. Two respondents refused to answer this question, both of whom were officially recorded as gang affiliates.

Measures of gang status derived from official data reflect prison system gang policies and procedures. Prison systems across the country typically rely on a summative point system to determine gang status based on identifiers or source item, and in the Texas prison system, are based on self-admission, tattoos, informants, mail, property, and graffiti (Hill 2009). Prisoners who meet three or more of these identifiers are classified as confirmed gang members, which for comparative purposes, we label *current gang members* (27.6%). Prisoners who satisfy none of these criteria lack a gang designation and, as such, we label them as *non-gang members* (54.1%). The final gang status is *former gang members* (14.7%), who underwent a step-down program (for those in segregation) or renouncement proceedings, both of which involve a formal investigation by the security threat group management office. These measures are coded dichotomously, are mutually exclusive, and non-gang members serve as the reference category.

Do survey and official measures of gang status overlap? Table 2 reports unweighted cross-tabulations. We observe a Cramer's *V* correlation of 0.51, which is considered strong (Sun, Pan, and Wang 2010). Still, only four of the six cells on the diagonal could be considered promising. Whether we use survey or official reports of non-gang status as our denominator, a corresponding non-gang status was found in the alternative data source 84 percent of the time (driving up the *V* correlation). Among the 118 respondents who were officially classified as former gang members, 80 percent self-reported a former gang status. Among the 132 self-reported current gang members, 63 percent were officially classified as current gang members. Correspondence rates fall when the denominators are survey former gang status and official current gang status. There are two possible sources of discordance: (1) the prison system overclassifies prisoners as current gang members and underclassifies them as former gang members, and/or (2) respondents under-identify as current gang members and over-identify as former gang members. Either way, these discordances could be important sources of variation when testing the gang status-recidivism link, a point we revisit in the results section.

Control Variables

We include a range of variables that are presumably exogenous of gang status in our analyses to reduce the likelihood of misspecification. All

Table 2. Cross-Tabulations of Official and Survey Measures of Gang Status, Unweighted ($N = 802$).

			Survey Measure of Gang Status							
			Non-Gang (N = 461)		Col. %	Former Gang (N = 209)		Col. %	Current Gang (N = 132)	Col. %
Official Measure of Gang Status	Non-Gang (N = 463)	Row %	83.8%			7.1%			9.1%	
			N = 388			N = 33			N = 42	
					84.2%			15.8%		31.8%
	Former Gang (N = 118)	Row %	14.4%			79.7%			5.9%	
			N = 17			N = 94			N = 7	
					3.7%			26.1%		5.3%
	Current Gang (N = 221)	Row %	25.3%			37.1%			37.6%	
			N = 56			N = 82			N = 83	
					12.2%			39.2%		62.9%

Note: Values reported in the cells are unweighted. In all instances, the numerator used to compute the percentages is derived from the N found in the cell. The denominator to compute the percentages reported in the rows is derived from the N of the gang status category for official measures. The denominator to compute the percentages reported in the columns is derived from the N of the gang status category for survey measures.

measures are survey-based unless stated otherwise. Only five of the 14,436 cells for the non-gang status control variables were missing; nonetheless all of our regression results are based on 10 pooled estimates derived from multiple imputation with chained equations.

Individual characteristics and pre-prison experiences can alter the likelihood of recidivism. Administrative records of birthdate were used to generate *age* in years at the time of the baseline interview. The mean age in our sample was 39.1 years old (SD = 11.2). Mutually exclusive measures of *Latino* (36.5%), *Black* (26.7%), and *Other* (9.7%) account for race/ethnicity, with *White* (27.1%) serving as the reference group. Those reporting two or more race/ethnicity categories were included in the "other" category. Romantic partnerships are related to desistance from crime (Gottlieb and Sugie 2019; Sampson and Laub 2016; Skardhamar et al. 2015), and as such, we include measures for *married* (14.6%) and *in a relationship* (16.7%), where non-partnered respondents serve as the

reference group. Community context is important for reentry. We account for the non-random distribution of gang activity and policing practices (Egley et al. 2014; Hyland and Davis 2019) by including measures of the urbanity of pre-prison county of residence using the USDA rural/urban area continuum: *major metropolitan* with populations exceeding 1 million persons (59.1%), *mid-major metropolitan* with populations between 250,000 and 999,999 persons (19.5%), *small metropolitan* with populations below 250,000 persons (9.6%), *non-metropolitan* with populations over 20,000 persons (4.2%%), and *rural/small-town* areas with populations below 20,000 persons (7.6%).

Human capital in the form of labor market experience and educational credentials has important implications for recidivism risk (Berg and Huebner 2011; Denver, Siwach, and Bushway 2017; Visher, Debus-Sherrill, and Yahner 2011). *Employment* is a binary indicator of whether the respondent was employed during the six months prior to incarceration, including self-employment and untaxed under-the-table employment (1 = employed, 60.8%). While most research has concentrated on the benefits of obtaining employment post-release, former prisoners with little work experience are also less likely to gain employment upon release (Berg and Huebner 2011; Visher et al. 2011). *Educational attainment* is a self-reported measure of the last grade of school completed prior to entering prison. The seven response categories provided were rescaled to years of educational attainment (e.g., high school graduate = 12 years). Reflecting the educational achievement of incarcerated persons, on average, the sample fell short of high school completion ($M = 10.7$, SD = 2.21).

There is a well-documented relationship between past and future criminality (Nagin and Paternoster 2000), leading us to account for number of *prior arrests* ($M = 9.2$, SD = 6.0) based on official records, which we top coded to the 99th percentile. A measure of *prison spells* is included, which captures the number of times a respondent was admitted to a state jail/prison ($M = 2.0$; SD = 1.2). Prison experiences are related to recidivism. Using prison system data, we include a measure of *incarceration duration*, which represents the number of years a respondent was incarcerated for their current commitment ($M = 4.9$, SD = 5.6). Enhanced monitoring by criminal justice authorities post-release can impact the risk of recidivism (Grattet, Lin, and Petersilia 2011; Grattet and Lin 2016; Sirakaya 2006). We account for the possible influences of *parole supervision* by differentiating respondents who were directly discharged (=0, 15.2%) and those released with parole conditions (=1, 84.8%), the latter of which is common with prison releases (Hughes and Wilson 2002).

Finally, we control for historical and/or tenuous gang associations tangentially related to our theoretical interests. In the official data models, respondents who meet more than zero but fewer than three gang identifiers are classified as *suspected gang members* (3.62%), which we include in models examining official gang status. In the survey data models, those with distant street gang ties (stretching back, on average, over a decade prior to data collection) that were not imported into prison are coded as *street-only gang members* (11.85%), which we include in the models examining survey gang status. Controlling for these historical/tenuous associations avoids conflating them with prisoners who have never been in a gang or prisoners who are current/former gang members. Non-gang members continue to serve as the reference category.

Analytic Strategy

We track recidivism among the 802 individuals in our sample in the three years following their release from prison. Specifically, we use survival curves and discrete-time survival analysis to identify the relationship between survey and official measures of gang status and three types of recidivism. We begin by introducing survival curves to visually detail the relationship between gang status and recidivism. These curves capture the naïve relationship between gang status and recidivism, as they do not include any control variables. For a comparison to prior research, which commonly examines the cumulative risk of recidivism, we supplement our results in Online Appendix A by reporting naïve differences in the odds of recidivism among current, former, and non-gang members at 6, 12, 18, 24, 30, and 36 months of reentry.

While survival curves provide us clues into the gang status-recidivism link, our core results are derived from a series of multivariable discrete-time survival models. The utility of survival analysis is that it permits the examination of the conditional risk of recidivism across the pooled time interval, rather than solely examining cumulative risk at the (arbitrary) cutoff point of data collection typically used in logistic regression (Allison 1982). Using a single cutoff point to make recidivism calculations may be misleading as cumulative models assume there is continuity in the failure process, an assumption that does not always hold (Maltz 1984:72). There are also advantages for using discrete-time survival analysis over continuous-time approaches such as Cox proportional hazard modeling, a method that is common in recidivism research. Indeed, a discrete-time approach allows for the risk of recidivism to vary over time and relaxes the assumption that the

effect of gang status on recidivism is constant over time (Singer and Willett 1993). While our data are precise enough to estimate continuous-time models (i.e., day-month-year) and examine instantaneous change in the rate of recidivism, we fix post-release observations to months and examine the conditional risk of recidivism. Although not our primary focus, and like others (Kurlychek, Brame, and Bushway 2006), we see substantive and/or practical value for criminologists to understand when discrete-time risks between groups like current, former, and non-gang members diverge, plateau, or intersect, all of which point to nonproportional risk across time.

When determining a discrete-time hazard function it is important to recognize the inherent conditionality implied by these models. Individuals can be at risk of experiencing recidivism during a given discrete-time period only if they have not experienced the recidivism event in a previous time period. Likewise, once individuals experience the recidivism event (e.g., rearrest) they are analytically restricted from experiencing the specific recidivism event in a later person-month. The baseline discrete-time hazard function, also known as the conditional probability density function, is represented by the following equation:

$$h_j = \Pr[T = j | T \geq j] \qquad (1)$$

where h_j represents the conditional probability that a randomly selected individual experiences rearrest, reconviction, or reincarceration, T, during the discrete-time interval, j, conditional that the individual has not experienced the recidivism event prior to j. As h_j represents the population probability as a function of time period j, its value always lies between 0 and 1.

We expand equation (1) to test the hypothesis that the risk of recidivism differs by gang status (Singer and Willett 1993). The reparameterization includes a nominal variable, Z_1, representing that an individual self-reported or was officially classified as a former or current gang member, where the reference group is non-gang status. Thus, equation (1) becomes:

$$h_{ij} = \Pr\{T_i = j | T_i \geq j, \ Z_{1ij} = z_{1ij}, \ Z_{2ij} = z_{2ij}, \ \ldots \ Z_{Pij} = z_{Pij}\} \qquad (2)$$

where h_{ij} now represents the conditional probability that individual, i, who is distinguished by his gang status, z_{1ij}, experiences the specified recidivism event, T, during the discrete-time interval, j, given that he has not yet experienced the event. Equation (2) also accounts for observed heterogeneity by incorporating a wide variety of P predictors, Z_p ($p = 1, 2, \ldots, P$), each of which characterizes the members of the sample on a specific dimension of sociodemographic and criminal history domains, which recognizes that those

who recidivate are likely different than those who do not, or do so at a different pace over the observation period.

Results

Recidivism Survival Curves By Gang Status

Figure 1 displays a series of survival curves differentiated by the source of data used to measure gang status and the three measures of recidivism. These curves describe our raw data and are generated by plotting survival functions by gang status; that is, the proportion of current, former, and non-gang respondents who *have not* recidivated by a given month.

The likelihood of recidivism is not equal by gang status. The survival curves offer a visual representation of these differences. Current, former, and non-gang members follow different pathways of "survival" after release from prison. The decline in survival is sharpest among current gang members, especially when compared to non-gang members. The survival curve for former gang members is situated between current and non-gang members, consistent with our expectation. Overall, current gang members maintain the greatest risk of recidivism, non-gang members the lowest risk, while former gang members fall in between. This conclusion is reached regardless of the data source used to measure gang status, the type of recidivism studied, and the exposure period for recidivism. There is some intersection in trajectories in the earlier months; however, differences in recidivism trajectories diverge stably in months after the first year. If we are to focus on recidivism at the three-year mark, self-reported non-gang status has the lowest risk (arrest: 45.2%, conviction: 25.1%, and incarceration: 21.4%) and current gang status is associated with the greatest risk (68.4%, 39.8%, and 34.8%), while former gang status falls in the middle (57.3%, 33.6%, and 29.7%). Online Appendix A provides results examining cumulative risk of recidivism at 6, 12, 18, 24, 30, and 36 months post-release. Whereas statistical differences in the risk of arrest by gang status emerged early and remained throughout, differences in the risk of incarceration by gang status exhibited delayed emergence.

Survival trajectories ebb and flow across the recidivism outcomes, and the patterns are not consistent across gang status. For example, we observe that the arrest and conviction survival curves for self-reported current gang members generally break away from the gang statuses early in the first year and continue to drop steadily throughout the first 18 months, eventually plateauing in the third year. Yet, for incarceration, the survival curves for
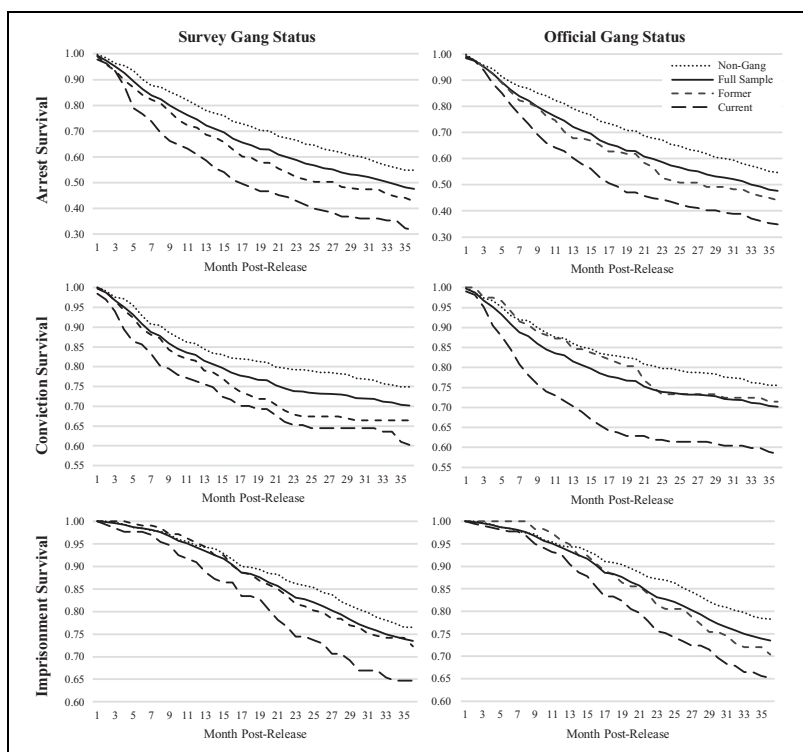
Figure 1. Survival curves by gang status and recidivism type.
Note: Survival indicates the proportion of respondents who had *not* experienced each of the specified recidivism events at any given time.

current gang members do not break away from the other statuses nearly as quickly. The fact that the rate of change is not consistent across time requires us to draw on an analytic strategy that is capable of summarizing these patterns of recidivism while also not imposing strong assumptions about the data, and for that we turn to discrete-time survival analysis.[5]

Discrete-time Conditional Risk of Recidivism by Gang Status

Table 3 contains the results generated from a series of multivariable discrete-time survival analysis models. Each panel represents a recidivism outcome. The models labeled "a" use a measure of gang status derived from

Table 3. Multivariable Discrete-Time Hazard Models Relating Survey and Official Measures of Gang Status to Recidivism During the First 36 Months Post-Release from Prison.[a]

	Survey			Official		
	Model 1a (N × T = 19,889)			Model 1b (N × T = 19,931)		
Panel A: Arrest	b	(SE)	Odds Ratio	b	(SE)	Odds Ratio
Gang Status						
Current Gang	0.49	(0.15)	1.63*	0.41	(0.12)	1.51*
Former Gang	0.39	(0.13)	1.48*	0.40	(0.16)	1.49*
Constant	−5.32	(0.56)	0.00	−5.15	(0.55)	0.01
	Model 2a (N × T = 21,838)			Model 2b (N × T = 21, 881)		
Panel B: Conviction	b	(SE)	Odds Ratio	b	(SE)	Odds Ratio
Gang Status						
Current Gang	0.24	(0.20)	1.28	0.43[a]	(0.16)	1.54*
Former Gang	0.20	(0.18)	1.23	0.06	(0.22)	1.06
Constant	−6.29	(0.87)	0.00	−6.28	(0.86)	0.00
	Model 3a (N × T = 24,559)			Model 3b (N × T = 24,629)		
Panel C: Imprisonment	b	(SE)	Odds Ratio	b	(SE)	Odds Ratio
Gang Status						
Current Gang	0.40	(0.21)	1.49[†]	0.47	(0.17)	1.59*
Former Gang	0.17	(0.19)	1.19	0.27	(0.22)	1.31
Constant	−5.14	(0.72)	0.01	−5.02	(0.71)	0.01

Note: Person N = 800 (survey report); Person N = 802 (official report); All estimates are multiply imputed with 10 datasets. All models include control variables (see Appendices B, C, and D for complete results). [a]Current gang coefficient differs from former gang at $p < 0.10$.
Abbreviations: b = unstandardized coefficient; (SE) = standard error.
[†]$p < 0.10$, *$p < 0.05$.

interview-based surveys, while the "b" models rely on a measure of gang status derived from prison administrative data. The control variables remain the same save for street-only and suspected gang status. We report unstandardized coefficients and odds ratios for the gang status variables, the latter of which represents the relative odds of recidivism in any given time period. Full models can be found in Online Appendices B, C, and D. Our analytic sample sizes change based on differences in survival by recidivism type. Together, these results determine if the risk of recidivating during the 36 months of reentry is equal by gang status.[6]

Starting with arrest, we found universal differences in the risk of recidivism by gang status. Using the survey measure, Model 1a, current gang status was associated with arrest. Relative to non-gang members, current gang

members maintained a 1.63 greater risk of arrest after release from prison (95% confidence interval [CI] $= 1.21–2.20$). Former gang members were also more likely to be arrested after release from prison than non-gang members, and the risk was 1.48 times greater (CI $= 1.14–1.93$). We do not find, however, differences in the risk of arrest between current and former gang members ($t = 0.66$, $p = 0.51$). Using the official measure, Model 1b, we found that both current and former gang status maintain risks of recidivism that are 1.50 times greater relative to those who were not classified as gang members (CI $= 1.19–1.93$, CI $= 1.08–2.03$). These results are further notable in that the coefficients for current and former gang members were also equal. Current and former gang status coefficients were statistically indistinguishable across models, although we urge caution in such comparisons in generalized linear models (Breen, Karlson, and Holm 2018; Mood 2010).

When turning to conviction, we no longer find evidence that the risk of recidivism was greater for current or former gang members based on our survey measure (Model 2a). In contrast, the results using the official measure of gang status indicate that the risk of conviction was greater among reentering populations if they were classified as a current, but not former, gang member (Model 2b). Current gang members were 1.54 times (CI $= 1.13–2.10$) more likely to be convicted than non-gang members within three years of release from prison. In this instance, the coefficients for official current and former gang status were different statistically using one-tailed significance level ($t = -1.67$, $p = 0.095$), while there are again no differences in the coefficients across data sources used to measure gang status.

Our last set of findings pertain to imprisonment. In terms of our survey measure, reported in Model 3a, we find that current gang members were 1.49 times more likely to wind up reincarcerated than non-gang members using one-tailed significance level ($p = 0.059$), consistent with our expectations (CI $= 0.98–2.25$). Former gang members, in contrast, were no more likely to end up reincarcerated than non-gang members. Our official measure, reported in Model 3b, reveals a similar story. Current gang status is related to incarceration, with an odds ratio of 1.59 ($p < 0.05$, CI $= 1.14–2.24$), while former gang status is not. No coefficient differed statistically within or between the two models.

The story that emerges from the survival models is more nuanced than what we observed in the naïve results. Elements of measurement and recidivism type both appear to play a role in the relationship between gang status and recidivism. Current gang status using an official measure was consistently related to recidivism, while the results were slightly noisier with the survey measure. With the exception of arrest, former gang

members were just as likely to recidivate as non-gang members, a finding replicated with both official and survey gang measures. Overall, these findings offer much, but not complete, support for our hypotheses on the gang status-recidivism link.

Concordant/Discordant Gang Status and Recidivism

Can examining concordance and discordance in gang status across data sources reveal additional subtleties on the relationship between gang status and recidivism? Labels have consequences, especially in prison. If prisoners are classified as gang members, accruing the drawbacks (e.g., scrutiny, solitary confinement), but do not self-report as gang members, therefore not accruing potential benefits (e.g., protection, access to contraband), there may be consequences to the discordance. Table 4 reports adjusted predicted probabilities of cumulative risk (multiplied by 100 to represent percentages) at the 36 month-mark. The nine possible configurations of gang status are rank-ordered by the risk of recidivism across recidivism types, where bolded gang statuses indicate on-diagonals, or concordance, and non-bolded gang statuses indicate off-diagonals, or discordance.

We find additional support for the theoretical hierarchy in concordant gang status, where current (survey)/current (official) gang status maintained the highest probability across all recidivism types, non-gang/non-gang status the lowest, and former/former gang status in the middle. Similar to our discrete-time results, while current/current and non-gang/non-gang were consistently different statistically, former/former was indistinguishable statistically from both groups. In terms of discordance, the results seem to privilege the impact of official measures of gang status over survey measures. Indeed, official measures of current gang status were ranked 1, 2, and 3, whereas survey measures were ranked 1, 6, and 7. Outside of configuration six, current (survey)/non-gang (official), the theoretical hierarchy almost reproduced itself perfectly for the official measure, but was more of a mixed bag for the survey measure.

Discussion

Successfully transitioning and reintegrating into society after prolonged imprisonment is challenging and comprised of unexpected obstacles small and large. In proposing their longitudinal framework, Visher and Travis (2003) held that the social environment is one of the core factors influencing multiple stages of the reentry process. While scholars have focused on

Table 4. Rank-Ordering of Predicted Recidivism at 36 Months Post-Release by Nine Configurations of Survey and Official Gang Status.

	Gang Status								
	Survey Measure	Official Measure	N	Arrested	Sig. Diff.	Convicted	Sig. Diff.	Incarcerated	Sig. Diff.
1	**Current**	**Current**	83	62.3%	[9]	44.5%	[9]	35.4%	[9]
2	Non-gang	Current	51	51.4%		45.3%		34.3%	
3	Former	Current	85	57.6%		37.2%		28.3%	
4	Non-Gang	Former	17	51.7%		36.6%		31.8%	
5	**Former**	**Former**	94	58.8%		34.5%		27.8%	
6	Current	Non-Gang	43	63.2%	[9]	31.9%		27.0%	
7	Current	Former	7	57.3%		30.0%		30.6%	
8	Former	Non-Gang	34	51.1%		34.9%		19.4%	
9	**Non-Gang**	**Non-Gang**	386	46.2%	[1, 6]	32.6%	[1]	23.5%	[1]

Note: The values reported in the cells are the predicted probabilities derived from a multivariable logistic regression model at 36 months post-release adjusted for all control variables. The mean rank-ordering constitutes the average ranking—from most to least risk—across the three measures of recidivism.
Abbreviation: Sig. Diff. = statistically significant difference (p < 0.05) from the numbered configuration.

community and family, our contention from the outset was that the current inventory of explanations for prisoner reentry experiences has remained mostly agnostic to social groups and networks—ranging from peer to religious to extremist—found inside and outside of prisons. We focused on one particularly influential group found in both settings: gangs. Precepts established in the street gang literature were applied to the context of prisoner reentry, including the enhancement effect of gang membership, continuity and change in gang membership, and differences in measurement across data sources. Our survival curves and discrete-time survival analysis revealed much support for the application of these precepts to the relationship between prison gang status and recidivism.

Implications for Research, Practice, and Policy

The theoretical hierarchy we proposed held that the highest risk of recidivism would be observed among current gang members, the lowest risk among non-gang members, and former gang members falling in between. Our survival curves supported this contention, revealing that the cumulative risks of recidivism diverged increasingly by gang status over time—our discrete-time survival analysis provided further confirmation of these

differences in recidivism. Had we ignored former gang status, it would have deflated the current gang effect or inflated the non-gang effect (see Online Appendix E for status-pooled estimates), both of which would distort the reality of the gang-recidivism relationship. This is important because despite constituting a large (and certainly influential) minority of the prison population, a nontrivial proportion of prisoners who join gangs also leave them. And there is an abundance of evidence pointing to reduced offending and improvements in attitudes, experiences, and routines upon leaving gangs. Thus, distinguishing gang affiliates by their current or former status offers theoretical and empirical value to the study of prisoner reentry.

The evidence we provide does not implicate gang status for all recidivism outcomes equally. Former gang status is related to elevated risk of arrest, but unrelated to conviction and imprisonment, a finding confirmed by both measures of gang status. While we control for urbanity owing to its relationship with gang activity and police practices, unobserved factors in the community could explain these divergent findings. It is possible that former gang members maintain residual ties to the gang (Pyrooz, Decker, and Webb 2014). It is also possible that former gang members have trouble shaking the stigma of gang affiliation (Lee and Bubolz 2020). Perhaps heavy-handed police responses to gangs, which focus on gang set spaces and associates, could yield arrests that do not lead to conviction or imprisonment. The official measure of gang status was related to all recidivism outcomes, while the survey measure of gang status was related only to arrest and imprisonment. We do not find the null relationship between the survey measure of current status and conviction to undermine our core conclusions. We do believe that such a result illustrates the value of multiple measures, which leads to our next point.

What did we learn from examining concordant/discordant gang status by data source? Our main finding is that official measures of current gang status, which we viewed as "public" information, appear to be better determinants of recidivism than survey measures, which we viewed as "private" information. Of the nine configurations, the three groups with the greatest recidivism risk were classified as current gang members by the prison system. In contrast, respondents who were self-reported current members, but were not recorded as such by the prison system, maintained among the lowest risk of recidivism. We should be mindful that few of the differences across the nine configurations were statistically significant and the effect sizes not large. Still, the differences in recidivism for the discordant current gang members are telling. On the one hand, the prison system's procedure for classifying gang members captures individuals who are more likely to offend upon release. This could be one "distinctive competence" (Wilson

1989:92) of an agency that devotes substantial resources to identifying and managing gangs. On the other hand, and more consistent with theory, this observation could reflect the behavior of a system that labels and responds to gangs inside and outside of prisons. The state maintains policies outlining the enhanced monitoring of gang members on parole and interagency collaborations targeting gangs, which could result in elevated recidivism. For example, the Texas parole division states that for confirmed (but not suspect or ex) gang members "staff shall take steps to ensure increased surveillance of the offender . . . " (Texas Department of Criminal Justice 2012), which is also used by the Texas Board of Pardons and Paroles in their risk assessment (https://www.tdcj.texas.gov/bpp/parole_guidelines/parole_guidelines. html). There are also several anti-gang task forces—e.g., Texas Anti-Gang Centers, Texas Violent Gang Task Force, and Texas Gang Investigators Association—that may facilitate interagency collaboration and thus sharing of gang status information. While these results are not the final word, it is evident from this exercise that multiple measures of our key explanatory and outcome variables add breadth and depth to criminological inquiry (Sullivan and McGloin 2014).

Finding differences in recidivism by gang status has important implications for policy and practice. First, there is a need to promote disengagement from gangs in prison, which would allow people to exit prison without the additional baggage that comes with gang affiliation. In-prison services designed to facilitate disengagement, such as Texas's Gang Renouncement and Disassociation program, are perhaps the ideal approach (Burman 2012). But this is not to say that "reach-in" (e.g., Cook et al. 2015) or reentry (e.g., Spooner et al. 2017) services are negligible. Indeed, it would be preferential to coordinate in-prison, reach-in, and post-release services to jointly assist in reintegration among populations at high-risk of recidivism, such as gang members. Second, institutional and community responses to gangs must be sensitive to gang status. Current and former gang members are not one in the same. Criminal justice responses that ignore this variation may ultimately backfire. The fact that the Texas parole division distinguishes "confirmed" from other gang statuses is encouraging in this regard; however, it is possible that criminal justice agents, such as gang task forces, are skeptical of suspected or "ex" gang status and thus exploit the signs and signals of the life in the gang in their practices. Finally, prison systems typically aim to manage, not rehabilitate, gang members. Most prisons do not have gang interventions in place; among those that do, they are typically yoked to solitary confinement step-down programs. Leaving a gang is more challenging in prison than on the street, although it occurs with more

regularity than initially believed. There is an urgent need to develop and evaluate gang interventions in prison (Griffin 2007), lest housing segregation and transfers continue to be viewed as the solution.

Future Directions

Moving forward, there are many important issues that must be addressed, but understanding the mechanisms linking prison gang affiliation to recidivism is the top priority. Our rationale for anticipating this relationship drew primarily on Thornberry and colleagues' (1993) enhancement model without revealing precisely why such a relationship exists. What is it about the group context that increases recidivism? Our view is that there are mechanisms operating interactively and simultaneously before, during, and after imprisonment that give rise to this relationship. We conceive of these mechanisms as follows:

- Liabilities refer to enhanced personal deficits of gang members and group stigmatization assigned to gangs. Weakened cultural, human, and social capital could be the result of selection into gangs, the product of the nature of the group context, and/or policies and practices such as loss of programming or solitary confinement. Official responses result in durable labels that are consequential for enhanced monitoring.
- Obligations refer to micro-level processes found in and shaped by the group context. These processes, which include group identification, normative orientations, opportunity structures, routine activities, and status concerns, impose pressures on individuals who are embedded in the gang to engage in rule- or law-violating behaviors.

Liabilities and obligations are unique to and/or enhanced among gang populations, and are not confined to the institutional environment. Whereas a gang is defined by criminality, a gang member is not; thus, liabilities and obligations should operate as the intervening factors leading to distinctive patterns of recidivism. These propositions need to be tested and the mechanisms teased apart to determine what matters most in explaining the gang status-recidivism link. Ideally, official and survey measures of gang status and post-release offending would be used, given the centrality of the behavior of the criminal justice system to this dynamic. Our results offer some support to these contentions, since it is expected that leaving a gang reduces the liability of the gang and attenuates obligations to the gangs. For comparison, it required nearly two decades of empirical research—

leveraging longitudinal data collection and methodological advances—before researchers began to address this question on adolescent street gangs (Melde and Esbensen 2011). In the end, identifying the mechanisms producing the gang status-recidivism link could lead to responses that reduce or eliminate this relationship altogether.

It would be wise to extend this line of questioning in additional ways. Conducting this research in additional prison systems could ease concerns about external validity. The literature on this topic is confined to a handful of prison systems, mostly west of the Mississippi. Our study site maintains a unique history of prison gangs, and there is variation in gang dynamics across prison systems (Camp and Camp 1985; Pyrooz, Gartner, and Smith 2017). Since we did not assess invariances, there is the possibility that gang status may operate differently by gang organization, structure, race, alliances/rivalries, and street/prison symbioses. Unpacking heterogeneous consequences is worthy of further investigation. Little is known about how gang status influences women in prison and their reentry experiences. Gangs lack the same influence in women's prisons as they do men's (Belknap and Bowers 2016), but this remains an important topic to understand, not least to contrast street gang precepts.

Conclusion

With prison populations remaining near record highs, and mass reentry resulting in large populations returning to the community, there is a continued need to understand prisoner reentry experiences. This need cuts across civic, economic, family, and social domains, but criminal justice is often an elevated priority due to high rates of recidivism among former prisoners. We argued and demonstrated empirically that a large group of prisoners has, for the most part, remained outside the purview of research on prisoner reentry despite their clear relevance. The 213,000 prisoners who are affiliated with gangs in prison throughout the United States need to be better integrated into the research, practice, and policy agenda in institutional and community corrections. Focusing on social groups and networks inside and outside of prison is one way to accomplish this goal.

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Notes

1. Much of the literature concentrates on recidivism among juveniles (Archwamety and Katsiyannis 1998; Benda and Tollett 1999; Benda, Corwyn, and Toombs 2001; Chu et al. 2012; Emeka and Sorensen 2009; Kennedy et al. 2019; Lattimore, Visher, and Linster 1995; Lattimore et al. 2004; Tollett and Benda 1999; Trulson et al. 2005, 2011, 2012; Visher, Lattimore, and Linster 1991; Wolff et al. 2020), although there are also studies evaluating the effectiveness of gang-targeted intervention programs in county jails (Braga, Piehl, and Hureau 2009) and juvenile institutions (Spooner et al. 2017). Developmental differences between youth in juvenile institutions and adults in prison systems (Steinberg 2009) and distinctions in purpose and regimen, as well as the gangs, in the respective systems (Kupchik 2007; Maxson 2012) arguably restricts generalizing findings from adolescent samples to recidivism among adults. Studies outside of the United States also point to differences in recidivism among gang members (Chu et al. 2012; Di Placido et al. 2006; Guay 2012; Liu 1999), and criminal justice practices and policies diverge as well. Nonetheless, consistent with our argument, the precepts based on research anticipate a gang/recidivism link.

2. Sampling weights are not used in these analyses. As the weights are determined by gang status, and we observe gang status in our model, the variation in the sampling rate is exogenous, and unweighted estimation is applicable (Solon, Haider, and Wooldridge 2015:310–11). Including sample weights can lead to well-known issues in efficiency (Angrist and Pischke 2009), and given our gang status comparisons, using unweighted estimates reduces our sampling variance and thus increases the precision of our estimates. Computations of power based on year 3 survival probabilities ($\alpha = .05$, two-tailed) reveal marked reduction in

power when weights are applied. For example, the power to detect differences in arrest (the largest effect size) drop for current gang survey (from .99 to .86) and official (from .99 to .76) differences and for former gang survey (from .99 to .49) and official (from .97 to .53) differences (for an important discussion of statistical power in criminological research, see: Barnes et al. 2019).

3. State jail stays result from lower degree felonies (e.g., unauthorized use of a motor vehicle, possession of <1 gram of a controlled substance) and are for a duration of six months to two years, whereas prison stays result from higher degree (i.e., third–first degree and capital) felonies and exceed two years of imprisonment.

4. Revocation is inferred based on whether a reincarceration date existed in the absence of an arrest or conviction. Since we lack data to directly measure revocations, we do not model it separately in this study.

5. Cox proportional hazard models assume that the rate of change is constant across groups (Singer and Willett 1993). In addition to the survival curves to show that rate of recidivism was inconsistent across time, we conducted analysis to determine how often the probability of recidivism was unequal across each individual month. We found that the probability of recidivism is unequal across 11%, 18%, and 9% of the 630 inter-monthly correlations for arrest, conviction, and incarceration, respectively, in the full sample.

6. The trends found in our survival curves led us to explore the possibility that our models were better suited as nonproportional hazard models. We included an interaction term to permit time dependencies in the effect of gang status. Using BIC statistics for model comparisons, we found that in all circumstances the proportional discrete-time hazard models were better fitting models. The vast majority of coefficients for the gang status/time interactions were nonsignificant, but this is not surprising given that the sample size for such an analysis was modest (although large for a longitudinal study of prisoner reentry), especially as the sample size reduces with each month of survival (and especially for the weighted gang status measures). These findings suggest it is appropriate to fit our models as proportional hazard models as we do not violate the proportionate-odds assumption (Singer and Willett, 1993).

Supplemental Material

Supplemental material for this article is available online.

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