

A Sort of Homecoming: Incarceration and the housing security of urban men

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ABSTRACT

While individuals returning from prison face many barriers to successful re-entry, among the most serious are the challenges they face in securing housing. Housing has long been recognized as a prerequisite for stable employment, access to social services, and other aspects of individual and family functioning. The formerly incarcerated face several administrative and *de facto* restrictions on their housing options; however, little is known about the unique instabilities that they face. We use a longitudinal survey of urban families to examine housing insecurity among nearly 3,000 urban men, including over 1,000 with incarceration histories. We find that men recently incarcerated face greater housing insecurity, including both serious hardships such as homelessness, and precursors to homelessness such as residential turnover and relying on others for housing expenses. Their increased risk is tied both to diminished annual earnings and other factors, including, potentially, evictions from public housing supported by Federal “one-strike” policies.

Keywords: incarceration, housing, social exclusion

1. Introduction

Housing security has long been recognized as an input into the economic, physical, and emotional health of individuals and their communities, particularly for people vulnerable in other aspects of their life, such as those in substance abuse or mental health treatment, or entitled to public benefits such as Supplemental Security Income. (Bradley et al. 2001; Lee, Tyler and Wright 2010; Postmus et al. 2009). Access to stable housing has also been cited as a key support for women facing intimate partner violence (Postmus et al. 2009), and a prerequisite to both obtaining and maintaining employment (Bradley et al. 2001). Aspects of housing instability, on the other hand, such as evictions, frequent moves, overcrowded conditions, or difficulty paying rent, have been associated with adverse outcomes, including delayed medical care and increased use of acute services among children and adults (Kushel et al. 2005; Ma, Gee and Kushel 2008; Reid, Vittinghoff and Kushel 2008).

Despite the documented importance of secure and affordable housing, individuals returning from prison, while known to be both a socially and economically vulnerable population (Petersilia 2003; Western 2006), face severe administrative and *de facto* barriers to attaining it. Landlords may exclude them from the private housing market, through both cost constraints and background checks. Further, the public housing system's "one strike and you're out" laws grant wide discretion to Public Housing Authorities (PHAs) to exclude or evict residents with criminal histories, and may also place the family members of ex-offenders at risk of eviction if they welcome their formerly incarcerated relative home after his sentence is served. Living with friends and family may also be an unsustainable option, particularly if relationships were strained before or during the period of incarceration (Comfort 2008; Edin, Nelson and Paranal 2004; Petersilia 2003; Roman and Travis 2006; Western 2006).

Recent years have seen substantial advances in our understanding of homelessness and housing insecurity (Lee et al. 2010), and particularly our understanding of the potential reciprocal relationship between homelessness and incarceration (Metraux, Roman and Cho 2007). However, the literature to date is based largely on samples of individuals returning from prison and jail, examining their experiences of homelessness, recidivism, and re-incarceration. Far less is known about other aspects of housing insecurity, which may precede or follow homelessness, or how the experience of housing insecurity differs between formerly incarcerated individuals and others facing socioeconomic disadvantage.

In this analysis, we use a large longitudinal survey of urban families to assess the levels of housing instability experienced by formerly incarcerated men, and the extent to which this instability is unique to the formerly incarcerated. Using a series of cross-sectional and longitudinal regression models, we estimate the associations between incarceration and men's likelihood of homelessness or eviction, ability to pay their rent or mortgage, frequent residential moves, or "doubling-up" and moving in with friends or relatives because of financial hardship. While we do not comment on the extent to which these hardships reflect a causal effect of incarceration, we use detailed measures of socioeconomic disadvantage, and controls for past housing insecurity, to reduce the likelihood that observed relationships are confounded by factors other than incarceration. Any increased housing risk observed among the formerly incarcerated would thus suggest a need for increased attention to this population not only from housing authorities and social service providers, but also policymakers involved in the re-entry process.

1.1. Background

1.1.1. Housing Security and Prisoner Re-Entry

The importance of housing security is well documented, and housing insecurity is viewed by many as an indicator of severe social exclusion (Lee et al. 2010). Moreover, the stability that housing provides is particularly salient for ex-prisoners. Returning prisoners have high rates of health, mental health, and substance use problems (Roman and Travis 2006), and treatment for these conditions is more easily accessible for those who have housing (Bradley et al. 2001). The National Commission on Correctional Health Care estimated that 98,000 to 145,000 inmates with HIV were released in the year 1996 alone. Returning prisoners also have high rates of tuberculosis, hepatitis B, and hepatitis C. These illnesses, particularly HIV, require expensive and ongoing treatment, and housing stability is often a prerequisite to obtaining continuous care (ibid).

Housing also takes on particular importance for returning prisoners because of their need for employment, and the challenges they face in finding it. Employers generally require an address on a job application, and need to be able to contact potential employees during the application process. The difference between having stable and unstable housing can be the difference between obtaining a job or not (Bradley et al. 2001), and can exacerbate the barriers to employment already facing individuals returning from prison (Western, Kling and Weiman 2001).

Moreover, housing can have a direct impact on recidivism rates. Many violations of public order, such as sleeping in public and loitering are common manifestations of homelessness, but leave an individual at risk of summons or arrest (Center for Poverty Solutions 2002). Unstable housing also has the potential to disrupt a returning prisoner's contact with his parole officer. (Roman and Travis 2006) cite a significant link between housing sustainability and recidivism, with ex-prisoners facing an increased likelihood of rearrest with every change of residence. (Travis,

Solomon and Waul 2001) examine a small sample of returning prisoners in New York State and find that individuals returning to a homeless shelter are seven times more likely to abscond from parole than those who returned to a more stable situation. Likewise, (Metraux and Culhane 2004) examine a cohort of nearly 50,000 New York State prison releasees, and find that those who become homeless following their time in prison are at significantly greater risk of re-incarceration.

1.1.2. Barriers to Housing Security

There are a number of mechanisms through which incarceration risks compromising prisoners' housing security upon re-entry. Housing stability may be compromised by the stigma of incarceration, lack of financial resources, difficulty securing employment, short or poor credit history, restricted access to welfare benefits and subsidized housing, as well as strained familial relationships (Metraux et al. 2007). Each of these challenges stand to increase the risk of housing insecurity, above and beyond the precarious circumstances that commonly precede incarceration.

In the private rental market, property managers have the right to exclude individuals from their buildings, and many use criminal history as a criterion for doing so. Whether having a criminal record is a good proxy for being a "risky" tenant or not, it is clear that the housing seekers would be at a disadvantage compared to other low-income applicants; two-thirds of the 196 property managers surveyed by (Helfgott 1997) reported requiring housing applicants to disclose any criminal record information, and 43% indicated that they would be reluctant to accept the application of anyone convicted of a crime, citing neighborhood safety and "values" as key concerns (Helfgott 1997). In certain cases, such as those of sex offenders, individuals released from prison may also be legally prohibited from living in circumscribed areas (Metraux et al. 2007).

In addition, the challenges that formerly incarcerated individuals face in the labor market may limit their ability to pay for housing (Petersilia 2003; Western 2006). Even if employment is

secured, a limited credit and/or rental history may make the formerly incarcerated individual a less desirable tenant than others with the same income. Their ability to pay may be further compromised by the welfare restrictions placed on ex-offenders. For example, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) required states to at least temporarily deny Temporary Assistance to Needy Families (TANF) benefits and food stamps to anyone convicted of a drug-related crime (Petersilia 2003). Nearly half of states have used their discretionary regulation to impose a lifetime ban on welfare receipt, while the remaining 28 states deny benefits temporarily (Petersilia 2003). These regulations place individuals convicted of drug crimes at even further disadvantage in their attempts to afford secure housing.

While many individuals unable to afford the private housing market turn to government assistance and public housing, most returning from jail or prison have no such option. Three amendments to the United States Housing Act of 1937 – the Anti-Drug Abuse Act of 1988, the Housing Opportunity Extension (HOPE) Act of 1996, and the Quality Housing and Work Responsibility Act of 1998 – led to a “one strike and you’re out” style of enforcement in Public Housing Authorities (PHAs). In these “one strike” policies, PHA’s were permitted, and in many cases required, to evict and exclude from the application process for a “reasonable amount of time” any household containing a person with a felony conviction, a background of drug-related offenses or violent criminal activity, or anyone with a background of criminal activity that the PHA believes would endanger the health or safety of the community. The public safety risk of the tenants and applicants is left to the discretion of the PHA, as is the length of time considered “reasonable” for exclusion. The 1996 “One-Strike Policy” also mandated that all PHAs use a case review containing stringent background checks on applicants and all household members. In addition, PHAs are required to exclude households with a member who has been previously evicted for a drug-related offense for a period of three years, and to evict and exclude those subject to lifetime sexual offender

registration (United States Department of Housing and Urban Development 1997). In Title V of the Quality Housing and Work Responsibility Act of 1998, Congress recommended that PHAs use data from the National Crime Information Center to screen applicants, and that they may evict or bar admission if any member is using controlled substances (Lundgren, Curtis and Oettinger 2010).

While the total number of individuals excluded from public housing due to one-strike policies is unknown, (Human Rights Watch 2004) finds 46,657 people denied public housing from PHAs in 2002. Still more were excluded from Section 8 housing, and the total, provided by the US Department of Housing and Urban Development (HUD) is likely to undercount individuals whose PHAs do not report their numbers to HUD. Human Rights Watch (2004) estimates that more than 3.5 million people would be denied access to housing assistance as the result of One-Strike Policies. (Venkatesh 2002) finds that these restrictions also have implications for family reunification, as family members without criminal histories place their access to public housing in jeopardy by welcoming formerly incarcerated relatives and partners back into their homes.

Formerly incarcerated individuals may also be precluded from moving in with friends and family due to the strains that incarceration places on personal relationships. In addition to the stigma of criminal involvement, incarceration incapacitates prisoners from their family lives, and may preclude visitation (Comfort 2008; Edin et al. 2004). Women may form new relationships while their partner is incarcerated, and incarceration frequently leads relationships to dissolve (Western 2006). Living rent free with family or friends or “doubling up” may be a temporary solution to avoid homelessness but is not likely sustainable in the long term (Bolland and McCallum 2002). Finally, even in the absence of such strain, individuals returning from prison may be subject to parole restrictions against living with others who have been criminally involved, which may rule out a move in with family or friends (Petersilia 2003).

1.1.3. Empirical Evidence

A substantial literature comments upon the difficulties faced by returning prisoners (See Petersilia 2003 for a review), and housing insecurity frequently plays a role in these challenges. Ethnographic research identifies a “nexus” in which the risks of incarceration and homelessness reinforce each other and exacerbate the marginalization faced by severely disadvantaged individuals (Gowan 2002). However, little is known about the extent to which men returning from prison and jail face greater housing challenges than other disadvantaged men. The incarcerated population is overwhelmingly young, minority, and economically disadvantaged, with low levels of education, and most would face substantial challenges even in the absence of incarceration (Petersilia 2003; Western 2006).

Much of the evidence documenting housing instability among ex-offenders is based on small convenience samples of men and women recently released from jail and prison (Herbert 2005; LaVigne and Parthasarathy 2005; Travis et al. 2001). These analyses are thus unable to distinguish housing insecurities that are unique to the formerly incarcerated population, from those insecurities related to pre-existing disadvantage, which may have also led to the individuals’ incarceration. Even larger studies that focus on ex-prisoners, while able to predict housing risk with a variety of pre-incarceration conditions (Greenberg and Rosenheck 2008; Metraux and Culhane 2004), are limited in their comparisons and unable to distinguish homelessness among the formerly incarcerated from the risks of homelessness faced by other disadvantaged individuals.

A smaller set of analyses seeks to identify the effects of incarceration on housing instability using individuals’ reports of their housing circumstances before, as well as after, their time incarcerated. A (Center for Poverty Solutions 2002) study randomly samples individuals receiving emergency food assistance at soup kitchens and drop-in centers, and finds high rates of current

homelessness (31%) and low rates of housing stability (30% in permanent housing) among those with incarceration histories. More than 30% of formerly incarcerated respondents suggested that their incarceration experience negatively impacted their ability to obtain stable housing, and many indeed recalled more stable housing circumstances before their incarceration than after. Likewise, (Dyb 2009) examines a group of recently incarcerated individuals in Norway, and finds reports of homelessness (broadly defined) were significantly higher at the time of release from prison than interviewees recalled from before their incarceration. However, the differences observed in this line of research are based on retrospective measures of pre-incarceration housing, and participant recall may compromise the validity of these findings.

1.2. This Study

The current analysis uses a detailed, population-based, longitudinal survey of urban families to identify several housing hardships experienced by formerly incarcerated men. We examine the extent to which post-incarceration hardships exceed those faced by other disadvantaged men, and the extent to which formerly-incarcerated men face greater insecurity after their time in prison and jail than they did before. We also assess two potential explanations for observed differences in housing instability, each of which stands to suggest a different policy response: reductions in earnings, and restrictions governing public housing residence. In so doing, we stand to substantially advance our understanding of the links between incarceration and housing instability.

2. Material and Methods

2.1. Data Source

Data are drawn from the Fragile Families and Child Wellbeing study (“Fragile Families”), which follows a cohort of nearly 5,000 couples with children born between 1998 and 2000 in twenty

large U.S. cities, with a systematic oversample of unmarried parents. The survey's oversample of unmarried parents produces a sample that is highly disadvantaged, and incarceration is prevalent among the fathers. More than 40% of the fathers, including more than half those unmarried at their child's birth, have spent time in prison or jail. However, the fathers with no history of incarceration are also relatively low-income, with low levels of education, and provide a valuable comparison sample for the assessment of incarceration's unique risks.

The study surveys both men and their partners at the time of their child's birth, with follow-up surveys conducted when the children are one, three, and five years old. The study was initially designed to examine family formation and child wellbeing, and contains detailed questions on the roles and circumstances of fathers and a variety of aspects of social and material disadvantage, including both housing instability and experience in the criminal justice system.

2.2. Variables

2.2.1. *Incarceration*

Our measure of fathers' incarceration is based on fathers' self-reports, supplemented with additional indicators to reduce the risk of measurement error associated with underreporting (Groves 2004). At each follow-up wave, fathers are asked to self-report whether they have been charged with a crime in the years leading up to the interview; if so, they are asked if they have been convicted, and if so, they are asked if they have been incarcerated¹. The repeated measurement of incarceration allows the identification of incidents that occur during the period of the survey, and

¹ Due to an error in survey development, parents are asked to self-report whether they have been charged and convicted between years three and five, but are not asked to self-report incarceration. The vast majority of fathers report to have not been arrested or convicted (and thus not incarcerated), and a handful are reported by their partner or another source as having been incarcerated. Only 14 are left with ambiguous incarceration status.

importantly, allows controls for socioeconomic disadvantage and housing insecurity before these incidents take place.

Self-reports are enhanced by “disposition data” recorded by the survey subcontractors, indicating whether a father was incarcerated at the time that they contacted him for follow-up. The disposition data identify 121 additional incarcerated fathers between baseline and year 3, and another 122 incarcerated fathers at year 5. The incarceration measure also considers mothers’ reports of their partners’ incarceration: mothers report at years one and three whether their partner has ever been incarcerated, and at year five whether he has been incarcerated in the past two years. Finally, parents’ direct reports and disposition data are supplemented with indirect reports of incarceration, in which either parent cites incarceration as a reason the father was separated from their child or was unable to find a job, or some other way that incarceration affected their lives. Few fathers with incarceration histories were identified from indirect reports alone (6% of those reporting any incarceration before year 5).

2.2.2. Housing Insecurity

Housing security and insecurity exist along a continuum from consistent stable housing to chronic homelessness. Where researchers and policymakers draw the line is important both conceptually and analytically. The most severe form of insecurity, homelessness, is most commonly defined using the federal guidelines (42 USC Sec. 11302), by which one is homeless if he or she lacks a “fixed, regular, and adequate nighttime residence”, lives in temporary accommodations (e.g., shelters, transitional housing, or welfare hotels), or sleeps in public or private spaces not intended for sleeping (e.g., cars or abandoned buildings). However, other housing conditions may also represent a “manifestation of the same underlying relationship between housing costs and household resources” (Honig and Filer 1993). Researchers have variously used eviction, frequent

moves, difficulty paying rent, spending more than 50% of household income on housing, doubling up, and living in overcrowded conditions, as symptoms of housing instability (Gilman et al. 2003; Kushel et al. 2005; United States Department of Housing and Urban Development 2003). An examination of homelessness reveals several risks posed by severe housing insecurity, and links between homelessness and other housing hardships. The majority of homeless people experience other forms of housing instability prior to becoming homeless; likewise, many people who are formerly homeless return to situations that continue to be insecure. Those experiencing housing insecurity are more likely to have been homeless at some point, or to become homeless in the future, compared to the stably housed (Reid et al. 2008).

In order to capture the full continuum of housing insecurity and the relevance of its component parts for the formerly incarcerated, we measure housing insecurity based on respondents' living condition at the time of each follow-up survey, and whether he indicates any housing hardships in the year leading up to his survey. For example, respondents are considered insecure if they indicate homelessness (per the federal definition), eviction, or living with others but paying no rent.² Doubling up and living with others without paying rent often precedes spells of homelessness (Bolland and McCallum 2002; Rossi 1989) and is increasingly recognized as a potentially unstable arrangement (Homeless Emergency Assistance and Rapid Transition to Housing Act 2009). They are also considered insecure if they indicate that they had been forced, due to financial constraints, to move in with family or friends, were unable to pay their full rent or mortgage, or if they moved residences more than once per year in the last wave. Frequent moves

²The Hearth Act PL 111-222 (2009) expands the definition of homelessness to include individuals or families who are losing their housing in 14 days and lack support networks or resources to obtain housing (those living with others and not paying rent or doubling up who face imminent loss of this arrangement are explicitly included) as well as those who have moved very frequently and are likely to continue to do so because of chronic physical health or mental health conditions. Particularly important for individuals recently released from prison, the new definition of homelessness includes individuals or families who resided in a shelter or in a venue not intended for habitation or are exiting an institution where temporarily living.

are destabilizing and associated with negative outcomes (Gilman et al. 2003). We examine each of these hardships as a separate, but related dimension of housing insecurity.

We limit our analysis sample to those individuals responding to all questions indicating housing insecurity at year 5, and not reporting incarceration as their living situation at the time of their five-year survey, leaving a full analysis sample of 2,768. We anticipate that both incarceration and housing insecurity are less prevalent among our analysis sample than those who we fail to observe. Not only are more disadvantaged survey respondents more likely to attrite, the housing-insecure in particular are difficult for surveyors to locate and contact. The possibility therefore exists that our estimates are actually a lower bound on the insecurity experienced by both our incarcerated and never-incarcerated sample.

Table 1 details the prevalence of each type of housing security among our analysis sample. The first column suggests a *de facto* rank-ordering of each type of housing instability: while 21% of those in our analysis sample experience some sort of insecurity in the fifth year of the survey, some forms of housing insecurity are far more common than others. More than 10% of the men interviewed report having skipped a mortgage or rent payment in the past year, and approximately 6% report having moved in with others to save money (or “doubling up”). 5% report having moved at least three times in the two years leading up to the survey, 3% report living with others but not paying rent, and 2% each report having been evicted or homeless (i.e., living in a shelter or elsewhere not intended for residence) in the past year. The relative rarity of events such as eviction and homelessness underscore the severity of the conditions. Table 1 also shows that housing insecurity is significantly more prevalent among respondents with histories of incarceration. Overall insecurity rates are more than twice as high among formerly incarcerated respondents, and the disparities are even more pronounced for the most serious types of hardship.

[Table 1 about here]

2.2.3. *Control Variables*

Although men with incarceration histories experience greater housing insecurity than those never incarcerated, formerly-incarcerated and never-incarcerated men also differ on a number of other dimensions that are likely to influence both their probability of incarceration and their housing stability. We identify a number of demographic and socioeconomic factors, listed in Table 2, that have been tied to both incarceration risk and housing instability, and assess differences on these measures between men with and without incarceration histories. The first set of covariates are those established early in life, including demographic characteristics such as race, immigrant background, and family history, as well as behavioral traits such as cognitive ability and impulsivity, which are linked by control theorists to criminal activity (Farrington 1998; Gottfredson and Hirschi 1990), and may increase or impede the ability to manage finances and remain stably housed (Dickman 1990). We define family history as whether respondents were living with their two biological parents at age 15, and whether their own mother had a history of mental health problems. Challenges in one's family of origin, such as parental mental illness or growing up without both biological parents, have been tied to negative adult outcomes, which may be correlated with the risk of both incarceration and housing insecurity (Garfinkel and McLanahan 1986).

Respondents' cognitive ability is measured with the Wechsler Adult Intelligence Scale-Revised (Wechsler 1981), and impulsivity is measured with the Dickman (1990) scale of dysfunctional impulsivity. Although the measures were administered during follow-up data collections, they are considered stable constructs, unlikely to be affected by previous incarceration spells. If, however, impulsivity and cognitive ability are altered by an incarceration experience, including them in the analyses will underestimate the effects of incarceration.

The second set of covariates contains those observed at or around the time the respondents' focal child was born. These include age and education, and a rich set of employment, behavioral, and family characteristics. We control for their relationship status (married vs. cohabiting vs. nonresident) at the time of the birth, since unmarried men tend to be at greater risk for criminal behavior (Sampson and Laub 1990), and because family structure, and partnership instability in particular, may result in fathers moving in and out of the household with their partner and child. Nonresident fathers may also lack the family supports that are often pivotal for men returning from jail and prison. We also control for several factors reflecting parents' labor market potential, health, and substance use patterns. Each of these measures is both associated with incarceration risk (Western 2006) and likely to compromise housing security. Finally, because an individual's likelihood of incarceration is tied not only to their own behavior but to the policies governing their local criminal justice system, and because their likelihood of housing insecurity is tied to the conditions of local housing markets, we include city fixed effects in all models.

[Table 2 about here]

As Table 2 indicates, respondents with incarceration histories face considerable disadvantage when compared to those who have never been to prison or jail. They are far more likely to be racial and ethnic minorities, less likely to have grown up in a two-parent household, and more likely to have a history of depression in their families. They score higher on the Dickman scale of impulsivity, are younger and in worse health when their focal child is born, and are less likely to be married to or living with the child's mother. Further, they are markedly less educated, less likely to be employed, and are more likely to report problems with substance abuse. These differences, with few exceptions, are highly statistically significant, and each would, even in the absence of incarceration, likely compromise their ability to remain stably housed.

While these covariates provide a detailed description of respondents’ life circumstances at the time of their focal child’s birth, these descriptors may not be entirely exogenous, and may be affected by earlier contact with the criminal justice system. Men enter our sample upon the birth of a child, but among those men who have been to jail or prison, their median reported age of first incarceration is 20, an average of six years before the focal child’s birth. To the extent that earlier incarceration precludes men from fatherhood or education, or affects their relationship or other characteristics at the child’s birth, models including these covariates may underestimate the true effect of having been to jail or prison. To better estimate incarceration’s causal effects, net of exogenous life circumstances, we focus our analyses, detailed below, on incarceration spells that follow the first-year survey.

2.3. Modeling Strategy

2.3.1. Basic Estimation

Table 1 shows significantly higher rates of housing insecurity among men with incarceration histories, and we assess the extent to which this relationship can be explained by demographic, socioeconomic, and behavioral conditions that influence the likelihood of both incarceration and instability. To do this, we estimate a series of logistic regression models, predicting whether respondents indicate experiencing any insecurity in the year leading up to the five-year survey with their lifetime incarceration history and the “early-life covariates” listed in Table 2, denoted here as \mathbf{X}_i . We then replicate Model 1 for each of the individual housing instability items listed in Table 1.

$$\text{Logit}(INSECURE_{it}) = \beta_0 + \beta_1 LIFETIMEINC + \beta_2 \mathbf{X}_i + \varepsilon \quad (1)$$

Model 1 estimates disparities in housing insecurity between men with and without histories of incarceration, and adjusts for several important correlates of both incarceration and

socioeconomic disadvantage—however, the possibility remains that β_1 , the estimated relationship between incarceration and housing insecurity, is biased by the omission of other factors that might be correlated with both lifetime incarceration and insecurity. We therefore estimate a second model that includes a second set of variables, \mathbf{X}_2 , measured at baseline and the one-year survey. These variables, the “contemporaneous covariates” in Table 2, are likely to be correlated with both incarceration and housing insecurity. In fact, these covariates (particularly factors such as employment or education) could themselves be influenced by early incarceration incidents (if, for example, an early incarceration affects later labor market prospects). To avoid bias resulting from this influence, we consider our lifetime incarceration variable in two stages: we define a variable INC_{15} to indicate whether the respondent reports having been incarcerated between years 1 and 5, and a variable INC_1 to indicate whether the respondent reports having been incarcerated prior to year 1. Because INC_1 could be causally linked to the covariates in either direction, our focus in interpretation will be on INC_{15} .

$$\text{Logit}(INSECURE_5) = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 \mathbf{X}_1 + \beta_4 \mathbf{X}_2 + \varepsilon \quad (2)$$

To further isolate the relationship between incarceration and housing insecurity, we examine the extent to which housing security changes following time spent in prison or jail. In Model 3 we predict men’s likelihood of insecurity at year five based not only on their incarceration history and socioeconomic covariates, but also on their experience of housing insecurity at the one-year survey. In this model, β_1 represents not the level difference in the likelihood of housing insecurity, but the extent to which the likelihood of insecurity changes for incarcerated men, beyond the change experienced by men not incarcerated. Where possible, the vector $INSECURE_1$ contains indicators of each type of insecurity presented in Table 1, measured at year 1. In cases where including each

aspect of insecurity prevented the model estimation from converging, *INSECURE_t* contains a single indicator of whether the respondent experienced any of the six hardships.

$$\text{Logit}(INSECURE_5) = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 X_7 + \beta_4 X_2 + \beta_5 INSECURE_1 + \varepsilon \quad (3)$$

2.3.2. *Income and Insecurity*

After estimating an average relationship between incarceration and housing insecurity in Models 1 through 3, we next examine the extent to which this relationship is driven by a reduction in earnings, and the extent to which it is driven by other factors. The labor market challenges associated with incarceration are well established, and are likely to contribute to the inability of formerly incarcerated men to remain stably housed. In Model 4, we replicate the estimation of Model 3, but include an additional control for annual earnings at year five, after any incarceration has occurred. An insignificant β_1 in this model would indicate that at equal earnings, men with and without incarceration histories have similar risks of insecurity, and suggest that income support might be the best mechanism for overcoming the housing instability associated with incarceration.

$$\text{Logit}(INSECURE_5) = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 X_7 + \beta_4 X_2 + \beta_5 INSECURE_1 + \beta_6 EARN_5 + \varepsilon \quad (4)$$

2.3.3. *Incarceration and Public Housing*

In addition to examining the relationship between incarceration, housing, and earnings, we also test another potential link between incarceration and housing insecurity: the administrative and legal barriers facing ex-offenders. Specifically, in Model 5 we examine the “one-strike” policy governing criminal activity in public housing projects, and examine if incarceration is associated with greater instability for those men whose families were in public housing prior to his time in prison or jail. We define a binary variable *PH_t*, which takes on a value of 1 for the 456 men who were either

living in public housing at year 1, or whose partners were living in public housing at that time (216 of the men in our analysis sample report living in public housing themselves, the other 240 had partners report living in public housing).

$$\text{Logit}(INSECURE_{it}) = \beta_0 + \beta_1 INC_{it} + \beta_2 INC_{it} + \beta_3 X_{it} + \beta_4 X_{it} + \beta_5 INSECURE_{it} + \beta_6 PH_{it} + \beta_7 INC_{it} * PH_{it} + \varepsilon$$

(5)

In Model 5, the coefficient β_5 represents the average increased (or reduced) likelihood of housing insecurity faced by men in public housing at year 1, and the coefficient β_6 represents the increase (or reduction) in the relationship between incarceration and housing insecurity for men whose families were in public housing before their incarceration. A positive and significant β_6 would suggest that incarceration presents a greater risk of insecurity for men in public housing, perhaps related to “one-strike” policies and related factors.

3. Results and Discussion

3.1. Incarceration and Housing Insecurity

Table 1 suggests significantly higher rates of housing insecurity among men who have been incarcerated, and our regression models further support this relationship. Table 3 presents odds ratios indicating the increased odds of insecurity faced by incarcerated men, and associated with other socioeconomic conditions. As shown in column 1, men who have been incarcerated at some point in their lives face odds of insecurity that are nearly twice as high as those faced by men never incarcerated. In addition to this difference being statistically significant, it is of considerable magnitude; the gap in likelihood of insecurity is greater between the formerly and never incarcerated than it is between either blacks and whites, or Hispanics and whites.

Examining the individual components of insecurity, we see that formerly incarcerated men face increased odds of insecurity by any of the six measures listed above. Moreover, the increased risk that formerly incarcerated men face is highest for the most severe forms of instability – men with incarceration histories face more than three times the odds of past-year eviction, and of past-year homelessness than do comparable men who have never been incarcerated. While it is possible that the increased odds of housing insecurity among formerly incarcerated men reflects unobserved heterogeneity, they face drastically increased odds of serious hardship, suggesting the need for improved re-entry assistance for those released from prison.

[Table 3 about here]

Table 4 presents the estimates of Model 2, which further limits the influence of confounding factors in the incarceration-insecurity relationship. As the first column of Table 4 suggests, housing insecurity is significantly more prevalent among formerly incarcerated men, though the disparity is less pronounced when focusing on more recent incarceration, and controlling for pre-incarceration socioeconomic status. Maternal depression and impulsivity are also associated with increased risk of insecurity, while higher education (specifically, completing college) is associated with diminished risk. As in Table 3, the inclusion of city fixed effects does not significantly change the increased risk faced by formerly incarcerated men.

[Table 4 about here]

Unlike in Table 3, however, Table 4 suggests that the relationship between incarceration and housing insecurity is not statistically significant across all outcome measures. The increased risk of a skipped mortgage payment faced by recently-incarcerated men is statistically insignificant, as is the increased risk of eviction. The odds of eviction are significantly higher among men incarcerated in the more distant past, as are the odds of living with others to save money. However, because the

respondents were not observed before these distal incarceration incidents, we cannot determine the extent to which this relationship is spurious, and driven by pre-incarceration disadvantage.

Table 5 presents estimates of the extent to which the odds of housing instability change following time spent in prison or jail. As shown, the odds of instability at year 5 tend to be significantly tied to men's experience of instability four years earlier. Men experiencing instability at year 1 are more likely to skip a rent or mortgage payment at year 5, while men who report skipping a rent or mortgage payment, or moving more than once per year, are significantly more likely to "double up" in later years, and move in with others to save money. Finally, the experience of housing insecurity at year 1 is significantly related to the odds of relying on others for rent expenses at year 5. Table 5 also suggests that incarceration has the potential to exacerbate housing insecurity even further. Men incarcerated between the first and fifth-year surveys are significantly more likely to experience frequent residential moves and to rely on others for their housing expenses, and are more than twice as likely to experience a spell of homelessness at the five-year survey. They also experience more than 20% greater odds of skipping a rent or mortgage payment, doubling up, and being evicted, though these differences are not statistically significant.

[Table 5 about here]

Tables 3 through 5 suggest that men returning from prison or jail face substantial hardships, above and beyond those faced by other men with low education and limited labor market histories. We stress that our statistical models, on their own, do not necessarily imply a causal relationship between incarceration and housing insecurity; however, the increased odds of housing insecurity among formerly incarcerated men suggests a need to improve re-entry conditions to mitigate the accompanying risks.

3.2. Incarceration and Earnings

Table 6 presents estimates from Model 4, which examines the link between incarceration and housing in the context of post-incarceration income. To the extent that the housing insecurity faced by formerly incarcerated men is tied to their limited earning potential, transitional jobs programs, and other initiatives to improve the labor market prospects of ex-prisoners, are likely to have the added benefit of improving their housing security. The findings in Table 6 indeed suggest a protective relationship between income and housing insecurity: men with greater annual earnings at year 5 are significantly less likely to skip a rent or mortgage payment, be evicted, rely on others for housing expenses, or experience housing instability by our aggregate measure. However, even at equal levels of income, men incarcerated between years 1 and 5 experienced considerably more housing insecurity in terms of residential turnover, eviction, or the combined measure. This marginal incarceration relationship, beyond the earnings mechanism, suggests that while income and employment supports have the potential to reduce the hardships associated with prison re-entry, housing circumstances might still warrant dedicated attention.

3.3. Incarceration, Insecurity, and Public Housing

Table 7 further explores mechanisms through which an incarceration effect might compromise housing security by examining the implications of incarceration for public housing residents and their families. The first row of Table 7 suggests, that incarceration is associated with the risk of housing insecurity as measured by residential turnover, homelessness, and the aggregate measure. Given the inclusion of an interaction term in this estimation suggests hardships for the non-public housing population. The extent of insecurity among the public housing population is measured using both the “main effect” of incarceration and the interaction term. Among those men who lived, or had partners, in public housing at year 1, incarceration in subsequent years is

significantly associated with an increased likelihood of skipping a rent or mortgage payment, an increased likelihood of eviction, and increased hardship by the aggregate measure.

Most notably, the relationship between incarceration and subsequent eviction is present only for men who were living, or had partners, in public housing prior to their incarceration. The increased risk associated with public housing suggests that Federal one-strike policies meet their stated goal of excluding criminally involved individuals from public housing residence. On the other hand, while several of the other hardships faced by men following time incarcerated are more severe among men with previous public housing ties, this relationship is not statistically significant.

4. Conclusions

4.1. Summary of Findings

As shown in Table 1, and further demonstrated in the regression analyses that follow, housing insecurity is significantly more prevalent among men with histories of incarceration than those who have never been incarcerated. This relationship is robust to controls for a rich array of potential confounders, including, in some cases, pre-incarceration insecurity, and suggests that the housing circumstances of ex-prisoners are likely to be severely compromised upon re-entry. The increased insecurity associated with incarceration is particularly significant among some of the more serious dimensions: formerly incarcerated men face more than twice the odds of homelessness as men who have not been incarcerated. Likewise, they face nearly twice the odds of moving residences more than once per year, and of relying on others for their living expenses. On the other hand, the odds of skipping a mortgage or rent payment, the odds of “doubling up” to save money, and the odds of eviction, are not significantly higher among recently incarcerated men when other forms of social disadvantage are controlled for.

We find that housing insecurity and its relationship with incarceration are closely tied to the limited labor market options available to ex-offenders, with post-incarceration earnings nearly universally associated with reduced housing insecurity. However, the tie between incarceration and housing is also related to factors beyond the labor market: even at equal levels of annual earnings, recently incarcerated men face significantly more residential turnover and are more likely to be evicted than their counterparts with no history of recent incarceration. In addition, we find that men living in public housing (or with romantic partners in public housing) before their incarceration are more likely to be evicted upon their return, suggesting that targeted housing policy may play a role in the instability facing ex-prisoners.

4.2. Limitations and Directions for Future Research

While our analysis represents a major advance in the literature examining the nexus of incarceration and housing insecurity, much remains to be learned. The family focus of the Fragile Families study, and the non-incarcerated comparison sample that it provides, is an important strength of our data; however, the study's focus on parents rather than prisoners limits its generalizability. The vast majority of incarcerated men have children (Western 2006), but incarcerated men without children are likely to differ from incarcerated fathers on many dimensions. Our findings are unlikely to generalize to the approximately 30% of incarcerated men without children. In addition, while the Fragile Families Study is well-equipped to identify differences between men with and without histories of incarceration, the data are not able to distinguish jail incarcerations from prison incarcerations. (Metraux et al. 2007) suggest that patterns of homelessness among individuals released from prison differ substantially from patterns of homelessness among those released from jail. Further research and additional data are needed to identify the extent to which these differences exist in other dimensions of housing insecurity.

Our analyses are also limited by the inherent difficulties in ascertaining causal relationships from observational data. While we find that men's odds of housing insecurity are significantly higher among the formerly incarcerated, these differences might be driven by unobserved heterogeneity between men with and without incarceration histories, rather than by a causal effect of incarceration. The diminished magnitude and significance of the incarceration-insecurity relationship in Model 2, which controls more completely for pre-incarceration disadvantage than does Model 1, suggests that other aspects of social disadvantage contribute to the relationship. Even including controls for pre-incarceration housing does not completely protect against a spurious relationship; if, for example, a job loss or other life shock between the first and fifth-year surveys contributes to both incarceration risk and housing insecurity, even the relationship measured in Model 3 will overstate incarceration's causal effect.

4.3. Policy Implications

Nonetheless, our analyses to date reinforce the notion that men returning from prison and jail are a highly vulnerable population. Specifically, our findings suggest that ex-prisoners are at great risk of housing insecurity, and that this risk is tied, but not limited to, their challenges in securing stable employment. Our findings therefore suggest the need for policy solutions both within and beyond the labor market. Many programs have been suggested to try to raise the earnings of people entering the labor market after prison. Most prisons provide at least some education, job training, and work programs, and a recent round of evaluation results suggest that transitional jobs programs, immediately after prison release, are associated with higher earnings (Bloom 2006; Jacobs and Western 2007). Policy advocates have also suggested limiting disqualifications on licensed employment for ex-felons, and promoting incentives to hire ex-felons with tax incentives to

employers. To the extent that these suggestions increase employment among ex-offenders, and improve their financial stability, they also stand to reduce their risk and extent of housing insecurity.

Barriers to affordable housing for men returning from prison can also be addressed directly, through modifications to the “one-strike” restrictions administratively barring ex-offenders from public housing. Although public housing authorities are already granted very wide discretion to consider the individual circumstances of applicant families, the complexity of and financial incentives to enforce (data on one-strike implementation is collected and tied to funding allocations for certain programs) “one strike policies” is likely simplified in implementation by instituting a *de facto* ban on individuals with an incarceration record. Given that public housing is a very scarce resource, one strike implementation guidelines suggest that reserving this benefit for “those who play by the rules” is consistent with a practice of evicting or pushing applicants with a criminal history to the back of a long queue (HUD 1997, p. 7-8). These policies, and the link between one-strike implementation and more general funding, must be comprehensively evaluated to balance the social costs of this restriction with the risk posed by potential public housing tenants, and the presumed public safety benefits associated with their exclusion.

Finally, the challenges facing individuals returning from prison must also be considered at earlier stages of the processing of criminal cases, both when sentencing decisions are made, and throughout the time that prisoners spend incarcerated. Housing instability and other consequences of time spent incarcerated must be considered, along with the need for incapacitation, drug treatment, and other rehabilitative needs, when determining appropriate treatment of convicted offenders.

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Table 1: Fathers' Housing Instability (Year 5) by Incarceration History

| | Full Sample | Ever Incarcerated | Never Incarcerated | Incarceration History Unknown |
|--|-------------------|----------------------|-----------------------|-------------------------------------|
| | N=2,763 | N=1,052 | N=1,584 | N=127 |
| Any Instability | 21% | 31% | 14% | 22% |
| Instability Index (0=none, 6=highest) | 0.29 [SD=0.66] | 0.45 [SD=0.83] | 0.18 [SD=0.49] | 0.30 [SD=0.61] |
| Skipped Mortgage | 11% | 15% | 8% | 11% |
| Moved in with others to save money | 6% | 11% | 3% | 4% |
| Moved more than once per year | 5% | 8% | 2% | 8% |
| Lived with others, not paying rent | 3% | 5% | 2% | 2% |
| Lived in shelter | 2% | 4% | 1% | 4% |
| Evicted | 2% | 3% | 1% | 2% |

Analysis sample includes respondents answering all instability questions at Year 5, excluding those incarcerated at Year 5. All differences between formerly incarcerated and never incarcerated are statistically significant at $P < .001$.

Table 2: Demographic and Socioeconomic Characteristics by Incarceration History

| | Full Sample | Ever Incarcerated | Never Incarcerated | Incarceration History Unknown |
|--------------------------------------|-------------|-------------------|--------------------|-------------------------------|
| <i>Early Life</i> | | | | |
| White*** | 22% | 13% | 29% | 13% |
| Black*** | 47% | 60% | 38% | 49% |
| Hispanic** | 23% | 20% | 25% | 28% |
| Other | 7% | 7% | 7% | 9% |
| Foreign-Born*** | 15% | 6% | 20% | 24% |
| Lived with both parents at age 15*** | 44% | 31% | 53% | 36% |
| Mother experienced depression*** | 24% | 28% | 22% | 24% |
| Cognitive Score (0=low, 15=high)*** | 6.64 | 6.37 | 6.85 | 6.12 |
| Impulsivity (0=low, 6=high)*** | 0.94 | 1.28 | 0.78 | 1.08 |
| <i>Contemporaneous covariates</i> | | | | |
| Age at baseline*** | 28.3 | 26.2 | 29.3 | 29.3 |
| Married at baseline*** | 31% | 10% | 45% | 32% |
| Cohabiting at baseline*** | 39% | 47% | 35% | 37% |
| Nonresident at baseline*** | 30% | 44% | 20% | 31% |
| Baseline education: <HS*** | 29% | 41% | 22% | 29% |
| Baseline education: HS grad** | 37% | 40% | 34% | 43% |
| Baseline education: Some college*** | 20% | 16% | 23% | 14% |
| Baseline education: College grad*** | 13% | 2% | 21% | 9% |
| Employed at baseline*** | 85% | 76% | 90% | 88% |
| Substance abuse at baseline*** | 10% | 17% | 5% | 8% |
| Father in good health at baseline*** | 73% | 68% | 75% | 76% |
| ***P<.001. **P<.01. *P<.05 | | | | |

Table 3: Housing insecurity at year 5, by lifetime incarceration history and demographic and socioeconomic covariates

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---------------------------------|----------------------------------|---|--------------------------------|---|--|---|---------------------------|
| VARIABLE | Any Insecurity Odds Ratio, SE | Skipped Mortgage or Rent Payment Odds Ratio, SE | "Doubled Up" Odds Ratio, SE | Moved >1x per year Odds Ratio, SE | Lived with others, did not pay rent Odds Ratio, SE | Lived in shelter or other place not intended for residence Odds Ratio, SE | Evicted Odds Ratio, SE |
| Lifetime Incarceration | 1.93 [0.111]*** | 1.42 [0.143]* | 2.17 [0.192]*** | 2.56 [0.239]*** | 1.85 [0.249]* | 3.99 [0.386]*** | 3.21 [0.408]** |
| Black | 1.60 [0.152]** | 1.46 [0.195] | 1.94 [0.267]* | 1.13 [0.270] | 1.72 [0.365] | 2.29 [0.463] | 1.73 [0.611] |
| Hispanic | 1.63 [0.193]* | 1.54 [0.250] | 1.52 [0.337] | 1.27 [0.363] | 1.19 [0.471] | 1.81 [0.578] | 1.34 [0.668] |
| Other | 1.40 [0.242] | 1.05 [0.338] | 2.10 [0.386] | 1.38 [0.418] | 1.28 [0.568] | 1.29 [0.757] | 1.17 [0.867] |
| Foreign born | 0.74 [0.190] | 0.83 [0.242] | 0.38 [0.466]* | 0.89 [0.349] | 0.87 [0.488] | 0.52 [0.560] | 1.24 [0.493] |
| Cognitive Ability | 0.99 [0.020] | 0.97 [0.026] | 1.04 [0.033] | 1.01 [0.038] | 1.01 [0.037] | 1.08 [0.049] | 0.97 [0.072] |
| Grew up with both parents? | 0.81 [0.108]* | 0.63 [0.143]** | 0.77 [0.188] | 1.00 [0.205] | 1.36 [0.235] | 1.18 [0.283] | 0.47 [0.359]* |
| Maternal history of depression? | 1.32 [0.115]* | 1.53 [0.140]** | 1.65 [0.181]** | 2.15 [0.201]*** | 0.63 [0.315] | 2.82 [0.267]*** | 1.72 [0.322] |
| Impulsivity | 1.32 [0.064]*** | 1.24 [0.083]** | 1.36 [0.106]** | 1.42 [0.127]** | 1.32 [0.137]* | 1.55 [0.187]* | 0.79 [0.247] |

* p<0.05, **p<0.01, ***p<0.001

City FE and missing data indicators included in model, but not table.

Table 4: Housing insecurity at year 5, by incarceration history (Y1-Y5) and demographic and socioeconomic covariates

| VARIABLE | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|----------------------------------|----------------------------------|---|--------------------------------|---|--|---|---------------------------|
| | Any Insecurity Odds Ratio, SE | Skipped Mortgage or Rent Payment Odds Ratio, SE | "Doubled Up" Odds Ratio, SE | Moved >1x per year Odds Ratio, SE | Lived with others, did not pay rent Odds Ratio, SE | Lived in shelter or other place not intended for residence Odds Ratio, SE | Evicted Odds Ratio, SE |
| Incarceration (Y1-Y5) | 1.69 [0.129]*** | 1.24 [0.168] | 1.48 [0.198] * | 1.99 [0.230]** | 1.86 [0.273]* | 2.81 [0.349]** | 1.79 [0.422] |
| Incarceration (before Y1) | 1.22 [0.122] | 1.20 [0.162] | 1.64 [0.194] * | 0.95 [0.241] | 1.21 [0.258] | 0.95 [0.335] | 2.08 [0.400] |
| Black | 1.41 [0.164]* | 1.40 [0.211] | 1.60 [0.282] | 1.20 [0.287] | 1.13 [0.409] | 1.87 [0.496] | 1.68 [0.663] |
| Hispanic | 1.33 [0.200] | 1.39 [0.257] | 1.19 [0.352] | 1.16 [0.385] | 0.71 [0.472] | 1.61 [0.606] | 1.36 [0.720] |
| Other | 1.23 [0.246] | 0.98 [0.333] | 1.75 [0.409] | 1.33 [0.430] | 0.83 [0.592] | 1.19 [0.767] | 1.10 [0.883] |
| Foreign born | 0.80 [0.197] | 0.85 [0.249] | 0.42 [0.484] | 0.81 [0.383] | 1.14 [0.522] | 0.50 [0.553] | 1.32 [0.505] |
| Age (at baseline) | 0.99 [0.008] | 1.00 [0.009] | 0.98 [0.013] | 0.97 [0.015]* | 0.95 [0.026]* | 1.00 [0.019] | 1.01 [0.018] |
| Cognitive Ability | 1.00 [0.021] | 0.98 [0.027] | 1.06 [0.034] | 1.02 [0.040] | 1.01 [0.040] | 1.10 [0.052] | 0.98 [0.072] |
| Grew up with both parents | 0.94 [0.113] | 0.65 [0.149]** | 0.96 [0.195] | 1.20 [0.217] | 2.28 [0.265]** | 1.18 [0.309] | 0.49 [0.362] |
| Maternal history of depression | 1.27 [0.118]* | 1.47 [0.143]** | 1.56 [0.185]* | 2.03 [0.207]*** | 0.61 [0.323] | 2.79 [0.277]*** | 1.72 [0.320] |
| Impulsivity | 1.23 [0.066]** | 1.22 [0.085]* | 1.23 [0.109] | 1.31 [0.131]* | 1.14 [0.138] | 1.53 [0.199]* | 0.69 [0.241] |
| Cohabiting at baseline | 1.25 [0.145] | 1.13 [0.183] | 1.23 [0.278] | 1.25 [0.310] | 1.17 [0.364] | 1.32 [0.500] | 1.30 [0.489] |
| Nonresident at baseline | 1.04 [0.165] | 0.79 [0.208] | 1.16 [0.305] | 1.01 [0.341] | 1.74 [0.410] | 1.65 [0.532] | 1.62 [0.554] |
| Baseline education: <HS | 0.99 [0.124] | 0.95 [0.160] | 1.00 [0.196] | 1.67 [0.223]* | 0.78 [0.267] | 0.95 [0.324] | 2.04 [0.403] |
| Baseline education: some college | 1.04 [0.138] | 1.25 [0.170] | 0.69[0.255] | 1.00 [0.299] | 0.84 [0.337] | 0.81 [0.375] | 1.39 [0.516] |
| Baseline education: college grad | 0.28 [0.299]*** | 0.24 [0.426]*** | 0.16 [0.735] * | 0.52 [0.572] | 0.40 [0.652] | 0.23 [1.166] | 1.05 [0.797] |
| Employed at baseline | 1.11 [0.146] | 1.24 [0.192] | 0.81 [0.225] | 1.08 [0.268] | 0.64 [0.296] | 0.93 [0.322] | 0.67 [0.395] |
| Substance use at baseline | 1.46 [0.155]* | 1.45 [0.193] | 1.12 [0.248] | 1.81 [0.253]* | 0.62 [0.438] | 1.77 [0.373] | 1.03 [0.471] |
| Reports good health at baseline | 0.87 [0.117] | 0.83 [0.149] | 1.00 [0.200] | 1.51 [0.231] | 0.77 [0.271] | 1.30 [0.346] | 1.20 [0.393] |

* p<0.05, **p<0.01, ***p<0.001

City FE and missing data indicators included in model, but not table.

Table 5: Incarceration and Housing Instability, Controlling for Y1 Instability

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--|----------------------------------|---|--------------------------------|---|---|---|---------------------------|
| VARIABLE | Any Insecurity Odds Ratio, SE | Skipped Mortgage or Rent Payment Odds Ratio, SE | "Doubled Up" Odds Ratio, SE | Moved >1x per year Odds Ratio, SE | Lived with others, did not pay rent Odds Ratio, SE | Lived in shelter or other place not intended for residence Odds Ratio, SE | Evicted Odds Ratio, SE |
| Incarceration (Y1-Y5) | 1.65 [0.131] *** | 1.22 [0.169] | 1.38 [0.204] | 1.96 [0.231] ** | 1.78 [0.274] * | 2.68 [0.342] ** | 1.81 [0.422] |
| Incarceration (before Y1) | 1.24 [0.124] | 1.19 [0.164] | 1.61 [0.202] * | 0.95 [0.246] | 1.29 [0.267] | 0.96 [0.344] | 2.11 [0.408] |
| Y1 instability: skipped payment | 1.76 [0.149] *** | | 1.73 [0.242] * | | 0.84 [0.377] | 1.53 [0.409] | |
| Y1 instability: evicted | 0.80 [0.359] | | 1.13 [0.517] | | 0.07 [0.905] ** | 0.27 [1.345] | |
| Y1 instability: "doubled up" | 1.39 [0.185] | | 1.28 [0.265] | | 2.49 [0.337] ** | 1.23 [0.438] | |
| Y1 instability: homeless | 1.77 [0.310] | | 2.18 [0.419] | | 3.73 [0.545] * | 1.09 [0.777] | |
| Y1 instability: lived with others, no rent | 1.59 [0.230] * | | 0.63 [0.409] | | 4.73 [0.338] *** | 0.59 [0.812] | |
| Y1 instability: moved >1x/year | 1.46 [0.164] * | | 2.22 [0.238] *** | | 1.09 [0.351] | 1.79 [0.393] | |
| Y1 instability: Any instability | | 1.55 [0.148] ** | | 1.28 [0.212] | | | 0.88 [0.413] |
| Black | 1.45 [0.167] * | 1.40 [0.210] | 1.77 [0.291] * | 1.19 [0.286] | 1.08 [0.414] | 2.04 [0.476] | 1.67 [0.659] |
| Hispanic | 1.31 [0.203] | 1.37 [0.256] | 1.19 [0.362] | 1.14 [0.384] | 0.58 [0.492] | 1.67 [0.601] | 1.35 [0.718] |
| Other | 1.19 [0.249] | 0.98 [0.331] | 1.88 [0.412] | 1.33 [0.430] | 0.60 [0.604] | 1.29 [0.743] | 1.09 [0.887] |
| Foreign born | 0.88 [0.200] | 0.89 [0.249] | 0.50 [0.485] | 0.83 [0.383] | 1.57 [0.518] | 0.53 [0.553] | 1.30 [0.501] |
| Age (at baseline) | 0.99 [0.008] | 1.01 [0.010] | 0.98 [0.013] | 0.97 [0.015] * | 0.96 [0.026] | 1.00 [0.019] | 1.01 [0.018] |
| Cognitive Ability | 1.00 [0.021] | 0.98 [0.027] | 1.06 [0.035] | 1.02 [0.040] | 1.02 [0.043] | 1.11 [0.052] * | 0.98 [0.072] |
| Grew up with both parents | 0.91 [0.115] | 0.64 [0.148] ** | 0.91 [0.201] | 1.18 [0.215] | 2.21 [0.266] ** | 1.14 [0.319] | 0.50 [0.363] |
| Maternal history of depression | 1.24 [0.120] | 1.45 [0.144] ** | 1.48 [0.190] * | 2.01 [0.208] *** | 0.62 [0.333] | 2.80 [0.278] *** | 1.74 [0.317] |
| Impulsivity | 1.26 [0.068] *** | 1.23 [0.086] * | 1.27 [0.112] * | 1.31 [0.131] * | 1.17 [0.143] | 1.56 [0.198] * | 0.69 [0.245] |
| Cohabiting at baseline | 1.19 [0.146] | 1.09 [0.183] | 1.17 [0.279] | 1.22 [0.309] | 1.12 [0.358] | 1.29 [0.499] | 1.32 [0.494] |
| Nonresident at baseline | 0.96 [0.166] | 0.76 [0.207] | 1.07 [0.307] | 0.99 [0.339] | 1.44 [0.410] | 1.62 [0.519] | 1.63 [0.555] |
| Baseline education: <HS | 0.99 [0.125] | 0.95 [0.161] | 1.00 [0.199] | 1.67 [0.222] * | 0.87 [0.268] | 0.95 [0.331] | 2.06 [0.400] |
| Baseline education: some college | 1.04 [0.140] | 1.25 [0.171] | 0.72 [0.256] | 1.00 [0.298] | 0.80 [0.339] | 0.79 [0.374] | 1.39 [0.517] |
| Baseline education: college grad | 0.30 [0.300] *** | 0.25 [0.424] *** | 0.18 [0.738] * | 0.53 [0.570] | 0.45 [0.661] | 0.23 [1.165] | 1.04 [0.799] |
| Employed at baseline | 1.15 [0.148] | 1.29 [0.194] | 0.79 [0.228] | 1.09 [0.266] | 0.72 [0.311] | 0.95 [0.320] | 0.66 [0.392] |
| Substance use at baseline | 1.39 [0.158] * | 1.40 [0.196] | 1.01 [0.262] | 1.76 [0.254] * | 0.53 [0.483] | 1.56 [0.411] | 1.05 [0.475] |
| Reports good health at baseline | 0.87 [0.119] | 0.81 [0.149] | 1.02 [0.204] | 1.51 [0.232] | 0.74 [0.272] | 1.26 [0.342] | 1.20 [0.391] |

* p<0.05, **p<0.01, ***p<0.001

City FE and missing data indicators included in model, but not table.

Table 6: Housing insecurity at year 5, examining incarceration and earnings

| VARIABLE | (1) Any Insecurity Odds Ratio, SE | (2) Skipped Mortgage or Rent Payment Odds Ratio, SE | (3) "Doubled Up" Odds Ratio, SE | (4) Moved >1x per year Odds Ratio, SE | (5) Lived with others, did not pay rent Odds Ratio, SE | (6) Lived in shelter or other place not intended for residence Odds Ratio, SE | (7) Evicted Odds Ratio, SE |
|---|---|---|---------------------------------------|--|--|--|----------------------------------|
| Incarceration (Y1-Y5) | 1.50 [0.134]** | 1.10 [0.174] | 1.29 [0.209] | 1.93 [0.238]** | 1.56 [0.271] | 2.29 [0.357] | 1.71 [0.428]* |
| Incarceration (before Y1) | 1.21 [0.126] | 1.16 [0.166] | 1.57 [0.202]* | 0.94 [0.246] | 1.25 [0.261] | 0.90 [0.344] | 2.10 [0.403] |
| Earnings (Y5, logged) | 0.90 [0.016]*** | 0.90 [0.018]*** | 0.92 [0.022]*** | 0.98 [0.028] | 0.91 [0.033]** | 0.86 [0.029] | 0.94 [0.041]*** |
| Y1 insecurity: skipped payment | 1.79 [0.150]*** | | 1.76 [0.241]* | | 0.91 [0.377] | 1.51 [0.404] | |
| Y1 insecurity: evicted | 0.81 [0.361] | | 1.16 [0.513] | | 0.05 [0.864]*** | 0.27 [1.371] | |
| Y1 insecurity: "doubled up" | 1.40 [0.185] | | 1.30 [0.264] | | 2.33 [0.340]* | 1.38 [0.420] | |
| Y1 insecurity: homeless | 1.79 [0.314] | | 2.33 [0.408]* | | 3.92 [0.547]* | 1.23 [0.734] | |
| Y1 insecurity: lived with others, no rent | 1.58 [0.227]* | | 0.64 [0.399] | | 4.70 [0.328]*** | 0.57 [0.857] | |
| Y1 insecurity: moved >1x/year | 1.43 [0.165]* | | 2.19 [0.237]*** | | 1.10 [0.354] | 1.74 [0.395] | |
| Y1 insecurity: any insecurity | | 1.57 [0.149]** | | 1.28 [0.211] | | | 0.88 [0.413] |
| Black | 1.40 [0.167]* | 1.33 [0.210] | 1.71 [0.293] | 1.18 [0.288] | 1.06 [0.419] | 1.88 [0.490] | 1.61 [0.658] |
| Hispanic | 1.29 [0.202] | 1.33 [0.256] | 1.13 [0.361] | 1.14 [0.383] | 0.57 [0.501] | 1.51 [0.616] | 1.37 [0.712] |
| Other | 1.07 [0.258] | 0.83 [0.341] | 1.65 [0.421] | 1.30 [0.434] | 0.61 [0.606] | 0.89 [0.789] | 1.03 [0.874] |
| Foreign born | 0.91 [0.200] | 0.93 [0.249] | 0.53 [0.488] | 0.84 [0.382] | 1.60 [0.513] | 0.59 [0.551] | 1.33 [0.502] |
| Age (at baseline) | 0.99 [0.008] | 1.00 [0.010] | 0.97 [0.013] | 0.97 [0.015]* | 0.95 [0.027] | 0.99 [0.021] | 1.01 [0.018] |
| Cognitive Ability | 1.00 [0.022] | 0.97 [0.028] | 1.06 [0.036] | 1.02 [0.040] | 1.02 [0.045] | 1.09 [0.054] | 0.98 [0.073] |
| Grew up with both parents | 0.92 [0.117] | 0.64 [0.151]** | 0.93 [0.203] | 1.19 [0.218] | 2.21 [0.265]** | 1.22 [0.332] | 0.50 [0.364] |
| Maternal history of depression | 1.24 [0.121] | 1.46 [0.145]** | 1.48 [0.192]* | 2.00 [0.208]*** | 0.62 [0.329] | 2.84 [0.283] | 1.72 [0.319]*** |
| Impulsivity | 1.22 [0.069]** | 1.18 [0.087] | 1.24 [0.113] | 1.30 [0.131]* | 1.12 [0.145] | 1.48 [0.205] | 0.67 [0.249] |
| Cohabiting at baseline | 1.14 [0.148] | 1.03 [0.186] | 1.13 [0.279] | 1.22 [0.309] | 1.02 [0.365] | 1.33 [0.525] | 1.26 [0.493] |
| Nonresident at baseline | 0.91 [0.167] | 0.72 [0.209] | 1.04 [0.307] | 0.98 [0.340] | 1.35 [0.414] | 1.62 [0.537] | 1.58 [0.549] |
| Baseline education: <HS | 0.95 [0.127] | 0.90 [0.163] | 0.96 [0.200] | 1.66 [0.221]* | 0.87 [0.267] | 0.87 [0.321] | 2.00 [0.409] |
| Baseline education: some college | 1.07 [0.142] | 1.29 [0.173] | 0.75 [0.255] | 1.00 [0.298] | 0.82 [0.339] | 0.81 [0.374] | 1.37 [0.510] |
| Baseline education: college grad | 0.33 [0.299]*** | 0.28 [0.425]** | 0.20 [0.737]* | 0.54 [0.570] | 0.49 [0.660] | 0.31 [1.126] | 1.07 [0.805] |
| Employed at baseline | 1.34 [0.157] | 1.57 [0.206]* | 0.87 [0.235] | 1.11 [0.271] | 0.84 [0.319] | 1.29 [0.346] | 0.73 [0.404] |
| Substance use at baseline | 1.40 [0.158]* | 1.39 [0.195] | 1.01 [0.267] | 1.77 [0.253]* | 0.56 [0.472] | 1.64 [0.423] | 1.05 [0.473] |
| Reports good health at baseline | 0.90 [0.120] | 0.84 [0.151] | 1.04 [0.204] | 1.53 [0.234] | 0.75 [0.271] | 1.38 [0.351] | 1.21 [0.391] |

* p<0.05, **p<0.01, ***p<0.001

City FE and missing data indicators included in model, but not table.

Table 7: Housing insecurity at year 5, examining Incarceration and Public Housing Interaction

| VARIABLE | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|----------------------------------|--|--------------------------------|---|---|---|---------------------------|
| | Any Insecurity Odds Ratio, SE | Skipped Mortgage or Rent Payment Odds Ratio, SE | "Doubled Up" Odds Ratio, SE | Moved >1x per year Odds Ratio, SE | Lived with others, did not pay rent Odds Ratio, SE | Lived in shelter or other place not intended for residence Odds Ratio, SE | Evicted Odds Ratio, SE |
| Incarceration (Y1-Y5) | 1.60 [0.146]** | 1.07 [0.191] | 1.38 [0.235] | 2.07 [0.248]** | 1.56 [0.325] | 2.57 [0.367]* | 0.96 [0.508] |
| Public Housing (Y1) | 0.83 [0.163] | 0.80 [0.214] | 0.98 [0.274] | 0.73 [0.350] | 0.88 [0.399] | 0.82 [0.554] | 0.27 [0.791] |
| Incarc (Y1-Y5) x PH (Y1) | 1.14 [0.285] | 1.76 [0.349] | 1.01 [0.441] | 0.75 [0.534] | 1.66 [0.608] | 1.24 [0.779] | 11.10 [0.945]* |
| Incarceration (before Y1) | 1.24 [0.125] | 1.18 [0.165] | 1.61 [0.203]* | 0.97 [0.247] | 1.28 [0.268] | 0.96 [0.346] | 2.09 [0.419] |
| Y1 insecurity: skipped payment | 1.74 [0.149]*** | | 1.73 [0.241]* | | 0.85 [0.377] | 1.52 [0.409] | |
| Y1 insecurity: evicted | 0.79 [0.362] | | 1.13 [0.520] | | 0.07 [0.928]** | 0.27 [1.350] | |
| Y1 insecurity: "doubled up" | 1.38 [0.185] | | 1.28 [0.265] | | 2.55 [0.336]** | 1.22 [0.444] | |
| Y1 insecurity: homeless | 1.80 [0.312] | | 2.19 [0.421] | | 3.76 [0.540]* | 1.09 [0.778] | |
| Y1 insecurity: lived with others, no rent | 1.61 [0.231]* | | 0.63 [0.409] | | 4.68 [0.340]*** | 0.59 [0.802] | |
| Y1 insecurity: moved >1x/year | 1.47 [0.164]* | | 2.22 [0.240]*** | | 1.11 [0.355] | 1.80 [0.397] | |
| Y1 insecurity: any insecurity | | 1.56 [0.148]** | | 1.25 [0.215] | | | 0.90 [0.413] |
| Black | 1.49 [0.169]* | 1.40 [0.212] | 1.78 [0.292]* | 1.28 [0.284] | 1.05 [0.421] | 2.06 [0.478] | 1.63 [0.662] |
| Hispanic | 1.33 [0.203] | 1.36 [0.256] | 1.19 [0.363] | 1.18 [0.381] | 0.57 [0.493] | 1.69 [0.603] | 1.26 [0.713] |
| Other | 1.21 [0.250] | 0.98 [0.332] | 1.91 [0.413] | 1.37 [0.430] | 0.60 [0.597] | 1.30 [0.751] | 1.07 [0.868] |
| Foreign born | 0.88 [0.200] | 0.89 [0.249] | 0.50 [0.486] | 0.83 [0.382] | 1.59 [0.525] | 0.53 [0.554] | 1.36 [0.514] |
| Age (at baseline) | 0.99 [0.008] | 1.01 [0.010] | 0.98 [0.013] | 0.97 [0.015]* | 0.96 [0.026] | 1.00 [0.020] | 1.01 [0.018] |
| Cognitive Ability | 1.00 [0.021] | 0.98 [0.027] | 1.06 [0.035] | 1.02 [0.040] | 1.02 [0.043] | 1.11 [0.052]* | 0.98 [0.074] |
| Grew up with both parents | 0.91 [0.115] | 0.64 [0.148]** | 0.91 [0.201] | 1.18 [0.216] | 2.23 [0.267]** | 1.14 [0.319] | 0.50 [0.371] |
| Maternal history of depression | 1.24 [0.120] | 1.45 [0.144]** | 1.48 [0.191]* | 2.04 [0.207]*** | 0.62 [0.332] | 2.80 [0.278]*** | 1.82 [0.313] |
| Impulsivity | 1.26 [0.068]*** | 1.23 [0.086]* | 1.27 [0.113]* | 1.30 [0.132]* | 1.18 [0.146] | 1.56 [0.199]* | 0.67 [0.261] |
| Cohabiting at baseline | 1.19 [0.147] | 1.10 [0.183] | 1.17 [0.280] | 1.23 [0.313] | 1.13 [0.360] | 1.29 [0.505] | 1.37 [0.493] |
| Nonresident at baseline | 0.97 [0.168] | 0.78 [0.208] | 1.06 [0.309] | 1.00 [0.345] | 1.45 [0.416] | 1.63 [0.527] | 1.74 [0.561] |
| Baseline education: <HS | 1.00 [0.125] | 0.95 [0.161] | 1.00 [0.200] | 1.70 [0.222]* | 0.87 [0.271] | 0.96 [0.335] | 2.10 [0.411] |
| Baseline education: some college | 1.03 [0.141] | 1.25 [0.171] | 0.72 [0.257] | 0.97 [0.301] | 0.80 [0.340] | 0.78 [0.376] | 1.38 [0.533] |
| Baseline education: college grad | 0.30 [0.299]*** | 0.24 [0.423]*** | 0.18 [0.738]* | 0.52 [0.572] | 0.44 [0.656] | 0.22 [1.161] | 0.83 [0.789] |
| Employed at baseline | 1.15 [0.148] | 1.30 [0.193] | 0.79 [0.229] | 1.07 [0.268] | 0.72 [0.311] | 0.96 [0.321] | 0.65 [0.397] |
| Substance use at baseline | 1.38 [0.159]* | 1.41 [0.196] | 1.01 [0.262] | 1.75 [0.254]* | 0.53 [0.485] | 1.56 [0.411] | 1.04 [0.482] |
| Reports good health at baseline | 0.87 [0.119] | 0.81 [0.149] | 1.02 [0.204] | 1.51 [0.232] | 0.74 [0.272] | 1.26 [0.343] | 1.20 [0.390] |

* p<0.05, **p<0.01, ***p<0.001

City FE and missing data indicators included in model, but not table.