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Place After Prison: Neighborhood Attainment and Attachment During Reentry

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ABSTRACT

Over 600,000 people leave prison and become residents of neighborhoods across the United States annually. Using a longitudinal survey of people returning to Greater Boston, this study examines disparities in neighborhood attainment after prison. Accounting for levels of pre-prison neighborhood disadvantage, black and Hispanic respondents moved into significantly more disadvantaged areas than whites. Neighborhood residence was not attained by all: a quarter of respondents left prison and entered formal institutional settings or lived in extreme social marginality throughout Boston. Neighborhood attachment was patterned by criminal justice involvement and experiences of material hardship in the year after prison. Findings indicate housing insecurity, re-incarceration, and profound racial disparities in neighborhood context explain the ecological structure of social inequality in urban neighborhoods in an era of mass incarceration.

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In an era of mass incarceration and persistent racial inequality, neighborhoods are implicated in the transmission of deep social inequality. While many conditions of socio-economic disadvantage, including joblessness, poverty, and violence, show significant and enduring variation across urban neighborhoods (Sharkey, 2013), concentrated prisoner reentry must be considered within the spatial dimension of social inequality (Center for Spatial Research, 2007; Clear, 2007; Sampson, 2012; Travis, Western, & Redburn, 2014, Chapter 10). Prisoner reentry and high rates of incarceration form a population dynamic experienced in the most disadvantaged neighborhoods in the United States (Clear, 2007). Scholars contend that “concentrated incarceration” – the revolving door of prison admissions and releases – poses challenges to residential stability, trust in the law, social cohesion, and indeed, recidivism among those formerly incarcerated (Clear, 2007; Chamberlain & Wallace, 2015; Chamberlain, 2016; Kubrin & Stewart, 2006; Travis, 2005).

Place is inherited, much like social class, and one’s neighborhood influences a variety of individual life chances and plays a significant role in the intergenerational transmission of social and economic status (Sampson, 2012; Sharkey, 2013). This is especially true for people returning from prison – whose neighborhood context is among the myriad challenges to social integration (Harding, Morenoff, & Herbert, 2013; Western et al., 2015). The Urban Institute’s *Returning Home: Understanding the Challenges of Prisoner Reentry* found in Chicago that respondents and community residents described their neighborhoods as providing few sources of social support and limited employment opportunities (LaVigne, Visher, & Castro, 2004). Nevertheless, neighborhoods are spatial contexts to which people are socially connected and derive support and resources.¹ Incarceration is fundamentally segregative by removing people from places.

When a period of incarceration ends, formerly incarcerated people must reestablish their relationships to neighborhoods and communities. For some who move into group quarters such as boarding houses or homeless shelters immediately after release from prison, neighborhood attainment is structured by the location and availability of institutional housing. Others live in the neighborhoods of others – relying on housing arrangements with siblings, parents, or friends, rather than obtaining their own residence.

How individuals become neighborhood residents after a period of incarceration is not well understood. What is currently known about neighborhood attainment after prison chiefly comes from examining data from traditional household surveys (Massoglia, Firebaugh, & Warner, 2012; Warner, 2015; 2016) or administrative records (Harding et al., 2013; Lee, Harding, & Morenoff, 2017). While this work provides key insights into patterns of reentry in neighborhoods, traditional household surveys are not designed to capture hard-to-reach populations, and both forms of data miss invaluable detail on the residential complexity of highly vulnerable and residentially unstable populations. A second limitation of prior research is the treatment of residential data. Leaving neighborhoods due to re-incarceration is typically a censoring point in the design of prior studies, and significant attrition in prior observational studies (see Western et al., 2016) poses challenges for discerning the different reasons for missing address or neighborhood data. Re-incarceration and missing address data are in fact substantive and theoretically significant conditions of neighborhood attachment and attainment for formerly incarcerated people and other hard-to-reach populations.

To contribute to prior research on neighborhood attainment in the period immediately after leaving prison, this study uses data from the Boston Reentry Study (BRS). The BRS is a

longitudinal survey of 122 men and women who were incarcerated in Massachusetts state prisons and planned to return to the Boston area (Western et al., 2015). Through a series of in-depth survey interviews over a period of 12 months, the study collected information on the employment, housing, kin, and health – among other topics – of men and women recently released from Massachusetts prisons. Because prior observational studies of reentry suffered from significant attrition (Western et al., 2016), among the BRS’s chief goals was to retain this hard-to-reach population during the 12-month follow up period. Thus, a key innovation of this paper is a rich account of the complicated residential experiences of people leaving prison, while leveraging a study retention rate of over 91% (Western et al., 2016).

In examining the neighborhoods of respondents in the Boston Reentry Study, this paper identifies two trajectories characterizing relationships to place after prison. First, for a nontrivial number of people in the Boston Reentry Study, neighborhood attachment was weak, particularly for older respondents with mental illness or histories of addiction, and for those who had new charges after leaving prison. A second trajectory – those who lived in neighborhoods – shows after controlling for pre-prison neighborhood disadvantage, black and Hispanic respondents lived in the greatest levels of disadvantage, and this was patterned by respondent housing arrangements. Many within the Boston Reentry Study faced limited choices for shelter and housing that governed their decision to move to a particular neighborhood, and indeed, if they became neighborhood residents at all. Using observational data collected with a very high rate of retention, this study offers a new and unique portrait of the heterogeneous ways highly disadvantaged individuals become neighborhood residents. The paper provides a theoretical discussion of neighborhood attainment among highly disadvantaged and socially marginal

groups who do not form social attachments to place for a variety of reasons, including continued formal custody, extreme material hardship, and housing insecurity. In short, socially marginal living arrangements place formerly incarcerated people at the margins of urban space.

NEIGHBORHOOD INEQUALITY IN AN ERA OF MASS INCARCERATION

Since 2004, over 600,000 people have been released to communities from federal and state prisons annually, a near doubling since the mid-1990s (Bureau of Justice Statistics, 2015).

Scholarly interest in the consequences of mass incarceration for communities has grown in the last decade, with a focus on prisoner reentry, residential mobility, and neighborhood contexts (Morenoff & Harding, 2014; Travis et al., 2014, Chapter 10; Visher & Travis, 2003). Historically high levels of prison release represent a significant population dynamic facing poor communities, where a small number of disadvantaged neighborhoods experience the residential churning of men and women in and out of jail or prison (Clear, 2007; LaVigne & Parthasarathy, 2005). People leaving prison experience significant obstacles to finding employment or steady income (Pager, 2003; Western et al., 2015) and securing safe and stable housing (Herbert, Morenoff, & Harding, 2015; Huebner & Pleggenkuhle, 2013; Richie, 2001; Roman & Travis, 2006; Sirois, 2017). These challenges are compounded by disadvantaged community contexts after prison (Travis, 2005). Returning to disadvantaged neighborhoods has been associated with increased recidivism (Chamberlain & Wallace, 2015; Hipp, Petersilia, & Turner, 2010; Kubrin & Stewart, 2006; Makarios, Steiner, & Travis, 2010; Mears et al., 2008). While the stratifying effects of incarceration have been extensively examined in other areas, few studies directly examine the implications of neighborhood attainment and attachment after a period of

incarceration ends. Following Sampson (2008), this paper considers neighborhood sorting to be a social process, and in the aggregate, come to define the ecological structure of social inequality. However, people leaving prison are a subset of the poor with unique challenges to social (and spatial) mobility.

Empirical research implicating neighborhood contexts as significantly impacting life chances motivates the current study. A longstanding research program seeks to understand the process of neighborhood sorting as a key mechanism perpetuating racial disparities in life chances (Bruch & Mare, 2006; Charles, 2003; Crowder, Pais, & South, 2012; Logan et al., 1996; Sampson, 2012; Sharkey, 2013). *Neighborhood attainment* refers to neighborhood residential outcomes, emerging from individual resources, social relationships, and residential histories (Alba & Logan, 1993; Sampson & Sharkey, 2008). For this study, the level of concentrated disadvantage experienced in one's neighborhood after leaving prison forms the outcome of neighborhood attainment, including rates of poverty and public assistance, female-headed households, and unemployment.

Understanding *attachment* to place provides important insights into the social life of individuals in urban space. Attachment refers to the bonds and connections individuals have with their neighborhood; residence time and neighborhood ties are indications of attachment to place (Lewicka, 2011). Weak neighborhood attachment in aggregate could lead to diminished collective efficacy and social cohesion (Bolan, 1997; Sampson, 2012). To study this, the current analysis defines neighborhood attachment as reporting neighborhood residence – living in a neighborhood or combination of neighborhoods throughout the year after prison release.

Place attachment (living in a neighborhood at all) is a necessary precursor to measuring neighborhood attainment (the level of disadvantage). However, prior to the current study, these two conditions have not been studied in relation to one another in the time after prison release. Weak attachments to social institutions such as families, schools, and the labor force indicate poor social integration and could lead to a variety of disadvantages. Similarly, neighborhoods can be important sites for social connection, support and resources. Quantitative studies of neighborhood attainment often must assume individuals experience the same degree of attachment to neighborhoods in order to estimate neighborhood attainment. Differential neighborhood attainment after prison is thus a function of durable neighborhood disadvantage in a context of very limited resources. Additionally, detachment from place, even from disadvantaged neighborhoods, could signify another kind of neighborhood disadvantage yet to be fully examined in the urban literature.

UNDERSTANDING NEIGHBORHOOD ATTACHMENT AND ATTAINMENT AFTER PRISON

This paper extends prior research on urban marginality by directly studying the trajectories, choices, and limitations people face as they become members of neighborhoods and communities after a period of incarceration ends. The analysis considers criminal justice involvement, housing, and individual factors to be important in explaining neighborhood attachment and attainment.

In seeking perspective on the neighborhood selection of men and women returning home from prison, the analysis contributes to several studies showing racial disparities in incarceration map onto neighborhood life. Massoglia et al. (2012) find substantial continuity of neighborhood

quality before and after incarceration for blacks and Latinos, but a negative association between incarceration and post-incarceration neighborhood quality for whites; this finding is further supported by Warner's (2016) analysis. Note both studies use the 1979 National Longitudinal Survey of Youth to estimate neighborhood attainment during reentry. In a study of Michigan parolees, Harding et al. (2013) find that while 63% of black parolees lived in high-poverty neighborhoods before prison, only 19% of whites did. A recent study using administrative records from the Michigan Department of Corrections finds black and white parolees' pre-prison neighborhood strongly predicted post-prison neighborhood attainment (Lee et al., 2017). In light of these studies, it will be important to also test if neighborhood attachment (i.e. living in a neighborhood at all) is stratified by race and ethnicity – a pattern researchers have not previously examined.

Urban marginality beyond race may impact neighborhood attachment and attainment. Western et al. (2015) find older respondents, particularly those with histories of mental illness and addiction were the least socially integrated or connected to family and the most likely to struggle with finding a means of subsistence. Individuals with severe mental illness, chronic disease or addiction, may be detached from place because they reside in a combination of institutions such as hospitals, mental health facilities, and treatment centers that are located in areas with a low density of residents – places where individuals feel little attachment to the local area and do not engage with local institutions. In addition, relapse to addiction significantly predicts re-incarceration in the Boston Reentry Study (Western, 2018), and cycling between jails, treatment centers, and the community due to relapse may influence neighborhood attachment. On the other hand, having stable work reflects attachment to social institutions and provides

financial and social support leading to better neighborhood outcomes. Thus, having a history of employment and working after prison release will likely improve neighborhood attainment and increase the probability of being a neighborhood resident.

Formal social control impacts attachment to place and levels of neighborhood disadvantage. Clear (2007) and Clear et al. (2003) propose incarceration is a form of residential instability produced by formal state coercion. Individuals who are charged with new offenses may be removed from their neighborhood context while awaiting trial. Furthermore, length of time spent in prison may explain disparities in neighborhood attainment. It is plausible that individuals serving longer prison sentences will face greater stigmatization (Pager, 2003) or have deeper detachment from social and economic institutions (Western, 2006) and thus have limited options for neighborhoods. Hipp et al. (2010) find modest effects of time served on neighborhood outcomes but find no evidence that the seriousness of a previous crime (i.e. violent versus property) impacts neighborhood attainment. Thus, individuals who spend more time in prison or have received a new criminal charge since leaving prison have weaker social connections to neighborhoods after incarceration and will be more likely to enter disadvantaged neighborhoods.

Studies in criminology and neighborhood effects find moving away from former neighborhoods improves life chances, as individuals leave behind former criminogenic contexts. In addition, moving away from one's former neighborhood is indicative of social capital and economic resources. However, this presents a paradox to people leaving prison. Moving to new neighborhoods could pose additional challenges, as newcomers may lack social resources and ties that act as a buffer to the effects of living in a disadvantaged neighborhood (Crowder &

South, 2005; Harding et al., 2013), or may return to worse neighborhoods than before. On the other hand, if individuals return to the extremely distressed neighborhoods of their past, exposure to previously criminogenic environments may be more damaging than the fact of instability (Sharkey & Sampson, 2010; Sharkey, 2013). Using Hurricane Katrina as a quasi-experiment, Kirk (2009) finds that moving away from former geographic areas significantly reduces a parolee's likelihood of re-incarceration. In general, moving away from prior neighborhoods improves individual outcomes, and randomized control trials have tested this finding to see if recidivism is reduced when people move away from their former neighborhoods (Kirk et al. 2017). The current analysis expands research on prior community environments and post-release neighborhood residence by examining this mechanism of mobility as it pertains to neighborhood attainment and how prior neighborhood disadvantage influences post-release neighborhood outcomes.

Housing insecurity is among the foremost obstacles to successful integration for individuals leaving prison (Herbert et al., 2015; LaVigne & Parthasarathy, 2005; Leverentz, 2014; Metraux & Culhane, 2004; Richie, 2001; Roman & Travis, 2006; Visher & Courtney, 2007). Housing, similar to patterns of neighborhood quality, has typically been studied to explain specific outcomes associated with the reentry period such as recidivism and employment. Sirois (2017) finds that living in a stable household with working household members just after prison release is associated with reduced risks of arrest and unemployment 6 to 12 months later. Kirk et al. (2017) find that indeed, moving away from former neighborhoods reduces the chance of recidivism, but having access to housing at all (controls received a housing voucher) also improved these outcomes. Clark (2016) finds that housing situations are more robust predictors

of recidivism than contextual measures of disadvantage. How does housing inform and influence neighborhood sorting? Mass imprisonment has not only become common for adult men from disadvantaged communities, but also for their friends and families (Comfort, 2016; Lee et al., 2015). Individuals involved in the criminal justice system may only have access to housing and households in a context of concentrated disadvantage. Common ways people leaving prison obtain housing, such as temporary housing arrangements with extended family or friends, will reflect the distribution of neighborhood quality within their network or kin. As incarceration is highly demographically concentrated within poor communities, formerly incarcerated people are much more likely to have extended kin and friends living in disadvantaged environments. Thus, people involved in the criminal justice system tend to be embedded in contexts of social disadvantage, where housing derived through social capital (Caughy, O'Campo, & Muntaner, 2003; Small, 2009; Wacquant, 1998) may lead to greater exposure to neighborhood disadvantage than if one has the resources to find their own housing.

People who live in group quarters (e.g. transitional housing, rooming houses, shelters, residential treatment facilities) tend to live in areas of concentrated disadvantage. In this case, neighborhood sorting is a function of the availability and location of institutional housing across a spatial area. Research shows transitional and institutional housing are concentrated in a small number of very disadvantaged neighborhoods in the urban core of cities (Hartnett & Harding, 2005; Hoch, 1991; Warner, 2016). One study of St. Louis emergency housing finds distressed neighborhood conditions in areas containing high rates of transitional and shelter housing use (Alexander-Eitzman, Pollio, & North, 2013). A key contribution of this analysis is a consideration of how different forms of disadvantaged housing (relying on one's networks,

transitional or group quarters housing) leads to worse neighborhood outcomes. Access to temporary housing arrangements in households or group quarters may impact neighborhood attachment, as individuals may feel less inclined to become connected to a fundamentally temporary neighborhood context.

The analysis considers two important outcomes related to neighborhoods upon release from prison. First, do people leaving prison live in neighborhoods and form relationships with places? What conditions contribute to detachment from neighborhoods? The current study is one of the first to examine these questions of neighborhood attachment, largely because in prior studies of administrative records or household surveys, when an address is not observed, individuals are removed from the analysis. Rather than considering re-incarceration an outcome, the analysis considers it part of the residential trajectories of highly marginalized individuals. Second, using detailed observational data with a high rate of study retention, the analysis provides new tests of the relationship between neighborhood attainment after prison and prior neighborhood environments, housing, criminal justice involvement and other individual characteristics.

DATA AND METHODS

Data used to study neighborhood residence in the year after leaving prison come from the Boston Reentry Study (BRS). The BRS data collection took place in 2012–2014 and followed formerly incarcerated people leaving Massachusetts state prisons for one year. The core sample of the BRS consists of 122 men and women who were imprisoned in Massachusetts state prisons between May 2012 and February 2013 (Western, Braga, & Kohl, 2017). People were eligible to

participate in the study if they were within one month of their scheduled prison release and planned to move to the Greater Boston area. The BRS sample was recruited from 15 of the 18 Massachusetts state prisons and represents 27% of all releases from Massachusetts prisons during the study period (Western et al., 2017). Respondents participated in a baseline interview conducted one week before leaving prison, and then one week, two months, six months, and one year after release for a total of five interviews. The survey data provide information on the structure and dynamics of respondents' households, housing type, housing tenure, and participation in temporary or transitional residential programs. The BRS collected address data for each respondent, when available, at each wave. The address data were carefully examined before geocoding addresses to census tracts to ensure they represented the respondent's place of residence. To identify the neighborhoods of respondents, each address was geocoded to census tracts – the unit used to operationalize a respondent's neighborhood. A panel dataset includes the address reported at each interview wave after the baseline interview. In addition to these interviews, the BRS conducted interviews with family members and interviews with respondents when they experienced re-incarceration, rather than considering a return to custody a censoring point in the design (Western et al., 2017). For a complete discussion of the study design, sampling strategy and methodology for the Boston Reentry Study, see Western et al. (2017).

The unusually high retention rate (91-95%) provides a unique opportunity to examine the residential patterns of this highly disadvantaged population. Previous prisoner reentry studies, and in particular the Urban Institute's *Returning Home* study, significantly contribute to our understanding of neighborhood attainment and residential mobility, though many surveys suffered significant attrition (LaVigne & Parthasarathy, 2005; Visher & Courtney, 2007). Earlier

observational studies of people released from prison experienced 30% to 60% attrition over periods of 1- to 2-year follow up (Western et al., 2016). The BRS adopted several innovative strategies to minimize study attrition given the challenge of maintaining contact with this hard-to-reach population (Western et al., 2016). However, despite the high rate of study retention, it was not always possible to record an address during an interview. About 16% of respondents did not report a residential address at some point during the survey. While some lived un-housed either on the streets or among several different households, others returned to jail or prison by the exit interview. The paper provides a discussion of the substantive implications of this “missing data” as an artifact of social marginality in subsequent sections.

Address and Neighborhood Data in the Boston Reentry Study

To identify neighborhoods for a sample of people leaving prison, the analysis involved a detailed examination of interview notes, interview transcripts, survey responses, and census data. Each address (or lack thereof) was carefully studied to determine if a respondent could be geocoded to a census tract. Some respondents described spending little, if any, time in a neighborhood, and either could not provide an address or reported staying in several neighborhoods. If the census tract revealed information on the area’s population indicating a lack of social clustering or residential populations, this was also considered in the coding process. In some cases, the location of their shelter indicated very little information on population of the surrounding area because the entire adult population was living in formal institutions. Thus, a person would not be attached to a neighborhood if they were in a jail or prison during an interview wave, if they reported no set place, or if they reported staying in multiple shelters, households or other dwellings (e.g., motels, hospitals, lock-ups, abandoned buildings, cars),

spanning the Greater Boston area. For the majority of respondents, an address was reported, and the respondent's neighborhood data was linked to Boston Reentry Study survey data.

To account for differences in neighborhood environments prior to the incarceration immediately preceding participation in the study, prison records indicating a respondent's "last known address" were linked to the survey data. Based on the year of admission, this address was spatially joined with the appropriate census data.

In the Boston Reentry Study, respondents returned to a small number of community areas in Greater Boston. Figure 1 displays a map of Boston community areas. Each area is shaded to indicate the number of respondents who returned to that area one week after release from Massachusetts state prison.² Scholars have noted a spatially concentrated pattern of return from prison (Cadora, Swartz, & Gordon, 2003; Clear, 2007). Individuals leaving prison tend to move to very poor and disadvantaged neighborhoods due to a combination of factors such as financial constraints, formal sanctions, discrimination, social and family ties, and their prior residences in disadvantaged neighborhoods.

[FIGURE 1 ABOUT HERE]

One week after release from prison, 47 respondents moved to Roxbury or Dorchester, the two darkest areas (see Figure 1). While the City of Boston is comprised of 180 census tracts, BRS respondents moved to just 74 census tracts in the Greater Boston area, and two-fifths of respondents in the Boston Reentry Study moved to only 25 census tracts – all within the neighborhoods of Roxbury and Dorchester. These two areas are the center of Boston's African American community and contain the city's most distressed neighborhoods. Beginning in the

1950s, large portions of these community areas were redlined by banks, government mortgage programs, and insurance companies, propelling white flight and economic decline (Medoff & Sklar, 1994). As two of Boston's most impoverished and segregated areas, Roxbury and Dorchester's child residents account for 51% of children living in poverty in the city, but only one-third of Boston's population under 18 (Boston Redevelopment Authority, 2014). Boston's high level of segregation likely contributes to racial differences neighborhood attainment after prison. Of the 47 people (out of 122 respondents) returning to the Boston community areas of Roxbury and Dorchester, 40 respondents are non-white. This concentration of reentry is characteristic of the spatial patterns of prison admissions and releases found in other cities (Clear, 2007; Cadora et al., 2003).

Concentrated Disadvantage in Greater Boston

To determine the level of concentrated disadvantage experienced by respondents in the Boston Reentry Study, a measure was developed from the U.S. Census and the American Community Survey five-year estimates (U.S. Bureau of the Census, 2012). Four neighborhood conditions were used to study disadvantage within neighborhoods: child poverty,³ unemployment, female-headed households, and households receiving public assistance income. The *z*-scores of each were averaged into a single measure and form the dependent variable of neighborhood attainment in subsequent analyses. Figure 2 describes the distributions of these four neighborhood characteristics against a backdrop of the overall distribution in Greater Boston.

[FIGURE 2 ABOUT HERE]

The neighborhoods of BRS respondents tend to have higher levels of disadvantage than the average Greater Boston neighborhood. The average rate of child poverty in the BRS sample neighborhoods is 30%, while the mean child poverty rate is 15% in Greater Boston and 8% in the state (U.S. Bureau of the Census, 2012). In general, BRS respondents returned to neighborhoods with twice as many female-headed families, households receiving public assistance income, and twice the unemployment rate of Greater Boston.

[TABLE 1 ABOUT HERE]

Table 1 displays summary statistics for the variables used in regression analyses of neighborhood attachment and attainment. The summary statistics in Table 1 show significant differences by race and ethnicity. Black and Hispanic respondents have higher levels of neighborhood disadvantage compared to whites; racial disparities are less pronounced for levels of neighborhood attachment. Across all interview waves, on average 29 respondents (out of 122) were living in transitional housing or shelters, and about half (56 respondents) were living in households of friends, parents, or other relatives. Across all racial and ethnic groups, pre-prison neighborhood disadvantage looks very similar to the average level of concentrated disadvantage during the study period, and 30 respondents returned to the same census tract they reported living in before entering prison. On average, 22 respondents were not living in a neighborhood during the year after prison. The respondents are representative of the Massachusetts Department of Correction Boston-area release population (Massachusetts Department of Correction, 2013). Like Massachusetts prison releasees in general, the sample is mostly male; 15 of the 122 respondents were women. About half of the sample is non-Hispanic black, and slightly less than

one-third are non-Hispanic white. On average, respondents served about 3 years (32 months) in state prison before being released to the community.

Modeling

This paper separately models two neighborhood outcomes: neighborhood attachment (i.e., the respondent reports living in a neighborhood) and neighborhood attainment (i.e., the level of neighborhood disadvantage experienced in the respondent's neighborhood).

To model neighborhood attachment in a sample of 122 men and women leaving state prison and returning to Greater Boston, the first model estimates the probability that a respondent was living in a neighborhood at each interview wave. The equation for neighborhood attachment writes the probability of living in a neighborhood as a function of respondent social and demographic characteristics, employment, criminal justice involvement, housing, and prior neighborhood environments. For census tract i at interview wave t ($t = 1$ week, 2 months, 6 months, 12 months after prison release), the analysis fits the following regression to neighborhood attachment, $p(N_{it})$,

$$p(N_{it}) = \log\left(\frac{\hat{\pi}}{1-\hat{\pi}}\right) = \alpha_0 + \mathbf{d}_i'\alpha_1 + \mathbf{e}_{it}'\alpha_2 + \alpha_3\mathbf{p}_i + \mathbf{h}_{it}'\alpha_4 + \alpha_5R_i + \alpha_6N_i + \delta_t,$$

where predictors include a vector of demographic and social characteristics, \mathbf{d} , a vector of employment characteristics, \mathbf{e} , a vector of prison and criminal justice characteristics, \mathbf{p} , a vector of housing characteristics, \mathbf{h} , a dummy measure indicating that a person returned to the same census tract they lived in immediately prior to incarceration, R , a measure of the level of

concentrated disadvantage associated with their pre-prison neighborhood, N , and a set of time effects, δ .

To model neighborhood attainment in a sample of 122 men and women leaving state prison and returning to Greater Boston, census tract-level neighborhood disadvantage after prison release is written as a function of respondent demographics, employment and housing conditions, time served in prison and criminal justice involvement, and conditions relating to pre-prison environments. For census tract i at wave t , the analysis fits the following regression to neighborhood disadvantage, Y_{it} ,

$$\hat{Y}_{it} = \beta_0 + \mathbf{d}_i' \beta_1 + \mathbf{e}_{it}' \beta_2 + \beta_3 \mathbf{p}_{it} + \mathbf{h}_{it}' \beta_4 + \beta_5 R_i + \beta_6 N_i + \delta_t,$$

where models of neighborhood attainment subset the data to those who were living in a neighborhood at each wave. Driven by theoretical discussions of the social process of neighborhood sorting (Sampson and Sharkey, 2008), the analysis focuses on differences by race and ethnicity and differences by housing.

This paper estimates variation in neighborhood disadvantage for a group of individuals leaving prison and entering neighborhoods in Greater Boston. The empirical and theoretical complexities of measuring neighborhood mobility and understanding neighborhood selection among the poor (Sampson & Sharkey, 2008; Sampson, 2008; 2012) are compounded by the unique and significant constraints on neighborhood attainment for people involved in the criminal justice system. A nontrivial portion of Boston Reentry Study participants did not settle in neighborhoods or did not have a relationship to any residence or non-institutionalized setting to establish neighborhood ties. This particular trajectory – having limited to no attachment to a

neighborhood – rarely receives attention in neighborhood attainment or neighborhood effects research (Sharkey & Faber, 2014). However, weak neighborhood attachment is a fundamental feature of the experience of leaving prison. Following the regression analysis, the paper further discusses this “missing data” as a substantive feature of neighborhood life for people leaving prison and for other vulnerable and hard-to-reach populations. The task of this analysis is to include the most marginalized and invisible as an integral part of a study of neighborhood attainment, and more broadly, social inequality (Beckett & Western, 2001; Pettit, 2012).

RESULTS

Results from the regression analysis of neighborhood attachment and attainment are reported in Table 2. For each of the dependent variables, three models were fitted. The first includes social and demographic characteristics. The second adds controls for criminal justice involvement. The third model includes controls for housing and prior neighborhood conditions. All models include fixed effects for interview waves. The regression results indicate that neighborhood attachment and attainment are distinct residential trajectories after prison release relating to race, housing, and criminal justice interventions.

[TABLE 2 ABOUT HERE]

Results from probit models expressing the likelihood of neighborhood attachment (a dichotomous indicator equal to 1 if the respondent was living in a neighborhood at interview wave t) show that neighborhood residence is a function of age, mental illness or substance use,

post-release employment and new criminal charges. In all models of the likelihood of neighborhood attachment (Models 1-3), older respondents are less likely to be living in a neighborhood during the year after prison. In addition, individuals with mental illness or a history of addiction are significantly less likely to report neighborhood residence during the period of reentry, relative to those with no such diagnoses (Models 1-2). Working for pay after prison release connects individuals to neighborhoods, creating greater stability and thus exposure to neighborhood environments. When all other independent variables are held at their mean or mode, post-release employment corresponds to a 0.171 increase in the probability of neighborhood attachment. There are no statistically significant differences among racial groups in the likelihood of neighborhood residence. For people leaving prison, weak neighborhood attachment is more strongly related to material hardship (post-release joblessness) and human frailty (aging, mental illness or addiction) than the racially differentiated pattern of neighborhood sorting often the focus of urban sociological research (Peterson & Krivo, 2012; Sampson, 2012).

People who received a new criminal were at significantly greater risk of detachment from neighborhoods compared to those who did not receive a new charge. Holding all other independent variables at their mean or mode, a new charge after release from prison corresponds to a .144 decrease in the probability of living in a neighborhood. This finding links to theoretical discussions of the role of criminal justice institutions in affecting the neighborhood attachments of individuals, who cycle in and out of total institutions throughout the reentry period (Clear, 2007). Living with family and friends in temporary arrangements in the year after prison strongly predicts neighborhood residence; the marginal effect of living with family or friends on neighborhood attachment is .303. Thus, it is not necessarily the case that temporary arrangements

lead to decreased neighborhood attachment. For many, the neighborhoods of family and friends became stable social contexts for reentry during the year after prison.

All three OLS models predicting the level of neighborhood disadvantage (Models 4-6) indicate black and Hispanic respondents live in significantly higher levels of neighborhood disadvantage than whites. Pre-prison neighborhood disadvantage is strongly predictive of future neighborhood disadvantage (an increase of .377 on the concentrated disadvantage *z*-score index), supporting prior studies of durable neighborhood disadvantage throughout the life course. The men and women of the Boston Reentry Study on average live in concentrated disadvantage, but this pattern largely emerges from the durability of neighborhood disadvantage across their residential histories prior to their most recent imprisonment. However, holding constant pre-prison neighborhood environments does not fully account for racial disparities in neighborhood attainment during reentry.

Results show older respondents tend to live in greater neighborhood disadvantage than their younger counterparts, supporting prior findings relating to age and challenges after prison release (Western et al., 2015). However, mental health status and substance use did not significantly predict greater neighborhood disadvantage, net of other predictors, in any model of neighborhood attainment. Similarly, employment during the year after prison did not show a significant net relationship to neighborhood attainment but working for pay prior to arrest significantly predicted lower neighborhood disadvantage after release. A history of employment is associated with higher neighborhood quality, a decrease of .193 on the concentrated disadvantage *z*-score index, but during the initial year out of prison, employment may be too sporadic or new to significantly influence neighborhood attainment. While receiving a new

criminal charge significantly increased the likelihood of detachment from neighborhoods, this did not influence neighborhood attainment. Spending a longer time in prison proved somewhat important for neighborhood attainment outcomes (Model 6), but net of controls, lengthy sentences and new criminal charges had little to do with post-release neighborhood attainment.

Finally, housing is an important mechanism producing disparities in neighborhood attainment. First, persons living in group quarters were at greater risk of experiencing neighborhood disadvantage as compared to those living in their own place or in a partner's place, a difference of .366 on the concentrated disadvantage z-score index. People living in a non-traditional household (such as the home of a relative, sibling or friend as opposed to one's own residence or that of a partner) were significantly more likely to experience higher levels of neighborhood disadvantage than those who lived in their own residence. This suggests people with limited resources rely on kin and friends to obtain housing, which is embedded in areas with high levels of concentrated disadvantage. However, living in a household (as opposed to group quarters or institutional settings) predicts attachment to neighborhoods (Model 3), better employment outcomes, and reduces the chance of re-incarceration (Sirois, 2017). Thus, stable housing among family and friends is a double-edged sword; while such shelter is vitally needed for people returning from prison, housing through family and friends places individuals in highly disadvantaged neighborhoods.

In conclusion, disadvantaged neighborhood attachment and attainment are two trajectories of neighborhood inequality in the year after prison relating to experiences of social control, economic insecurity, and social marginality. Neighborhood detachment is a function of conditions of material hardship (unemployment after release), mental illness and addiction,

limited access to housing via residential households, and criminal justice involvement after prison release. No significant racial disparities exist in the outcome of neighborhood attachment. Racial and ethnic disparities in neighborhood attainment were not entirely explained by pre-prison environments; these disparities were consistent even after controlling for pre-prison neighborhood disadvantage. Moving away from former neighborhoods improved neighborhood quality and living in the households of friends or relatives or in group quarters indicated greater neighborhood disadvantage. Having a history of employment (as well as being younger) improved neighborhood outcomes.

WHEN A NEIGHBORHOOD IS UNATTAINABLE

A portion of respondents in the Boston Reentry Study did not obtain neighborhood residence after release from prison. While some respondents faced material hardship preventing them from establishing roots in a residential setting, others lived in total institutions – including local jails, residential mental health facilities, substance abuse treatment centers, spatially isolated homeless shelters, prison, or some combination. As the year unfolded, some individuals cycled across a variety of spatial and social settings, making it impossible to link those individuals to neighborhoods. However, for any analysis measuring neighborhood attainment, researchers must link a person’s address to a geographic area such as a census tract. Inquiring about a respondent’s address often involved a discussion of multiple residences and temporary shelters across cities and neighborhoods, complicating the process of geocoding respondent data to census tracts. It was important to distinguish addresses for reporting purposes (e.g., to parole or probation, mailing address) and their actual place of residence. These empirical challenges pose

theoretical questions about how neighborhood attainment is understood conceptually in studies of vulnerable and hard-to-reach populations such as formerly incarcerated people, particularly in research using traditional household surveys or administrative records. Due to its very high retention rate and one year of close observation of household and residential dynamics, the Boston Reentry Study data is unique in its ability to distinguish these patterns of neighborhood attainment and attachment.

Figure 3 shows two sources of neighborhood attachment heterogeneity unfolding during the year after prison: community-based institutional settings, and re-incarceration. At the one-week interview, 84% of respondents in the study were living in neighborhoods in Boston, and thus, their neighborhood attainment is measured. For others, neighborhood residence was illusive: 20 respondents lived in formal institutional settings or in areas often far-removed from neighborhoods, or never stayed in one place for more than a few days. Nearly one-quarter ($N=29$) of respondents were not living in a neighborhood at their exit from the study. For a nontrivial number of respondents, the year after prison involved weak attachment to neighborhoods.

[FIGURE 3 ABOUT HERE]

Re-incarceration explains why many individuals were not living in a neighborhood, particularly during the six- and twelve-month interviews. Prior research takes for granted that the significant portion of time spent in prison or jail deeply impacts neighborhood attachment. In the BRS sample, 55% of respondents report spending over half of their adult lives incarcerated, and nearly 40% of respondents report spending more than two-thirds of their adult lives in prison.

Thus, the majority of BRS respondents have cycled in and out of communities, experiencing limited periods of time outside institutionalized spaces. By the twelve-month interview, 19 respondents went back to jail or prison. Household surveys or administrative records may miss these residential trajectories, consider them a censoring point in the design, or conceptualize re-incarceration as an outcome for study (e.g. recidivism). When individuals were re-incarcerated, the Boston Reentry Study conducted interviews within secure facilities and considered this part of their residential and reentry process.

As Model 3 indicates (Table 2), involvement in the criminal justice system removes individuals from neighborhood environments. For others, weak attachment to neighborhoods emerges from two conditions: living in institutional housing in community-based facilities, or material hardship preventing individuals from finding stable housing during the year after prison release.

[FIGURE 4 ABOUT HERE]

Figure 4 displays a map of the types of places individuals with limited neighborhood attachment spent up to a year in residence. The base map is shaded by the proportion of residents in neighborhoods living in group quarters in 2010 (U.S. Bureau of the Census, 2010). Group quarters housing is often found in spatially isolated areas with few non-institutionalized dwellings or contained within large single-facilities (i.e. hospitals, residential treatment centers, shelters, public parks). These types of housing cluster in areas marked by low residential density and spatial isolation from the city (Hartnett & Harding, 2005; Hoch, 1991; Jacobs, 1961). In Greater Boston, homeless shelters tend to be in the downtown business district, near large train

yards and highways, or on the outskirts of the city. For example, the most commonly used shelter among Boston Reentry Study respondents was the Long Island Shelter, a large homeless shelter neighboring a waste-management facility on a small island in the Boston Harbor, accessible only by a narrow bridge that was eventually condemned in October 2014. One respondent, a black male in his mid-50s, describes the spatial conditions surrounding the Long Island Shelter:

There is no neighborhood, on an island. You go on the bus, you come off the island. Get on the bus, you go to the island. There's no homes and houses within a quarter-mile of that place. If you miss the bus, you'll be stuck there for the day. Sometimes that's not always a bad thing.

This respondent's analysis of his residence is that he does not live in a neighborhood, offering that the spatial area is devoid of any meaningful social clustering, and the desolation of non-neighborhood conditions requires those living there to leave the island each day to live a normal life. Respondents reported "standing" at various shelters to sign up for a bed, and where they stayed and how far they traveled was determined by bed availability on a given day. Donny, a white male in his late 40s, reflects on accessing shelter housing six months after leaving prison:

After my cousin went and kicked me out, I stayed in a shelter for a little while. Then you have to win a lottery to stay in the shelter. If you don't win the lottery there are no beds so they can't pick you up. The shelters are always packed with people that have permanent beds who don't leave. I stood at Woods Mullen, I stood at Long Island, the Shattuck Homeless Shelter.

The three shelters Donny reports are located in two non-contiguous neighborhoods and the Boston Harbor Islands. In BRS survey interviews, residents of these shelters commonly reported little to no attachment to or time spent within the spatial area where these institutions exist, often spending most of their time away from the area surrounding shelter – only to return for meals and a place to sleep. Another respondent discussed the relationship he had to his last reported address and his actual residences:

Where was I staying [six months ago]?

Interviewer: St. Francis House.

That's my mailing address. I was staying at Pine Street, Anchor Inn, Kingston, Heading Home, and all that.

When asked for an address, some individuals with no set place to live would simply reply “Everywhere.” One BRS respondent reported this at every interview. When asked for his current address at the final interview, he stated:

I told ya'll the 1st, the 2nd, the 3rd, the 4th, and the 5th time. Everywhere. I'm a rolling stone. All over.

Weak attachments to place were not limited to the incarcerated, institutionalized, or street homeless. Nearly 40% of respondents reported staying in more than one place during the first week of prison release, and by the final interview, 75 respondents reported staying in more than one place. Many who reported living in households frequently lived across a number of neighborhoods and cities. Families of the incarcerated often lived in poor suburbs surrounding Boston, as rents and affordable housing within the city have become increasingly inaccessible in recent years (Glaeser & Ward, 2009). For example, one respondent, Sam, a black male in his mid-20s, provided an address with his mother, but also lives occasionally with his sister around the corner, with his father who lives in a suburb called Randolph, and with his girlfriend in Brockton – a poor, small city 20 miles south of Boston. Two months after prison release, another respondent, a black male in his early 40s, reported an address in the Boston neighborhood of Roxbury, but when asked where he spent most nights, he reported Worcester, MA, a city about 50 miles away from Roxbury. These complicated residential patterns are much more common than stable neighborhood residences in the year after prison release.

These findings raise empirical and theoretical questions about estimating neighborhood attainment among formerly incarcerated people – a highly disadvantaged group with unique challenges to household and neighborhood attachment. In previous studies of neighborhood attainment after leaving prison, re-incarceration, extreme spatial heterogeneity, or missing addresses have not been understood or analyzed as part of the social dynamics of urban neighborhood disadvantage. A fundamental part of the social process of neighborhood attainment is social integration, or attachment to place, which for many respondents was illusive. These findings illuminate the complex relationships individuals have with social settings – including neighborhoods, households, temporary housing, and shelters, which could significantly impact estimates of neighborhood attainment (Lee et al., 2017; Massoglia et al., 2012; Warner, 2016) or neighborhood effects (Hipp et al., 2010). Thus, it is difficult from a theoretical perspective to imagine that neighborhood attainment would be a meaningful concept for many of those returning to the community from prison. For example, when someone lives in three or more different places within a period of four months, including households, shelters, jail and hospitals, across the city and suburbs of Greater Boston and beyond, how do we conceptualize their neighborhood? Taken further, how do we conceive of the effects of neighborhood environments on their life chances? Accounting for the temporal and institutional factors affecting neighborhood outcomes throughout the reentry period will improve estimates of neighborhood attainment, and identify key social processes underlying the hypothesized relationships between place and individual life chances, particularly for vulnerable and hard-to-reach populations.

DISCUSSION

In a sample of men and women who were released from prison, there is evidence of significant neighborhood disadvantage in the first year. Using data from the Boston Reentry Study, a longitudinal survey of 122 men and women leaving Massachusetts state prison and obtaining residence in the Greater Boston area, findings indicate black and Hispanic respondents moved to significantly worse neighborhoods than whites after controlling for pre-prison neighborhood disadvantage. People living in unstable or temporary housing were more likely to live in concentrated disadvantage. One quarter of respondents “returned home” to their pre-prison neighborhood, and they lived in more concentrated disadvantage than those that moved away. Older respondents were more vulnerable to entering distressed neighborhoods, and having a history of employment prior to their most recent arrest served as a buffer from such contexts. A new and important contribution to the literature on urban inequality is a significant portion of the sample did not reside in a neighborhood, or lived in total institutional settings, including mental health facilities, large, single-facility homeless shelters, hospitals, jails, or prisons, before the exit of the interview.

The findings point to three larger conclusions. First, neighborhood attainment for vulnerable groups has likely been studied with measurement error in prior studies. Traditional household surveys and administrative records are not designed to capture complicated pathways to neighborhoods and miss important residential patterns (Lee et al., 2017; Massoglia et al., 2012; Warner, 2015, 2016). Research relying on these forms of data may identify a neighborhood context for a person leaving prison during the period of reentry, but such an analysis must assume the reported address or neighborhood is the person’s actual place of

residence. For observational studies of reentry, significant attrition from the sample limits the analysis of missing residential data in a substantive way. These issues pose both methodological and conceptual limitations to our understanding of neighborhood attainment after prison – as individuals are often severely disconnected from neighborhoods and households. In studying highly marginalized groups, those that have no address or no single place to call home are not simply a problem for empirical research design, but are experiencing an important and often unmeasured form of neighborhood disadvantage. The closed circuit of disadvantaged places and prisons produces weak social integration within communities and drives continued patterns of social inequality (Clear, 2007; Wacquant, 2000). Future research and observational data collection on the experiences of criminal justice-involved populations in neighborhoods will help answer key questions about the role of place in the lasting effects of mass incarceration.

Second, the findings extend our understanding of mass imprisonment by describing and identifying mechanisms of neighborhood sorting and mobility during the period of reentry. Individuals residing in neighborhoods have remarkably diverse connections to households, family and friends, local institutions, and neighborhoods. A theoretical implication of these findings is neighborhood inequality emerges from relationships to networks and institutions – be it family, friends, access to temporary housing programs, or formal sanctions. Much of neighborhood attainment in the period of reentry is due to involuntary forces that have to do with relationships to households, services, and economic subsistence. In the Boston Reentry Study, it is the mothers, sisters, relatives and friends of the respondents who provided the most consistent social support (Western et al., 2015) and these forms of support will prove important for reducing the chances of future incarceration (Cochran, 2014; Cochran et al., 2016; Sirois, 2017;

Steiner et al., 2015). In the case that this leads to greater exposure to concentrated disadvantage, it is important to consider that declines in one area of life, such as neighborhood quality, does not mean declines in all areas of life, such as housing, family support, and social integration. The current analysis contributes to an understanding of how formerly incarcerated people negotiate these arenas of social networks and social context, as they forge a life on the outside.

Third, this research shows a significant portion of the sample did not form attachments to neighborhood life, and this is an important condition of urban inequality often indistinguishable from missing data. Respondents commonly reported weak attachments to place emerging from social isolation, poverty and housing insecurity. It was common throughout the year after prison to report multiple addresses and neighborhoods and reside across long distances that included outlying suburbs and small cities. Future studies should seek to identify mechanisms that, in this case, restrict or limit an individual's ability to integrate fully into neighborhood life after leaving prison, and for those that do, how disadvantage in neighborhood context may be mitigated by attachments to family, households, and jobs. Research on mass incarceration indicates imprisonment can have lasting impacts on attachment to social institutions such as the labor market (Pager, 2003; Western, 2006), families and households (Comfort, 2008; Sirois, 2017), and the political system (Uggen & Manza, 2002). Few studies in the literature on imprisonment consider neighborhoods to be social institutions in which people socially integrate by developing ties to place and community. That neighborhoods can also be unattainable provides a window into the heterogeneous ways individuals have relationships with residential contexts, and how these contexts may (or may not) become salient in their lives (Sharkey & Faber, 2014; Browning & Soller, 2014; Harding et al., 2011). As a necessary precondition of measuring neighborhood

attainment, the current study puts neighborhood attachment (in this case, living in a neighborhood at all) and non-neighborhood spatial areas, on the empirical agenda for urban scholars.

The results of this study have implications for urban policy and practice. As over 600,000 people will leave prison and return to mostly poor and disadvantaged neighborhoods annually, the results from this analysis could be used to inform place-based responses to prison release in urban areas. Findings indicate community builders that emphasize the neighborhood as an organizing site may miss important subsets of the reentering population who have weak attachments to place. Urban planners and community organizations should consider non-neighborhoods, referenced throughout urban theory and sociology (Thrasher, 1927; Wirth, 1940; Jacobs, 1961; Suttles, 1968), as potential locations for services, resources, and revitalization for individuals who are at the margins of urban space. Regional and city-wide initiatives to increase access to housing, or to subsidize housing provided by the families of incarcerated, could increase neighborhood attachment. Institutional housing, often located in the most disadvantaged areas, may significantly contribute to exposure to neighborhood disadvantage for vulnerable urban populations. Efforts to improve neighborhood outcomes known to predict recidivism through housing vouchers should consider the ways various types of housing, perhaps in disadvantaged areas, may connect individuals to places within cities and improve social integration (Warner, 2016). Concentrated prison admissions and releases may also influence patterns of concentrated neighborhood disadvantage, social cohesion, and recidivism among those formerly incarcerated. Thus, this research points to neighborhood quality and attachment as

fundamental social infrastructures that can improve outcomes not only for individuals leaving prison, but also community residents living in poor and disadvantaged areas more broadly.

A significant limitation of this study is that results are restricted to Boston and its surrounding suburbs. Boston's unique racialized history in neighborhoods (Medoff & Sklar, 1994) and dynamics of housing affordability (Glaeser & Ward, 2009) pose challenges for generalization to areas beyond Boston. In order to generalize the findings presented in this study, future research must consider a diverse set of social contexts, relating to both places and criminal justice policy. Moreover, the results presented in this paper shed light on the patterns of neighborhood attainment in a large metropolitan city; future research could usefully explore the mobility and residential patterns of formerly incarcerated people beyond the urban core. The Boston Reentry Study follows a relatively small sample of individuals for one year, which means analysis cannot examine long-term trajectories of neighborhood attainment. In the context of a larger sample, future research could usefully examine with greater detail the trajectories of neighborhood attachment and attainment for different racial or ethnic groups or genders.

Releases from prison will be significant for cities in the years to come, and divergent pathways into neighborhoods need to be better understood. In order for policymakers and practitioners to respond to the needs of people leaving prison, a more complex array of outcomes should tailor how social services and public goods can aid particular needs in urban space. Families of the incarcerated bear a disproportionate burden of housing and facilitating transitions from prison. However, many families of the incarcerated reside in highly disadvantaged neighborhoods, which may prove to have strong effects on those who recently left prison. Understanding how to support families and social service providers as they provide housing for

people after a period of incarceration – while mitigating the contextual effects of living in distressed neighborhoods – will be an important policy response to the difficulties posed by the transition out of prison.

NOTES

¹For this analysis, a neighborhood refers to a social-spatial unit of social organization forming a common residential area (Hunter, 1979; Sampson, 2012). Empirically, the current analysis uses census tracts to proxy the neighborhood, though neighborhoods are often defined in terms of residents' perceptions, structural characteristics, the built environment, and/or cultural identification.

²Sixteen respondents (13%) moved to areas outside of the city of Boston one week after release. One respondent was living in jail by the first interview.

³Due to the large student population in Boston, a measure of poverty that excludes college-aged residents provides a more accurate account of neighborhood disadvantage.

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