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## Incarceration and the Economic Fortunes of Urban Neighborhoods

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Incarceration and the Economic Fortunes of Urban Neighborhoods

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May 2010

# INCARCERATION AND THE ECONOMIC FORTUNES OF URBAN NEIGHBORHOODS<sup>§</sup>

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## ABSTRACT

*New research has identified the consequences of high rates of incarceration on neighborhood crime rates, but few studies have looked beyond crime to examine the collateral effects of incarceration on the social and economic well being of the neighborhoods themselves and their residents. We assess two specific indicia of neighborhood economic well-being, household income and human capital, dimensions that are robust predictors of elevated crime, enforcement and incarceration rates. We decompose incarceration effects by neighborhood racial composition and socio-economic conditions to account for structural disadvantages in labor force and access to wealth that flow from persistent patterns of residential segregation. We use panel methods to examine the effects on incarceration on New York City census tracts over an 11 year period from 1985-1996, a period which saw crime rates rise and fall sharply, and when incarceration rates increased and remained high in concentrated areas throughout the city. We examine whether persistently high incarceration rates erode human capital and depress median household incomes, further intensifying incarceration risks and threatening to create conditions where incarceration and economic disadvantage become endogenous features of certain neighborhoods. We find distinct but overlapping effects for prisons and jails, suggesting that these are parallel processes produced by loosely coupled law enforcement priorities. Incarceration effects are greater for household income than human capital, suggesting a complex relationship between persistent poverty, residential segregation, and incarceration that reinforces a classic poverty trap. Household incomes are lower over time in neighborhoods with higher proportions of African American population, even after controlling for the effects of race on incarceration, but we find no similar effects for Hispanic populations. Spatially targeted policies such as microinvestment and housing development may be needed offset the local embeddedness of poverty and disrupt its connections to incarceration and crime, while education policy and transitional labor market networking can strengthen local human capital.*

## I. INTRODUCTION

Research on the growth in incarceration has focused both on the sources of incarceration and its public safety returns. The incapacitative and deterrent effects of incarceration are fundamental rationales for the heavy fiscal burdens of mass incarceration, and legislators have used a wide range of policy instruments to increase the number of persons sentenced to prison and the lengths of their sentences. Recent studies disagree on the impacts of incarceration on crime rates within states (see, for example, Spelman, 2000; Zimring, Hawkins and Kamin, 2003; Levitt, 2003; Katz, Levitt, and Shustorovich, 2003) or smaller areas within cities (Clear, Rose, Waring and Scully, 2003; Lynch and Sabol, 2003; Fagan, West and Holland, 2003).

While this debate continues, a parallel line of research has started to examine the impacts of the rise in incarceration both on inmates and the family members they left behind and to whom they return (Nagin, Cullen and Johnson, 2009; Durlauf and Nagin, 2010). Recent studies have examined the intergenerational impacts of incarceration on the economic and social well being of children and families (Geller, Garfinkel and Western, 2012; Hagan and Dinovitzer, 1999; LeBlanc, 2003). Other research has examined the challenges facing newly released inmates to avoid crime and successfully return to community life (Visher and Travis, 2002; Travis, 2005; Petersilia, 2004). Their re-entry is complicated by the specific effects of incarceration on work (Western 2006; Pettit and Western, 2004) and crime (Chen and Shapiro, 2007). For example, incarceration suppresses future earnings, especially for young African American males, whether by diminishing their human capital that makes them marketable in the workplace (e.g., Freeman, 1992; Pettit and Lyons, 2003), or by attaching a stigma that discourages employers from hiring them even for low-paying unskilled labor jobs (Pager, 2003). Incarceration increases – or perhaps coerces -- residential mobility, contributing to social instability and detachment from supportive social networks that in turn increases crime (Clear et al., 2003). Incarceration often is a turning point that diminishes the life prospects for stable marriage and employment (e.g., Sampson and Laub, 1993; Laub and Sampson, 2003: 290-92). Incarceration also excludes returning inmates from several forms of political participation and citizenship: jury service, the right to vote, and the

right to hold elective office (Fletcher, 1999; Maurer, 2000; Miles, 2004). The racial concentration of incarceration means that these effects are especially pronounced for African Americans (Maurer, 2000; Fagan, 2004, 2008).<sup>1</sup>

These studies illustrate that the consequences of incarceration extend beyond individual effects to change the social organization and economic fortunes of neighborhoods. Incarceration is spatially concentrated, a consequence of the spatial clustering of crime, law enforcement, social structural risk, and racial residential segregation (Morenoff et al., 1997; Fagan et al., 2010; Fagan and Davies, 2004; Sampson and Raudenbush, 2004).<sup>2</sup> A handful of studies have illustrated this spatial concentration of incarceration, and examined whether this spatial concentration reduces or contributes to crime (c.f., Clear et al., 2003; Fagan, West and Holland, 2003; Lynch and Sabol, 2004).

These studies examined the reciprocal effects of crime, incarceration and neighborhood social and economic disadvantage that are bound together in complex neighborhood ecological dynamics. These neighborhood dynamics themselves exert secondary or one-off effects on a range of individual outcomes including crime, employment, school dropout, teenage pregnancy and drug abuse, often swamping any individual effects (Sampson, Morenoff and Gannon-Rowley, 2002; Sampson, Morenoff, and Raudenbush, 2005). In some neighborhoods, this racial-spatial concentration may accumulate to produce collective consequences for entire neighborhoods whose effects are well beyond what we might expect from the aggregation of individual effects of persons within neighborhoods.

Several researchers now are examining the effects of this spatial concentration of incarceration, including its effects on social and economic indicia of community life. Recent theoretical and empirical work has focused on the unintended consequences of

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<sup>1</sup> Disenfranchisement disproportionately and severely affects African American males, consistent with their distorted presence in the incarceration population: of the 3.9 million American felons who are disenfranchised in 1999, nearly 1.4 were African American males, representing 13% of all black males (Maurer, 2000).

<sup>2</sup> For example, neighborhood disadvantage may invite closer surveillance by law enforcement, well in excess of levels of surveillance and enforcement that would be predicted by crime rates alone (Fagan and Davies, 2000, 2002), increasing incarceration risks relative to crime rates. These reciprocal patterns of crime, enforcement and social risk sustain the elevated rates of incarceration, and appear to do so even when crime rates decline (Fagan et al., 2003).

incarceration not just for individuals or families, but for neighborhoods *that experience the highest rates of incarceration* (Lynch and Sabol, 2004). Much of this work has focused on the possibility that incarceration may increase neighborhood crime rates (Clear et al., 2003; Fagan et al., 2003; Lynch et al., 2001; Lynch and Sabol, 2004). Few (Hagan and Dinovitzer, 1999; Sabol and Lynch, 2003) have looked at the effects of incarceration on the social and economic contexts – human capital, poverty, family and child well-being -- of neighborhoods that are intricately bound up with incarceration and crime (see, Crutchfield, this volume). Because crime, incarceration and neighborhood contexts are part of a complex ecological dynamic with reciprocal effects over time, unraveling these influences is a potentially important step in understanding the persistent spatial concentration of incarceration that seems to be orthogonal to local crime rates.<sup>3</sup>

In this article, we take another step in this direction. We analyze data from a panel study of New York City neighborhoods to examine the effects of incarceration on two indicia of the economic well-being of neighborhoods: median household income and human capital. The research setting is New York City in the years from 1985-1996, a period when there was a “perfect storm” of crime crises and their sequellae: epidemics of gun violence and highly addictive drugs (Fagan, Wilkinson and Davies, 2007), economic instability (Mollenkopf, 1995), a significant increase in incarceration per crime (Fagan, West and Holland, 2003), and high rates of residential mobility (DeGiovanni and Minnete, 1992; Beveridge, 2008). These dynamics disproportionately affected the City’s minority citizens (Community Service Society, 2004). In our earlier study in 2003, we showed that incarceration grew over time after controlling for the crime rate and for law enforcement. The stability of incarceration in the face of declining crime rates illustrated the endogeneity of incarceration in the most disadvantaged neighborhoods. But neighborhood economic strength was one of the factors that protectively insulated neighborhoods from the spiraling crime-incarceration dynamic.

Accordingly, we examine here whether in fact the dynamics of incarceration adversely affect the social and economic resources of the City’s neighborhoods, and embed neighborhoods in the endogenous dynamics of crime, incarceration and

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<sup>3</sup> See, for example, Fagan, West and Holland, 2005, showing the persistence of incarceration rates over time that are independent of local crime rates, even after accounting for the endogeneity of crime, incarceration and social structural disadvantage in New York City neighborhoods.

disadvantage. We examine whether incarceration exhibits negative effects on neighborhood well-being using two dimensions of neighborhood economic status, median income and human capital. Both are robust predictors of elevated crime, enforcement and incarceration rates. We use a panel design to examine the effects on incarceration on New York City census tracts over an 11 year period from 1985-1996, a period which saw crime rates rise and then fall (Karmen, 2000; Fagan, Zimring and Kim, 1998; Bowling, 1999; Zimring, 2006), but an era when incarceration rates rose steadily in concentrated areas throughout the city. We ask whether persistently high incarceration rates erode human capital and depress incomes, intensifying incarceration risks and threatening to create conditions where incarceration and economic disadvantage are endogenous features of certain neighborhoods.

## **II. BACKGROUND**

Neighborhoods exert strong effects on a wide range of social behaviors (for a review, see Sampson et al., 2002), including crime (Fagan, 2008). These effects influence the social and economic behaviors not only of their residents, but also residents of the surrounding areas through dynamics of diffusion or contagion of neighborhood effects (Reordan et al., 2008; Reordan and Sullivan, 2004; Grannis, 1998). Neighborhood effects capture the intricate interplay between social structure, social organization, and social control that combine to influence individual behaviors. Interest in neighborhood effects has produced new research on small area variations in child development and child maltreatment, domestic violence, teenage sexual behavior and childbearing, school dropout, home ownership, several indicia of health, suicide, disorder, drug use and adolescent delinquency (see, for example, Coulton, Korbin and Chow, 1995; Miles-Doan, 1998; Crane, 1991; Gould et al., 1990a, 1990b; Brooks-Gunn et al., 1993; Rowe and Rogers, 1994). Moreover, evidence of the spread of social behaviors from one neighborhood to the next suggests that element of social contagion may also explain variation in crime rates over time (Fagan and Davies, 2004).

Here, we focus not on the neighborhood effects on individuals, but instead on the effects of incarceration on the ecology of neighborhoods and their developmental



trajectories over time. We assume that neighborhoods (like people) are dynamic entities that change over time, and that these transformations are likely to lead to complex outcomes of crime and other indicia of social and economic life.

A small number of studies use panel methods to examine these interactions within neighborhoods over time, identifying complex interactions and (non-recursive) feedback processes between crime and the social dynamics and compositional characteristics of neighborhoods (c.f., Bellair, 2000).<sup>4</sup> Some neighborhood change studies have examined the reciprocal influence of adjacent neighborhoods on crime rates. For example, Taylor and Covington (1988), Morenoff and Sampson (1997), and Heitgerd and Bursik (1987) all identified dynamics where crime or violence in one area influenced homicide rates in adjacent areas over time. Taylor and Covington examined gentrification as a trigger for crime, while Heitgard and Bursik used a similar strategy to show that even stable, well-organized communities can have high rates of delinquency when the adjacent neighborhoods experienced rapid racial change. Other studies have identified turning points in neighborhoods that precede the onset or intensification of crime. Bursik and colleagues (Bursik and Webb, 1982; Bursik, 1984; Bursik and Grasmick, 1992, 1993) analyzed neighborhood change in Chicago's 74 planning areas to identify turning points in the natural history of neighborhood development to pinpoint when crime rates change and grow.

In this article, we are concerned with the effects both of endogenous social dynamics – including crime, economic activity, and stratification – and exogenous shocks to these systems through public policy choices. The fact that incarceration has elements of both – endogeneity with crime, exogeneity with policy choices – is both a conceptual and analytic challenge. That is, the specific question is how incarceration, which is both a response to crime within neighborhoods but also a public policy choice produced by factors exogenous to the neighborhoods, affects the developmental history of neighborhood economics. If the affects are salutary, then we might conclude that incarceration produces the ancillary benefits of promoting neighborhood resilience to

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<sup>4</sup> Physical and social deterioration is a persistent theme of neighborhood change in several studies (Taub, Taylor and Dunham, 1984; Schuerman and Kobrin, 1986; Harrell and Gouvis, 1994). Deterioration often cued citizens to leave previously stable areas based on changes in their subjective evaluation of the likelihood of crime affecting them personally.

crime while at the same time reducing one of the main sociological culprits in local crime rates. But we might also worry that if incarceration adversely affects neighborhoods, the criminal justice policies producing incarceration may actually worsen and reify the social and economic risks of crime and other social behaviors, creating an internal equilibrium that will sustain incarceration over time and resist incremental policy changes meant to disrupt it.

### **Incarceration and Neighborhood Crime**

Three studies have shown that the risks of going to jail or prison grow over time for persons living in poor neighborhoods. In a panel study of New York City neighborhoods from 1985-96, Fagan et al. (2003) showed that neighborhoods with high rates of incarceration invited closer and more punitive police enforcement and parole surveillance, contributing to the growing number of repeat admissions and the resilience of incarceration even as crime rates fall. They included measures of both prison and jail admissions, emphasizing how even short term incarceration in local facilities contributed to further incarceration. Using growth curve models and controlling for the endogeneity of crime, incarceration and social structural disadvantage, they concluded that incarceration produced more incarceration net of crime, and that incarceration was associated with increasing crime. The engine for the growth in incarceration was drug enforcement, which continued to resupply incarceration (Fagan, West and Holland, 2003, 2005). These dynamics spiraled over time in a reciprocal dynamic that at some tipping point is likely to reach equilibrium. The dynamic becomes self-sustaining and reinforcing, and continues even as externalities such as labor market dynamics or population structure undergo significant change, as well as in the face of declining crime rates and receding drug epidemics.

In the second study, based on data from a two-wave study neighborhoods in Tallahassee, Florida, Clear et al. (2003) showed a positive relationship between the rate of releases one year and the community's crime rates the following year. They showed a dose-response relationship between prison admissions and crime -- low rates of prison admissions had non-significant effects on local crime rates, moderate prison admission rates produced modest effects on crime, and the neighborhoods with the highest rates has

the strongest increase in crime. Provocative as it may be, their study overlooked endogeneity of crime and incarceration that would lead to intercept differences in the neighborhoods at the outset of the panel and weaken the causal claim. That is, higher incarceration rates may simply respond to higher crime rates, or the two may be spuriously related to the factors that produced these intercept differences (i.e., simultaneous equation bias).

The Tallahassee study was silent on causal mechanisms, such as incarceration impacts on informal social control or community organization. These mediating mechanisms were an explicit focus in a study by Lynch and Sabol (2004) of crime, incarceration and social organization in 30 Baltimore communities. Lynch and Sabol examined the effects of neighborhood incarceration rates on community social cohesion and informal social control in the 30 neighborhoods, and ultimately on crime. They tested whether incarceration lessens the capacity of communities to engage in social control, which in turn could increase crime rates. They identified the discretionary component of law enforcement – one of the primary engines of incarceration (see, also, Fagan et al., 2003) – through an instrumental variables model to estimate the effects of law enforcement (arrest) on incarceration net of crime.<sup>5</sup> They showed that incarceration rates reduced feelings of community solidarity, and undermined neighborhood residents' willingness to join in the types of neighborhood activities that are critical elements of collective actions to reduce crime. At the same time, incarceration seemed to promote informal social control, a neighborhood benefit that can produce an effective response to crime.<sup>6</sup> Their results leave complicated lessons, though perhaps these lessons could be unraveled by sorting out the effects on communities with different baselines of collective action and crime.

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<sup>5</sup> That is, they computed the portion of the rate of drug arrests in each neighborhood that was not explained by the index crime rate

<sup>6</sup> The positive effect of incarceration on informal social control may, at first glance, be unexpected. Lynch and Sabol suggest that changes (increases) in incarceration rates encourage informal social control through mechanisms such as fear reduction. Because they failed to find that incarceration promotes interactions with residents, they suggest that the incarceration/informal social control linkage operates through individuals: "Residents may see or know of persons being incarcerated for crime, and this may increase their confidence in engaging in informal social control. They may feel that the "bad guys" are gone and that the criminal justice system is working with them to increase safety" (Lynch and Sabol, 2004:24).

The common ground in both studies is the indictment of incarceration as a negative influence on community organization and informal social control, a perverse consequence that may produce more and not less crime. Rose and Clear (1998) hypothesized that concentrations of incarceration may disrupt social networks by damaging familial, economic, and political sources of informal social control, mortgaging the community's social capital and also the social ties of the persons living there (regardless of whether they had been to prison). In their 2003 study, Clear et al. identify the mechanism for the erosion of social cohesion and social capital (also noted by Lynch and Sabol) as *coercive mobility*. This is a dynamic process of residential mobility that is induced by high rates of removal to and return from prison. Such mobility has long been implicated in higher crimes in communities (c.f., Shaw and McKay, 1943), but more recent updates of this theory pinpoint the mechanisms by which mobility raises the risk of crime (see, for example, Bursik, 1988; Fagan and Davies, 2004). Rose and Clear suggest that coercive mobility undermines the less coercive and more influential institutions of social control, such as families, community associations, and a community's capacity to enforce norms to defend against crime (see, for example, Bursik and Grasmick, 1993). These dynamics are compounded systemically by the mobility of citizens who are victims of crime,<sup>7</sup> citizens who might otherwise be participants in social regulation. Thus, the churning effects of prisoners coming and going with limited job prospects every time they return may contribute systemically to the mobility that increases the risks of crime.

High rates of incarceration may reduce incentives for citizens to participate in informal social control by reducing the communicative value of sanctions, delegitimizing law and legal actors, further inviting crime and intensifying the crime-enforcement-incarceration-crime cycle (Fagan and Meares, 2003; Uggen and Manza, 2004). High rates of imprisonment raise questions of the legitimacy of government and undermine incentives to comply with the law (Sherman, 1993 Tyler and Huo, 2002). The racial and neighborhood asymmetry in punishment offers a stark contrast to the claims of legal actors that law is fair and legitimate. If local residents reject the claim that prison

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<sup>7</sup> See, for example, Laura Dugan and Robert Apel (2002) on the coerced mobility of women who flee from violent relationships with intimate partners.

sentences are fairly distributed across races and neighborhoods, they may conclude that the policy that produces the unfair distribution is illegitimate (Fagan, 2004).

### **Incarceration and Neighborhood Economic Well-Being**

Much of what we know about the adverse effects of incarceration on individuals' prospects in the legal labor market come from large and small panel studies of former inmates. We were unable to locate studies of the effects of incarceration on the aggregate social or economic well-being of neighborhoods as a function of the rates of removal to prison or jail.

The panel studies agree that the prospects for stable employment and future earnings of former inmates are dim (Freeman, 1992; Fagan and Freeman, 1999; Western and Pettit, 2000; Western, 2006). As time spent in prison increases, the subsequent likelihood of disengagement from the legal economy increases (Freeman, 1996; Grogger, 1995; Hagan, 1991). Once out of prison, a criminal record disadvantages low-skill and other workers attempting either to enter the labor force or to improve their earnings (Pager, 2003). Western and Beckett's (1999) study of incarceration and unemployment found that although growing levels of incarceration initially produced lower rates of conventional measures of unemployment, the recycling of these ex-offenders back into the job market with reduced job prospects had the effect of increasing unemployment in the long run. Western (2002) estimates that the earnings loss associated with prison ranges between 10 and 30 percent, and serving time in prison is also associated with decreased earnings growth.

Some studies have looked at the aggregation effects of concentrated incarceration on labor market outcomes. Western et al. (2001) and Western (2006) showed that incarceration not only lowers the work prospects of former inmates, but that the spatial concentration of incarceration may aggravate social and economic disadvantages by compounding individual barriers to meaningful employment for released prisoners and their peers (Western et al., 2001: 414). These aggregate effects become a collective problem in neighborhoods marked by high incarceration, decreasing the prospects for desistance by returning inmates (Western 2001; Laub and Sampson, 2004) while increasing crime risks for others living in the same areas.

Incarceration potentially stigmatizes neighborhoods, complicating the ability of local residents to access job hiring networks to enter and compete in labor markets (Granovetter, 1973, 1974), and deterring businesses from locating in those areas (Granovetter, 1974). The stigma evidently is not lost on employers. Holzer, Raphael and Stoll (2004) show that employers are more reluctant to hire former prisoners than welfare recipients. Both welfare recipients and inmates are spatially concentrated in poor minority neighborhoods, so the imbalance in employer preferences is even more striking. Thus, job scarcity, even for low-skill jobs, will likely add to the concentration of economic disadvantage in neighborhoods that already lag behind others in employment and earnings.

In their Baltimore study, Sabol and Lynch (2003) examined labor force participation using releases from prison as a proxy for incarceration rates. Using race-specific models, they show found that release rates were positively and significantly related to unemployment for blacks but the opposite was the case for whites. Disruption of these local networks of social control and economic activity can mean that the long run consequences of incarceration will be to increase crime (Lynch and Sabol, 2004). The secondary effects of incarceration are diffused to others in neighborhoods with spatially concentrated incarceration. Low earnings and employment by returning prisoners burden families since former inmates have less ability to bring money to families, and less to spend on essential services in their communities.

Lynch and Sabol (2004:273) argue that “[incarceration] can also reduce the earning power of family left behind because they must tend to tasks formerly performed by the incarcerated family member. In the long run, incarceration will have negative effects on the economic life of the community by reducing the ability of returning inmates to obtain jobs and higher salaries.” This prediction is reinforced when we consider the employer preferences shown by Holzer and colleagues.

### **Incarceration and Family Integrity**

One would expect incarceration to be a turning point in the lives of men in several ways that increases their crime risks. Not only are they disadvantaged in the workplace, but their ties to their children and families suffer, eroding an essential form of emotional

and social support that has strong effects on criminal activity (Sampson and Laub, 1993; Laub and Sampson, 2004). Recent studies offer evidence that imprisonment damages the ties between incarcerated men and women, their families, and their communities (Hagan and Dinovitzer, 1999:122; Geller et al., 2012). These effects further burden the efforts of former inmates to avoid crime once back in their communities, but also their capacity to supervise and raise children.

Researchers have focused on the fates of families and children, with inferences about communities based on the concentration of incarceration and the aggregation of individual effects. In *Random Family*, LeBlanc (2003) reports on a social and familial network of Latino families and neighbors. Her ethnography showed how incarceration can weaken families by removing men from existing families, by reducing the supply of marriageable men in the neighborhood, and in turn attenuating or skewing family formation toward unstable couplings (LeBlanc, 2003; see also Wilson, 1996). Her work shows the effects of incarceration on the capacities of families as socializing agents for children, and less able to supervise teenage children.

Edin, Nelson and Paranal (2004) show that incarceration influences the ties between imprisoned men and their children in several ways. In life history studies with men with low job skills in two cities, they identify a group of men whose ties to their children – ties that were strong prior to incarceration -- were disrupted by their imprisonment. Fathers in this group were less able to supervise their children and maintain parental ties that important to preventing children's involvement with the law (Geller et al., forthcoming). For some men, incarceration disrupted the destructive behaviors that had weakened their ties to their children in the years before prison. For this group, prison offered the chance for a different kind of turning point. For others, having children provided an incentive to avoid crime and raised the costs of crime and legal trouble. But incarceration also disrupted the economic role of those men whose criminal activities were an important income source for their children and partners. For these men, incarceration not only strained family ties but also family economic well being. Fatherhood increased the pressures to provide materially for their children, not just with strollers and playpens when they are younger, but for clothes and shoes when they become children and adolescents. Yet the workplace stigma of incarceration kept many

of these men out of even low wage legal work and contributed to their return to crime (Edin et al., 2004).

Several studies show that children of incarcerated parents have poorer emotional, behavioral and psychological development than other children ( Wildeman, 2010; Murray et al., 2009; see, Johnson and Waldfogel, 2002, for a review of earlier work). Even when parent behaviors prior to incarceration have had negative influences on child development before an incarceration event, these studies show that the effects of incarceration are also observed once the parent leaves home for prison. One pathway to adverse child development is through removal to foster care. Children with an incarcerated parent are more likely to be placed in foster care where developmental outcomes are uncertain, and the disruption of parental attachment can have serious developmental consequences (Johnson and Waldfogel, 2004; Geller et al. forthcoming).

These effects fall more heavily on non-white families, and especially on African American families. Myers (2000) argues that the high rates of incarceration of African American males contribute to the higher prevalence of black families headed by single women in predominantly African American neighborhoods. Lynch and Sabol (2003) estimate that increases in incarceration of black men were associated with about 20% of the increase in the number of black families headed by single women during the 1980s. And when men go to prison in high rates in poor minority neighborhoods, the supply of marriageable men declines, suppressing the marriage rate. As Wilson (1996:104) explains, “both inner-city black males and females believe that since most marriages will eventually break up and since marriages no longer represent meaningful relationships, it is better to avoid the entanglements of wedlock altogether.”

When women go to jail or prison, the children of African American incarcerated mothers are far more likely to be placed with another family member or in foster care compared to white women, even after controlling for differences in social position (Johnson and Waldfogel, 2004: 123). One consequence, then, of higher incarceration rates is strain on the child welfare system. The spatial concentration of incarceration will focus these systemic strains in small social areas with limited foster care resources and supervisory or regulatory capacities.

### **Incarceration and Local Social Control**



Recent work with incarcerated males and the “fragile families” they leave behind suggests that incarceration disrupts family ties and social networks, aggravating vulnerabilities to crime through compromises to social control, in turn creating a churning effect on social networks (McLanahan and Sandefur, 1994; McLanahan and Bumpass, 1998; Geller XXXXX). Social organization and social control are spatially embedded processes that influence neighborhood-level variations in violence (Morenoff et al., 2001). Thus, rising and concentrated rates of incarceration not only become a part of the fabric of poor communities, already susceptible to crime, but they compromise the limited forms of social control that poor communities can mount.

Informal social control is essential in the regulation of crime (Grasmick and Bursik, 1993). But social control is intricately tied to social structure, supporting citizen activities – social regulation – that can sustain or inhibit crime (Sampson et al., 1997). When economic conditions are weak, the strains of everyday life can compromise the participation of local residents in social regulation. Thus, rising and concentrated rates of incarceration not only become a part of the fabric of poor communities, already susceptible to crime, but they compromise the limited forms of social control that poor communities can mount. If these effects extend to neighborhood economic well-being, the strains on residents’ capacity for social control reinforce the crime-incarceration dynamics well observed in other studies.

### **This Study**

The negative consequences of concentrated incarceration in poor neighborhoods may offset its public safety benefits (Fagan et al., 2003). The cascade of negative consequences may corrode the ecological dynamics of neighborhood social control, in a way that actually may elevate crime risks over time (Lynch and Sabol, 2004; Clear et al., 2003; Fagan et al., 2005). Here, we reverse the question, and estimate the effects of incarceration on neighborhood economic fortunes as part of the influence of incarceration on the ecology of social control. We suspect that higher incarceration is associated with lower income and less human capital at the tract level.

We suggest that the spatial concentration of incarceration can influence attenuate a neighborhood's economic fortunes through three possible mechanisms (Fagan et al., 2003): (1) incarceration complicates the efforts of individuals to forge links to legal work (Hagan and Palloni, 1990; Fagan and Freeman, 1999; Pager, 2002; Holzer et al., 2004); (2) concentrated incarceration compromises social control in multiple ways by increasing the number of single-parent households, reducing the number of older males, and by straining citizens' relationships to law and social control (Lynch and Sabol, 2004; Myers, 2000); and (3) the concentration of incarceration in poor, predominantly minority communities can also lead to voter disenfranchisement which may adversely affect the political economy of neighborhoods (Maurer, 1999; Uggen and Manza, 2002; Uggen, Manza and Behrens, 2003). In addition, high rates of incarceration may mark a neighborhood as risky or high crime, and attract recurring and intensive police attention that sustains the elevated risks of police action.

With these mechanisms in mind, we present analyses on the effects of incarceration on the economic fortunes of neighborhoods. First, we present trends in incarceration and crime for New York City census tracts for the period from 1985-1996, the most recent era of sharp increases in incarceration in New York City and State (Fagan et al., 2003). Next, we show the effects of incarceration on two indicia of neighborhood economic well-being: median household income and human capital in a series of regression models that take advantage of the panel structure of the data. We include jail populations in addition to prison populations, a dimension of incarceration that has been neglected in much of the research on incarceration. We use the homicide victimization rate as a proxy for the overall crime rate (see: Maltz, 1998). We include a series of control variables that capture the dimensions of neighborhood social control and social structure, and that themselves are bound up with both incarceration and crime. To estimate temporal effects, we include interactions of time with each of these predictors.

### **III. RESEARCH SETTING AND METHODS**

#### **Crime and Incarceration in New York City**

Trends in crime and incarceration in New York City from 1985-97 provide the backdrop for understanding how incarceration shapes the economic fortunes of neighborhoods. Crime rates rose in New York beginning in 1985 concurrent with the onset of the crack epidemic and the emergence of street drug markets that themselves were flashpoints for violence and other crimes (Fagan et al., 1998; Karmen, 2000; Harcourt and Ludwig, 2006). Table 1 shows that violent crime rose 29.1% from 1985-90, and the total index crime (i.e., major felonies) rate rose by 18.0%. Starting in 1991, crime fell sharply, by nearly 50% for index crimes and 46.7% for violent crimes.

Incarceration rates rose and fell concurrently with changes in crime rates, though the trajectories were quite different. Prison sentences rose 89.0% from 1985 to 1990, rising more quickly than the crime rates.<sup>8</sup> Prison sentences then declined by 19.2% through 1997, a rate slower than the decline in crime. The steadily increasing rates of prison sentences per reported crime, arrest and conviction – during periods of both increase and decline in crime -- showed the change in the rise in the propensity for incarceration within the criminal justice system in New York City. The effect of these changes in punishment norms was sharp and sustained growth in New York State's prison population. The state prison population rose from 25,000 in 1985 to 55,000 in 1990 and then to nearly 70,000 in 1997 (Fagan et al., 2003).<sup>9</sup> Most – about 70% -- of the state's inmates come from New York City.

The jail population grew more slowly than did the prison population after 1985, but continued to grow as prison populations declined in the 1990s. The City's average

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<sup>8</sup> Over the past decade, New York City has experienced a steady decline in crime rates that ranks among the largest decreases of any American city. The total number of homicides dropped from a record high of 2,262 in 1990 to 606 in 1998—the lowest homicide count since 1964. As the number of homicides declined steadily, other serious crime was also dropping, but not at the same rate. From 1990 to 1995, reported index crimes declined by nearly 40%, from 711,556 to 442,532. Within two more years, index crimes dropped further to 356,573, an overall decline of nearly 50% from its peak in 1990. Overall, the total number of index crimes in New York City dropped by fifty percent between 1990 and 1997 and violent crimes dropped by forty-seven percent (Fagan, West and Holland, 2003). However, felony arrests dropped by only twelve percent, and misdemeanor arrests increased by seventy-three percent in the same period, despite the dramatic decrease in overall crime numbers.

<sup>9</sup> In 1987, 75% of all NYS prison admissions originated from cases disposed in New York City, 69% in 1990, and 69% in 1994. NYS Division of Criminal Justice Services (DCJS) and National Corrections Reporting Program (NCRP).

daily jail inmate population was 17,897 in 1999, a small decline from the 1990 population of 19,643 when crime rates were twice as high (Piquero et al., 2005).<sup>10</sup>

The engine for the growth and stability of incarceration – in the face of declining crime rates – is aggressive enforcement of drug laws, especially street-level enforcement resulting in large numbers of felony arrests of retail drug sellers (Fagan et al., 2003). Aggressive street enforcement and drug enforcement programs such as Operation Pressure Point, the Tactical Narcotics Teams, the Street Crimes Unit, and Operation Condor produced consistent high rates of felony drug arrests since the mid-1980s (see, for example, Letwin, 1990; Herman, 199\_ ; Sviridoff et al., 1992; Belenko and Fagan, 1993; Greene, 1999; Rashbaum, 2000; Fagan and Davies, 2000; Ketham, 2002) Despite the dramatic decreases in crime in New York City, drug-related arrests continued to increase each year through the late 1990s.<sup>11</sup> For most of the 1990’s, drug-related offenses accounted for an increasing proportion of New York State prison admissions: from just 12% of all New York State prison admissions in 1985, to 31% in 1990, to 38% in 1996.<sup>12</sup> Because these inmates are likely to serve long sentences under New York’s “predicate felony” laws, drug offenders comprised a growing proportion of the city’s and state’s incarcerated population (Fagan et al., 2003).

## Data

To estimate the effects of incarceration on neighborhood economic fortunes, we used a longitudinal panel of incarceration, crime, enforcement and social structure in New York City census tracts for the period from 1985 to 1997 (Fagan et al., 2003). We obtained a twenty-five percent sample of all individuals sentenced to prison and a five

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<sup>10</sup> New York City Department of Correction (DOC). On-line data report: <http://www.ci.nyc.ny.us/html/doc/html/avrdaily.html>.

<sup>11</sup> From 1990 to 1997, misdemeanor drug arrests in NYC were steadily increasing—accounting for twenty-seven percent of all misdemeanor arrests in 1990 to thirty-one percent in 1997. During the same period, felony drug arrests remained relatively stable—accounting for approximately thirty two percent of all felony arrests. New York State, Division of Criminal Justice Services, Criminal Justice Indicators By Percent Change New York City: 1990-1997, <http://criminaljustice.state.ny.us/crimnet/ojsa/areastat/areast.htm> (last visited May 30, 2003).

<sup>12</sup> United States Dept. of Justice, Bureau of Justice Statistics, National Corrections Reporting Program, 1985, 1990, and 1996: United States [computer file]. Conducted by U.S. Dept. of Commerce, Bureau of the Census. ICPSR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor].

percent sample of all jail sentences for cases with dispositions in New York City for the years 1985, 1987, 1990, 1993 and 1996. This yielded an annual sample of prison sentences of 2,000 to 4,000 individuals, and an annual sample of jail sentences of 3,000 to 4,000 individuals. Records of persons admitted to prisons or jails were geocoded by residential address of the incarcerated person. Geocoded cases and crime counts were aggregated to each census tract. Rates of crime and incarceration were then computed for each census tract.

We used homicide victimization rates as a proxy of crime generally (Maltz, 1998, 1999), and to account both for base rates of the supply of individuals available for incarceration, and the endogeneity of crime with incarceration and neighborhood social organization (Morenoff et al., 2001; Fagan and Davies, 2004). Unfortunately, the New York City Police Department does not make available crime data for geographically precise areas such as neighborhoods or census tracts.<sup>13</sup> Instead, we used data on homicide victimization from the Office of Vital Statistics of the New York City Department of Health and Mental Hygiene. Deaths are recorded by the Office of the Medical Examiner after classifying injuries as either intentional, accidental or self-inflicted. Neighborhood rates were estimated by aggregating from individual cases that were geocoded to the census tract using residential address of the victim, and using a population denominator for each year in the time series.<sup>14</sup>

To address the specific and theoretically significant contribution of drug enforcement on incarceration, we constructed a time series on drug arrests as a measure of the intensity of drug enforcement and as a proxy for the locations and intensity of drug

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<sup>13</sup> Beginning in 1994, the New York City Police Department launched a computerized crime mapping system, COMPSTAT (Bratton & Knobler, 1998). Crime data before 1994 cannot be located to specific addresses other than through manual geocoding of complaint and arrest records, or manual coding of the records of arrestees. Even after the launch of COMPSTAT, these data were unavailable for research purposes, but were used internally for strategic analysis of enforcement practices. One reason is that the spatial coordinates were obtained only for the initial crime complaint, which often was unverified at the time it was incorporated into the database. NYPD officials were reluctant to release these data, since many of the complaints had not been investigated. For example, a complaint of a gunshot might turn out on investigation to be a car backfiring. Or a burglary could simply be a missing personal item that was later recovered. Once verified, complaints were entered into the city's crime counts, but for unstated reasons, the geographical coordinates of the crime location were not carried forward or aggregated.

<sup>14</sup> Although using residential address in lieu of event location may distort the spatial estimates for violent events, we based this decision on prior work showing the close proximity of homicide events to the residences of victims. See, for example, Fagan and Wilkinson, 1998; Fagan, 1999.

markets (Baumer et al., 1998; Ousey and Lee, 2002). This time series was created by obtaining a ten percent sample of drug arrests from 1985-97 from the New York State Division of Criminal Justice Services (see, Fagan and Davies, 1992). Each arrest record was geocoded to the residential address of the arrestee and then assigned to each type of spatial unit. We aggregated arrests for drug possession, drug sales, and possession with intent to sell into a single measure of drug arrest as a measure of overall police aggressiveness in drug enforcement that was independent of the changing enforcement priorities that influenced the separate indicia over time.

Data on human capital, household income, and other measures of neighborhood social organization were obtained from the 1980, 1990, and 2000 census files (U.S. Bureau of the Census, Summery Tape File 3A). Census tracts equivalencies were developed to adjust for changes in census tract configuration the three Census iterations. Data for between census years were linearly interpolated.

## **Measures**

Neighborhood economic well-being is measured along two dimensions: median household income and human capital. Human capital is an index of three items, derived from principal components factor analysis of educational attainment (percent high school graduates), labor force participation (weeks worked by persons 16 and over in past year), and job skills (percent 16 and over with skilled occupation) (see, Fagan et al., 2003). These are indicia of work experience and labor market skills that tend to increase earnings (e.g., Becker, 1991), and are consistent with earlier indicia of human capital (e.g., Sanders and Nee, 1996). We used a Z-score for median household income, rather than applying uncertain cost-of-living or inflation estimators to this measure, we preferred to use the standardized measure that aligns each observation with other observations (tracts) in the panel in a consistent metric over time and overcomes differences in the skew and variance within each panel.

We used propensity scores of incarceration to identify the “treatment effects” of incarceration on neighborhood economic status. Propensity scores are commonly used to adjust for biases resulting from the non-random allocation of subjects to treatment

exposures (Rosenbaum and Rubin, 1983; Rosenbaum, 2002). In this case, incarceration is not randomly allocated across the city's census tracts, and the "dosages" of incarceration similarly reflect non-random differences in crime, social structure and law enforcement across (Fagan and West, 2003). In this case, propensity scores for both prison and jail are the estimated probability of the allocation of the "treatment" to each neighborhood. Propensity scores thus control for the endogeneity of crime, social structure and law enforcement, as well as other unobserved confounding variables. We used separate equations to estimate jail and prison propensity scores for each tract in each year of the panel.

Following Rubin (1997), we used a set of theoretical predictors to estimate the propensity scores that differed from those used to test the primary research questions. This allows for greater flexibility in model specification than the typical adjustments in regression-based model estimation techniques, and more effectively reduces biases resulting from confounding among predictors that is a recurring problem with observational data (Rosenbaum, 2002). Ideally, we would want the functional form of the propensity score analysis to be determined by the data, but in this case, the extreme skew in incarceration rates by tract dictated that we use a log transformation and a linear model.

Accordingly, we estimated ordinary least squares regressions for logged jail and prison rates, with predictors including homicide, drug arrests, and a series of social structural factors that are well-identified in criminological research on crime and punishment (c.f., Land et al., 1990; see, Fagan and Davies, 2004, for a review). Following Land et al. (1990), we sorted 18 tract-level variables along seven dimensions – poverty, labor market, segregation, supervision, anonymity, immigration, and housing structure – that characterize the dimensions of concentrated disadvantage articulated in the theoretical and empirical literature linking neighborhood effects with indicia of social adversity and isolation including crime (see, for example, Sampson et al., 2002; Bursik and Grasmick, 1993). For each census year, we used principal components analysis with varimax rotation to construct a factor score for each dimension. Appendix A shows the item loads and factor scores for each dimension for 1990. We imputed factor scores for the between-census years to construct a score for each year.

From the regression models, we generated the predicted value for jail and prison rates for each period to estimate the effects of incarceration on neighborhood economic status over time. The results are not shown, but are available from the authors. The explained variance in each model exceeds .60, a sign that a large fraction of the explanatory power of incarceration is attributable to other factors that are associated with incarceration, and better isolates the effects of incarceration by removing the effects of potentially confounding variables.

To estimate the effects of concentrated prison incarceration, census tracts were sorted for each year into quartiles. First, for each year, we included all tracts with no incarceration events in a “no event” group. The remaining tracts were sorted into quartiles.<sup>15</sup> We also computed the percentage of population for African Americans and non-white Hispanics in each tract in each year. Alternate specifications of the estimation models included these measures to examine race-specific effects, and also to control for the demographic concentration of incarceration in New York City within these two minority populations (Fagan et al., 2003).

## **Analysis**

We estimated growth curve models using random effects regression methods<sup>16</sup> to examine incarceration effects on neighborhoods (Little et al., 1996; Singer, 1998; Raudenbush and Bryk, 2002; Singer and Willett, 2003). We included the propensity scores for incarceration, with controls for the homicide rate (lagged one year and logged), the drug arrest rate (lagged one year and logged), the population over age 15 (logged), and the social control factor. Models were estimated with random intercepts. We emphasize social control because of its central role in theoretical and empirical work on the effects of incarceration on communities (Grasmick and Bursik, 1993; Rose and Clear, 1998; Lynch and Sabol, 2004). As shown in Appendix A, this measure is a factor score

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<sup>15</sup> We estimated models with dummies for the two highest quartiles as “high incarceration” tracts, and with the top quartile as “very high incarceration.” Models were estimated substituting these indicia of prison for the actual prison rates. The results were robust to these specifications.

<sup>16</sup> Separate models were estimated with either fixed and random effects, and a Hausman test was employed to test for the choice between the two kinds of models. Models with fixed versus random effects produced similar results though coefficients varied in magnitude but not significance.



that combines the concentration of youth population, the percent of female-headed households with children below 15, and the ratio of youths to adults. The general model is

$$(Y_{it} - \theta \bar{Y}_i) = (1 - \theta)\alpha + (X_{it} - \theta \bar{X}_i)\beta + [(1 - \theta)\alpha_1 + (\eta - \theta \bar{\eta}_i)]$$

where  $Y_{it}$  is economic measure of each census tract  $i$  for each time period  $t$ ,  $\bar{Y}_i$  is the mean of  $Y$  over time for each tract, and  $X$  is a vector including the incarceration propensity scores and other predictors.

We include time as both a fixed and random effect: time is included as a random effect to account for the panel structure of the data, and as a fixed effect to account for the specific year within the panel. We include an interaction term of time by each predictor to estimate their specific longitudinal effects. In this form, the main effect represents the average effect of the predictor across the time series, and the interaction with time as the longitudinal effect. We focus on the latter to identify the cumulative longitudinal effects of incarceration.

## IV. RESULTS

### Patterns and Trends

Figures 1 and 2 show the concentration of prison admissions and their relationship to income and human capital in New York City neighborhoods. Figures 1a and 1b compare prison admissions by median household income for two periods: 1985-90 and 1993-96, periods of increasing and then declining crime in New York City; Figures 2a and 2b similarly compare incarceration with human capital. The patterns show the strong inverse correlation for each economic indicator with the rate of prison admissions: prison admissions are concentrated in neighborhoods with the lowest incomes and the lowest human capital. The figures also show the stability of incarceration by neighborhood during two distinctly different crime eras. Despite strong crime declines in New York City, prison admissions were concentrated in the same neighborhoods.

Figures 3 and 4 and Tables 2 and 3 show change over time in household income and human capital using quartiles to group neighborhoods according to their

concentration of prison incarceration. The patterns for jail quartiles are similar (data not shown). The unadjusted median household income rose over the study period in each of the quartiles plus the no-incarceration group, however there is less fluctuation when the values for income are standardized. Figure 3 shows the adjusted median household income (Z-scores) over time and Table 2 show the general trend in income unadjusted for inflation. Over the panel, neighborhoods with the highest incarceration have the lowest median household income. Although there is some fluctuation between the two highest and lowest household income, the neighborhoods with highest incarceration rates had lower household incomes over time. The concentration seems, at first glance, to be stable in the face of changing externalities such as declining homicide rates and changing property values. In neighborhoods with no incarceration events, the adjusted median income appears flat. As expected, the rise in household income was greater in the neighborhoods with no incarceration and slowest in the areas with the highest rates of prison admissions. There are slight difference in between the observed pattern in the the two highest and lowest quartiles. But these differences in slope appear to be marginal.

The temporal patterns for human capital were less consistent across quartiles. As with household income, none of the lines cross, indicating stability in the relative position of neighborhoods over time in the distribution of human capital across the city that seems invariant to changes in crime rates or other economic or social externalities. Table 3 and Figure 4 show a slight increase in human capital through 1991 for the neighborhoods with no incarceration, and then a slight decline. For the first quartile, those neighborhoods with the lowest incarceration rates, human capital remained stable across over time. In the second and third quartiles, human capital increased through 1991 before declining slightly through 1997. The trend in the fourth quartile differed: human capital rose slightly before declining sharply and then rising slightly again in the last period in the study interval.

### **Incarceration Effects: Model Estimation**

Models were estimated in four ways to more specifically identify the effects of both jail and prison on neighborhood economic status. Models for jail and prison were estimated separately. Models with both jail and prison were then estimated to examine

their additive effects on economic measures. The fourth model examined their conditional effects by including an interaction term that combined jail and prison admissions. We included race-specific measures of neighborhood demography. Each set of models included first-order interactions of each predictor with time to examine the effects over time of incarceration and the other predictors.<sup>17</sup> Descriptive statistics for the variables used in the models are shown in Table 4.

### *Incarceration Effects on Household Income*

Table 5 shows incarceration effects across four model specifications for neighborhood (median) household income. In these, we pay attention both to the direct effect of incarceration and the interactions between the incarceration “treatment” and time. Incarceration in general, but jail more specifically, has an economically destabilizing effect on neighborhoods. When estimated separately prison and jail have significant negative effects on communities’ economic fortunes: higher rates of all forms of incarceration depress household incomes. When estimated together, jail continues to decrease a neighborhood’s household income, but prison, while still negative, fails to reach significance. The positive interaction terms between time and incarceration suggest that overtime these negative effects are significantly amplified.

In the first three models, there are no significant effects for blacks. Higher percentages of Hispanics, however, are associated with lower household income, and the effects increase over time. The effect of race sustains separately from its contributions through the propensity score estimations for jail and prison, perhaps owing to the scale of race effects on neighborhood economic status relative to highly variable incarceration rates by census tract.

In the conditional model, the coefficients for jail and prison are still negative and significant the interaction term is positive and significant. However, there is little change in the explanatory power of the additive and conditional models. There is no change in the  $R^2$  between the jail only model and the additive model and only a very modest gain in

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<sup>17</sup> Alternate specifications included race-specific incarceration measures, and models that included a dummy for whether the neighborhood was in the highest quintile of incarceration rates to identify whether effects were concentrated at the extremes of the distribution of jail or prison rates. The results were unchanged.

explained variance in the conditional model. In these data, then, there is little evidence of interactions between jail and prison: the effects appear to be neither conditional nor interdependent, nor are they additive in their effects on neighborhood incomes.

The opposing effects of jail and prison are not surprising as a matter of crime control and neighborhood ecology. Admissions to jail and prison are processes that occur concurrently though perhaps sustained by distinct patterns of policing and enforcement. In New York, jail admissions result from enforcement of quality of life crimes and low-level misdemeanors, consistent with order maintenance policing strategies (Harcourt, 2001; Greene, 1999), whereas drug enforcement and other anti-crime activities are more likely to produce prison-generating felony arrests (Fagan et al., 2003). Nevertheless, the models estimating the propensity scores suggest that the two incarceration processes are concentrated in similar if not identical neighborhoods. In fact, their bivariate correlation averaged over the study interval is .914. Including both prison and jail in the same model (Table 5, columns 3 and 4) may conceptually more accurately capture the dynamics of incarceration within neighborhoods than is portrayed by separate models, but the coefficients are almost indistinguishable from other specifications. The additive and conditional models produce similar results, and in both estimations, the effects for jail and prison each decrease a community's economic outlook.

### ***Incarceration Effects on Human Capital***

The effects of prison and jail admissions on human capital follow a similar pattern. The main effects of prison and jail models (Table 6, column 1 and 2) are significant and negative. However, neither jail nor prison is significant in the additive and conditional models. We see that the effects of incarceration for both the jail and prison models are amplified over time. Again, combining measures of incarceration have no additional explanatory power. There are positive and significant race effects for the proportion of the population that is black. This is distinct from the result predicting household income, where the influence of the proportion of the population that is black was negative, but failed to reach statistical significance. Rather than suppressing human capital, when incarceration is controlled for, tracts with a higher proportion of the

population that is black had more human capital. However, this effect is diminished over time. The proportion of the population that is Hispanic is not significantly associated with human capital.

## V. DISCUSSION

Recent work on the collateral effects of incarceration has focused on the fortunes of individuals returning from prison, and on the social and psychological well-being of those left behind. Only a few studies have attended to the collective fates of neighborhoods with elevated incarceration rates, and most of these projects have examined how incarceration patterns contribute to the endogenous and spiraling relationship between crime and incarceration. Given its unique and heavy individual costs, the emphasis in incarceration research has been primarily on prisons, with little attention to frequent though shorter-term stays in local jails. Here, we address each of these dimensions of research on incarceration.

### **Loosely Coupled Enforcement**

We find distinct, yet, consistent, effects for prisons and jails, suggesting that these separate processes based on loosely coupled law enforcement priorities and penal strategies have a distinct impact on communities in New York City. Heterogeneous policing regimes in New York City created separate streams of prisoners eligible for prison and jail. During much of the study period, prison populations were driven by street drug enforcement aimed at low-level dealers (Fagan et al., 2003; Sviridoff et al., 1992; Jacobson, 2005). This enforcement strategy was carried out by elite police units such as the Tactical Narcotics Teams, known locally as TNT (Sviridoff et al., 1992; Fagan, 1994; Kleiman, 1992). TNT units were assigned to broad areas of the City rather than specific precincts. They made tens of thousands of felony drug arrests each year beginning in 1988 and continuing through 1992, heavily populating prisons with felony drug offenders, changing the offense composition of prisons (Letwin, 1990; Herman, 1999; Fagan et al., 2003). But jail populations were driven by enforcement of misdemeanor laws, including lesser drug crimes and local enforcement of incivilities and minor drug crimes. Uniformed patrol officers assigned to precincts, without the organizational attention or status that was conferred on the specialized street drug details,

were the front lines in this less visible but persistent enforcement strategy. However, it would seem that the jail removals have had the more profound and lasting impact on communities.

Only for the last of the waves in this panel – 1996 – had New York’s Order Maintenance Policing been implemented, which switched the priorities from felony drug enforcement to enforcement of a variety of forms of low-level disorder crimes, including tens of thousands of misdemeanor marijuana arrests (Maple and Mitchell, 2000). But the enforcement dichotomy remained. Like TNT, the elite Street Crime Unit under OMP searched for guns and violent offenders, while uniformed patrol officers emphasized misdemeanor arrests (Spitzer, 1999; Fagan et al., 2010).

So, even after the onset of OMP strategies, we still see the notion of loosely coupled police regimes producing different arrest streams that influenced jail and prison populations separately. While the Street Crime Unit concentrated its efforts in high crime areas, predominantly poor neighborhoods with higher crime rates and concentrations of non-white residents, lower level enforcement of disorder was a citywide campaign that – although skewed somewhat toward poor areas – affected residents of neighborhoods across the City. Race seems work differently for different communities of color. After controlling for prison and jail removals the size of the black population does not significantly influence the income outcome of communities, but the Hispanic population does. It is possible that there are a number of ecological forces at work, including enforcement strategies that disproportionately targeted Hispanic communities. Race effects are different for human capital than for income. The Hispanic population is not related to a communities human capital, but the black population is in unanticipated way.

### **Two Kinds of Poverty Traps**

Incarceration effects are more pronounced for household income than human capital, suggesting perhaps different ecological explanations and policy pathways. The negative effects of imprisonment rates on aggregate household income are illustrative of the complex but systemic relationship between persistent poverty, crime and incarceration. Jail and prison have lasting effects on incomes which persist over time. Incarceration in prison seems to give rise not only to more imprisonment (Fagan et al.,

2003), but also to lower incomes. Jail serves not only as a pathway to prison, but a profound destabilizing influence on communities. The reinforcing spiral of poverty, crime and incarceration describes what Sampson and Morenoff (2006) characterize as a poverty trap (see, also, Fagan 2008). High rates of neighborhood imprisonment can have multiple effects that sustain the downward pressure on local incomes: tainting non-offender residents who seek jobs as crime risks, burdening returning inmates with reduced prospects in the workplace, and reducing the attractiveness of such neighborhoods for economic or housing investments.

The effect of jail on incomes is suggestive of the increasing reliance on the use of jail as an enforcement strategy across the City's residential neighborhoods. Places with high jail rates are characterized if not by high rates of low-level crime, then by at least low-level social disorder of the kind that attracts law enforcement attention and a kind of enforcement that removes people for short, but disruptive periods. The repetitive high rates of removal to jail of low-level offenders from poor communities followed by their quick release creates a churning effect on neighborhoods that destabilizes social control and instills a sense of chaos and disorder more typical of a pristine version of *broken windows* theory (Wilson and Kelling, 1982; Kelling and Cole, 1996; Livingston, 1997; Maple and Mitchell, 2000; Waldeck, 2000; Harcourt, 2001). Also, jail populations often are socially and psychologically troubled, and their interrupted presence in struggling communities is unlikely to aid the efforts of residents in those areas to develop economically or become socially cohesive (Jacobson, 2005). They too have dim prospects in the workplace, but their diffusion across neighborhoods dilutes their concentrated effects on local incomes.

Race effects on income work in unanticipated ways and require further analyses. While prison and jail are concentrated in predominately poor and segregated communities, once incarceration factored out of the equation difference in the proportions of African Americans was not related to incomes, but there was a lasting negative influence on neighborhood fortunes. We observed greater for neighborhoods with higher proportions of Hispanics. Hispanics not only have a wider income distribution than African Americans in New York City, but they also tend to live in less segregated areas (Kasinitz et al., 2008). Immigrants in New York are now a higher share

of Hispanic neighborhoods and populations than other ethnic groups, and their spatial spread and economic diversity may explain at least some of the story in this differential. Beyond these factors, more research is needed to further decompose the crime, incarceration and economic conditions of Hispanics.

Human capital effects are less sensitive to incarceration effects than are incarceration effects on incomes. Human capital, including both workplace activity and educational capital, may be more sensitive to education policy than to incarceration or crime policy, and that may explain the narrow effects of incarceration on human capital. Both educational status and workplace experience are components of our measure of human capital, and the effects of incarceration may be unequal for these separate dimensions. High rates of imprisonment or jail removal will deplete the workplace prospects both of those who have gone to prison or jail as well as their neighbors. Again, the effects are direct as well indirect through adverse forms of neighbor network effects, as neighborhood stigma affects both former prisoners and others in high incarceration places. Not only are those removed to jail or prison likely to have low educational attainment, but they also are unlikely to find remedial services in overcrowded and underfunded prison systems and jails.

### **Policy Linkages**

Spatially targeted policies such as microinvestment and housing development may be needed offset the local embeddedness of poverty and disrupt its connections to incarceration and crime. New York experienced a housing boom in the years after this study period, and that boom is concurrent with further crime declines (Fagan and Davies, 2007; Schwartz et al., 2003). At the same time that residential real estate rose in value, so too did the value of commercial real estate, suggesting the emergence of sustainable small businesses in the neighborhoods with high crime and incarceration rates. The fact that crime fell more rapidly and steeply in these places may reflect these factors, beyond any regression effects. Policies that encourage these forms of economic development can offset or surpass the negative effects of imprisonment, while education policy and transitional labor market networking can strengthen local human capital.



Human capital may also be sensitive to these types of economic development policies, as well as to education and crime control policies. One connection may be in the use of Order Maintenance policing strategies in schools that result in high rates of suspension and expulsion for both violations of school rules and low-level crimes. The public safety benefits of such a strategy are tempered by the risk of attenuated educational capital for older adolescents and young adults attempting to enter the workforce. While microinvestment may provide work opportunities, the attenuation of educational capital in poor neighborhoods may offset these chances and block access to these new workplaces. And the deterioration of education and training programs in prisons – and their non-existence in jails – may further compound the human capital deficits of those going to and returning from spells of incarceration. While these two policy options can leverage local resources to offset the adverse effects of incarceration, ignoring the economic consequences of incarceration has its own risks.

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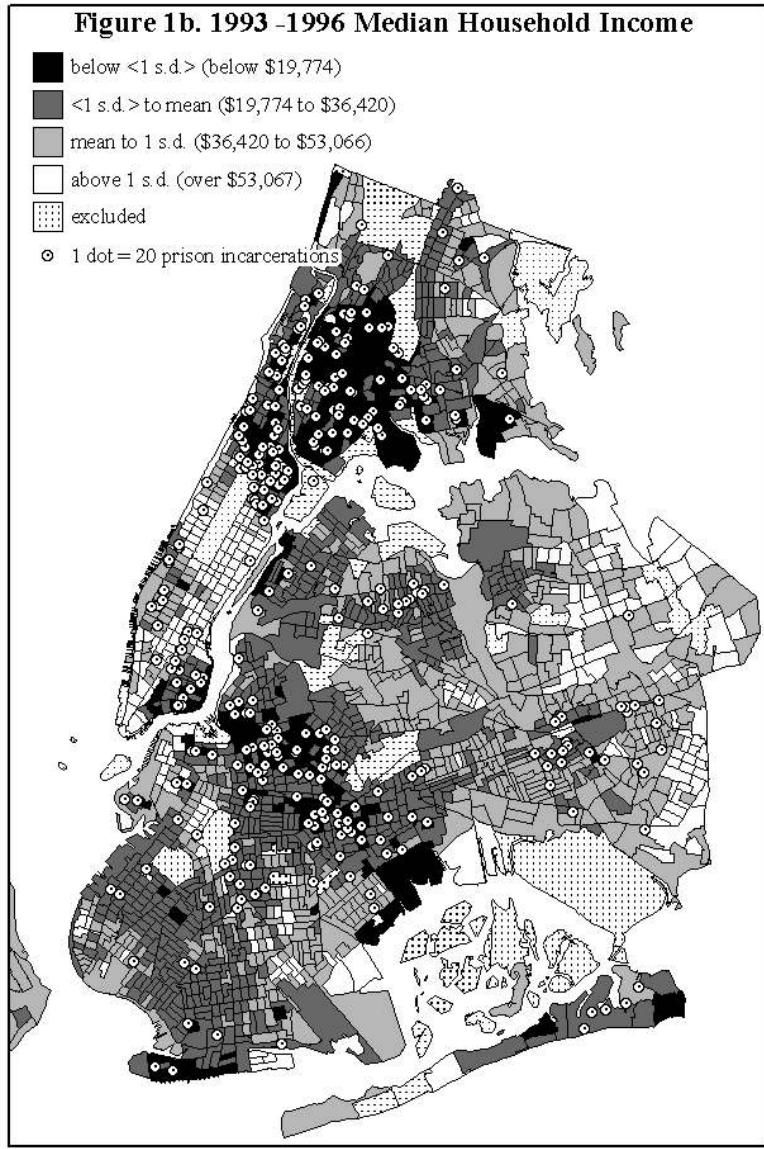
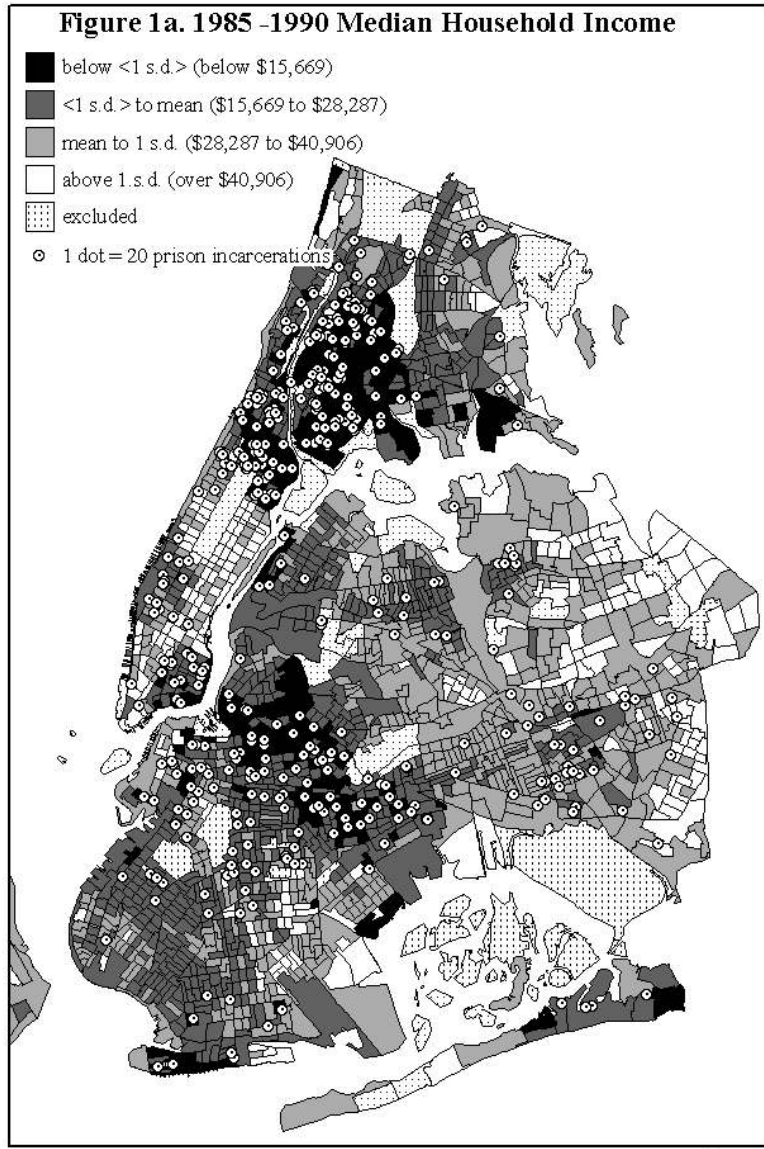
**Table 1. Crime and Punishment, New York City, 1985-1997**

	1985	1990	1995	1997	% Change 1985-1990	% Change 1985-1997	% Change 1990-1997
<b>Reported Crime</b>							
Total Index Crimes	602,945	711,556	442,532	356,573	18.0	(40.9)	(49.9)
Violent Crimes	135,305	174,689	114,180	92,866	29.1	(31.4)	(46.8)
% Violent Crimes	22.4	24.6	25.9	26	9.8	16.1	5.7
<b>Sentences</b>							
Total	75,264	92,261	79,845	93,141	22.6	23.8	1.0
Prison	10,802	20,420	18,353	16,490	89.0	52.7	(19.2)
Jail	61,839	66,035	55,957	71,508	6.8	15.6	8.3
Jail + Probation	2,623	5,806	5,535	5,143	121.3	96.1	(11.4)
<b>Incarceration Rates</b>							
Prison Sentences per 100 Index Crimes	1.79	2.86	4.15	4.62	59.8	158.1	61.5
Prison Sentences per 100 Felony Prosecutions	35.5	37.2	42.9	44.5	4.8	25.4	19.6
Prison Sentences per 100 Convictions	7.2	12.8	10.5	8.8	77.8	22.2	(31.3)
Jail Sentences per 100 Misdemeanor Arrests	50.7	60.6	33.9	37.4	19.5	(26.2)	(38.3)

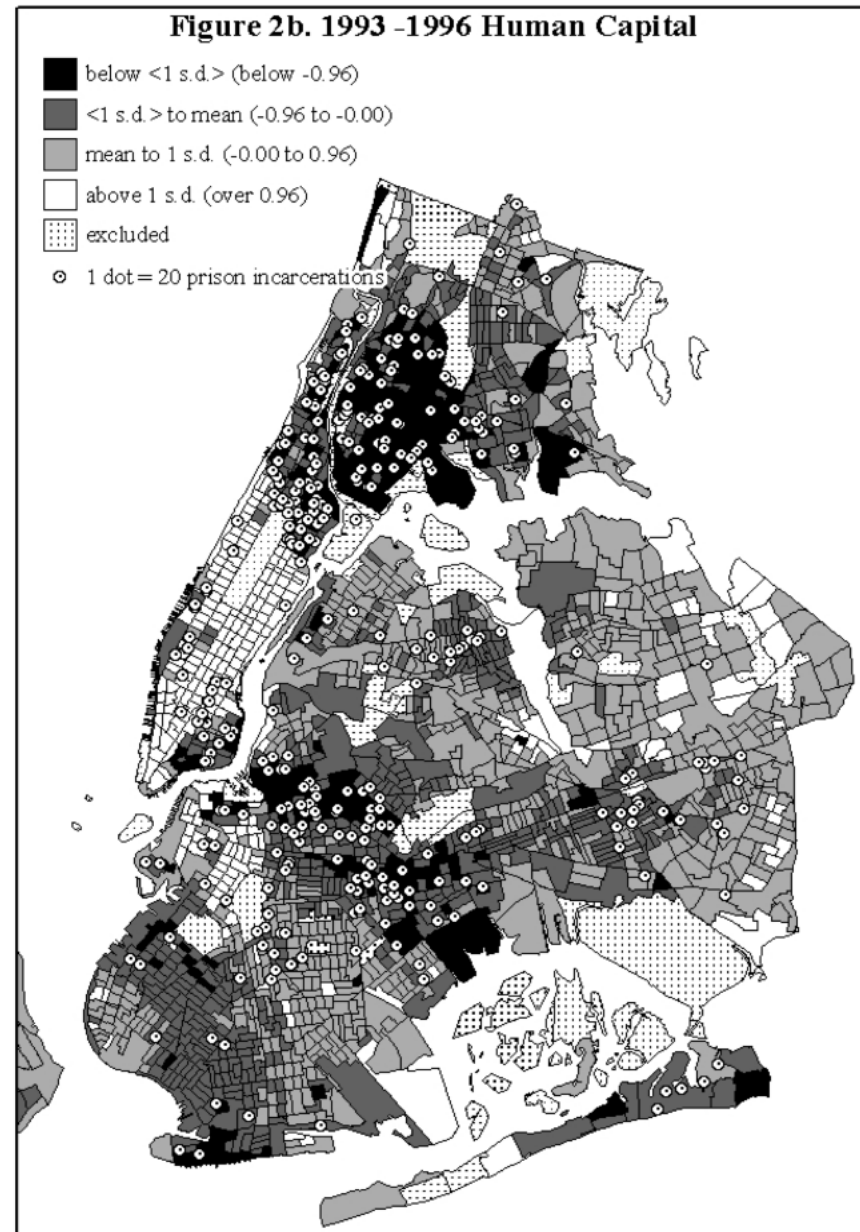
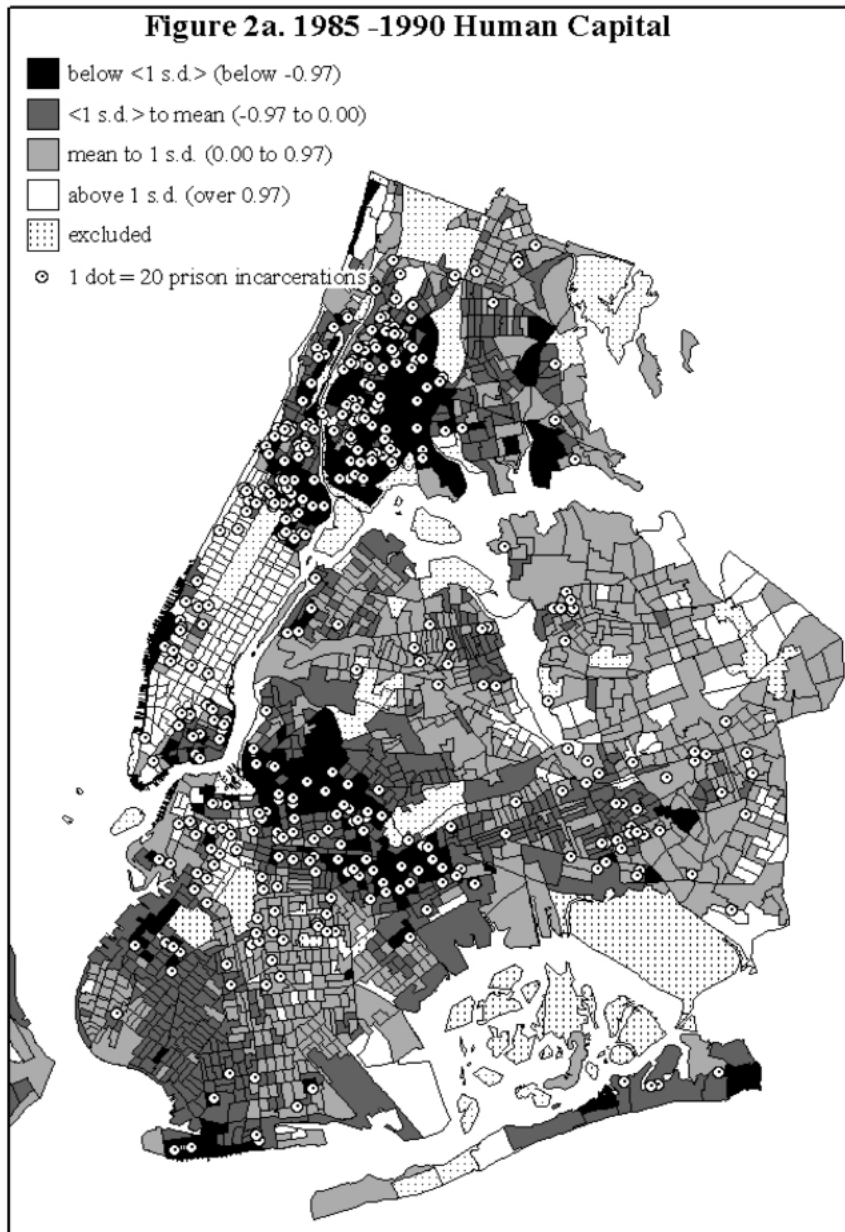
Source: New York State Division of Criminal Justice Services, various years.



**Figure 1a. and 1b. Prison Admissions and Median Household Income by Census Tract, New York City**



**Figure 2a. and 2b. Prison Admissions and Human Capital by Census Tract, New York City**



**Table 2. Median Household Income by Incarceration Quartiles, 1986-97, New York City Census Tracts (Means, Standard Deviations)**

Quintile	Year				
	1986	1988	1991	1994	1997
No Events	28,523 (10535)	32,740 (12241)	38,354 (14320)	41,890 (16197)	44,039 (16568)
1	24,022 (8195)	28,917 (10597)	34,389 (12733)	36,720 (12280)	40,047 (17943)
2	21,706 (8961)	25,186 (10888)	31,171 (10946)	33,250 (11361)	34,654 (12197)
3	17,709 (8095)	21,058 (9550)	24,704 (10776)	26,162 (10988)	28,715 (13908)
4	14,832 (7373)	17,621 (8977)	18,790 (10715)	20,066 (9816)	22,198 (14212)
Total	24,675 (10815)	27,972 (12527)	32,218 (14584)	35,012 (15854)	37,821 (17526)

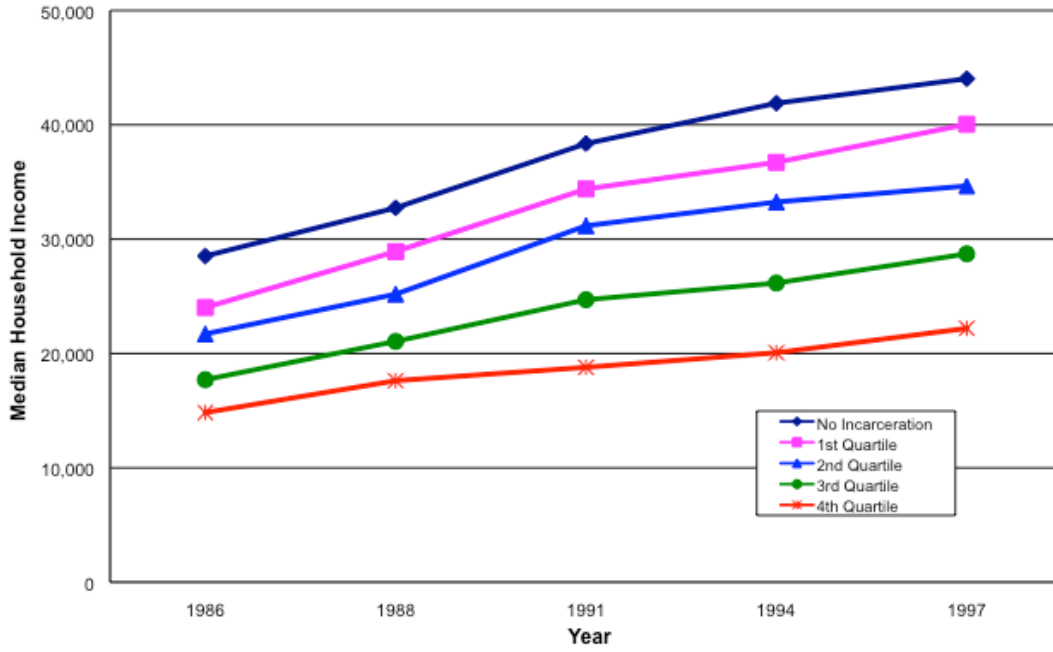
Source: Bureau of the Census, STF 3A, Interpolated for Reconciled Census Tracts 1980-2000

**Table 3. Human Capital (Factor Score) by Incarceration  
Quartiles, 1986-97, New York City Census Tracts (Means,  
Standard Deviations)**

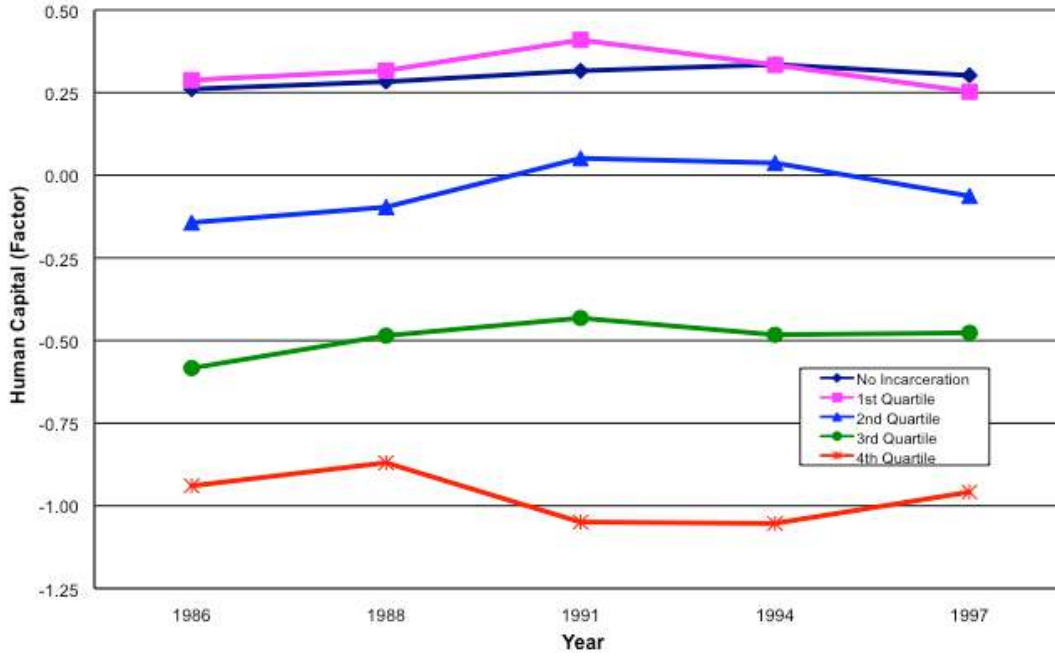
<i>Quintile</i>	<i>Year</i>				
	<i>1986</i>	<i>1988</i>	<i>1991</i>	<i>1994</i>	<i>1997</i>
No Events	0.261 (0.854)	0.283 (0.870)	0.316 (0.841)	0.335 (0.800)	0.302 (0.826)
1	0.288 (0.931)	0.317 (0.868)	0.409 (0.898)	0.334 (0.893)	0.253 (0.933)
2	-0.143 (0.896)	-0.096 (0.921)	0.051 (0.786)	0.037 (0.845)	-0.063 (0.861)
3	-0.583 (0.875)	-0.485 (0.869)	-0.432 (0.918)	-0.483 (0.859)	-0.477 (0.918)
4	-0.940 (0.840)	-0.870 (0.929)	-1.049 (0.844)	-1.053 (0.796)	-0.958 (0.881)
Total	0.001 (0.966)	0.000 (0.978)	0.000 (0.987)	0.000 (0.964)	0.000 (0.968)

Source: Bureau of the Census, STF 3A, Interpolated for Reconciled Census Tracts 1980-2000

**Figure 3. Median Household Income by Prison Quartile, 1986-97**



**Figure 4. Human Capital (Factor) by Prison Admission Quartile, 1986-97**



**Table 4. Descriptive Statistics**

	<i>Mean</i>	<i>Std. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Median Household Income	31,541	15,208	4,757	177,088
Population > 15	3018	2361	16	34079
Percent African American	26.2	32.1	0.0	100.0
Percent Non-White Hispanic	22.6	21.9	0.0	100.0
Prison Rate*	2.4	4.3	0.0	114.1
Jail Rate*	7.9	18.2	0.0	421.1
Drug Arrest Rate*	9.6	19.9	0.0	619.8
Homicide Victimization Rate <sup>†</sup>	0.24	0.36	0.0	6.5
Poverty/Inequality (Factor)	0.0	1.0	-3.1	3.1
Human Capital (Factor)	0.0	1.0	-5.1	3.0
Segregation (Factor)	0.0	1.0	-2.8	1.7
Social Control (Factor)	0.0	1.0	-5.2	4.9
Anonymity (Factor)	0.0	1.0	-3.4	8.9
Immigration (Factor)	0.0	1.0	-1.8	4.5
Housing Structure (Factor)	0.0	1.0	-3.4	13.7

\* Rate per 10,000 persons  
† Rate per 1,000 persons

**Table 5. Random Effects Regression of Jail and Prison on Median Household Income (Z-score) by Census Tract, 1986-97 (Coefficients, p(z))**

	<b>Prison Only</b>	<b>Jail Only</b>	<b>Additive Effects</b>	<b>Conditional Effects</b>
<i>Main Effects</i>				
Prison (propensity)	-.448***		-.121	-.360***
Jail (propensity)		-.224***	-.188***	-.276***
Interaction				.065***
% Black	-.078	-.057	-.005	.332***
% Hispanic	-1.037***	-.949***	-.918***	-.517***
<i>Effects Over Time</i>				
Prison (propensity)	.036***		.026	.058*
Jail (propensity)		.014***	.011**	.007
Interaction				-.000
% Black	-.036***	-.024***	-.029***	-.036***
% Hispanic	.008	.015**	.012**	.001
<b>Model Statistics</b>				
R <sup>2</sup>	.648	.662	.662	.688
χ <sup>2</sup> (Wald)	3595.10	3694.45	3749.04	4742.71
p (χ <sup>2</sup> )	.000	.000	.000	.000
Rho	.928	.928	.926	.911

All models include random effects for time, population size, social control, human capital, drug arrest rate (logged), homicide rate (logged). All models estimated with random intercepts and robust standard errors

p(z) : \*\*\* p<.001 , \*\* p < .01, \* p < .05

**Table 6. Random Effects Regression of Jail and Prison on Human Capital by Census Tract, 1986-97 (Coefficients, p(t))**

	<b>Prison Only</b>	<b>Jail Only</b>	<b>Additive Effects</b>	<b>Conditional Effects</b>
<i>Main Effects</i>				
Prison (propensity)	-.116*		-.002	-.092
Jail (propensity)		-.055*	-.058	-.070
Interaction				-.026
% Black	.657***	.656***	.668***	.708***
% Hispanic	-.168	-.156	-.154	-.121
<i>Effects Over Time</i>				
Prison (propensity)	.026*		-.008	.028
Jail (propensity)		.004*	.006	.012**
Interaction				-.006**
% Black	-.028***	-.028***	-.026***	-.038***
% Hispanic	-.032***	-.032***	-.030***	-.042***
<i>Model Statistics</i>				
R <sup>2</sup>	.732	.732	.733	.736
$\chi^2$ (Wald)	3123.05	3023.45	3392.95	3683.06
p ( $\chi^2$ )	.000	.000	.000	.000
Rho	.892	.896	.886	.884

All models estimated with fixed effects for time, population size, social control, drug arrest rate (lagged, logged), homicide rate (lagged, logged). All models estimated with random intercepts.

p(t) : \*\*\* p<.001 , \*\* p < .01, \* p < .05



## Appendix A. Neighborhood Factor Composition, 1990

	Rotated Coefficient	Eigenvalue	% Explained Variance
<i>Poverty/Inequality</i>			
		2.20	73.29
%Households with Public Assistance Income	0.97		
%Households with Income Below Poverty	0.95		
Gini for Total Household Income	0.61		
<i>Labor Market/Human Capital I</i>			
		3.14	78.43
%College Grads-Persons 25 and Over	0.88		
%Labor Force Participation-Persons 16 and Over	0.88		
Employment Rate-Persons 16 and Over	0.92		
Skilled Occupation-Persons 16 and Over	0.86		
<i>Segregation</i>			
		1.51	75.62
Racial Fragmentation Index	0.87		
% Nonwhite	0.87		
<i>Social Control I -Supervision</i>			
		2.34	77.88
% Youth Population (5-15)	0.94		
% Female Headed Households with Children <18	0.85		
Supervision Ratio (25-64   5-24)	-0.86		
<i>Social Control II –Anonymity</i>			
		1.04	52.16
Population-1990	0.72		
Residential Mobility-Same House as 1985	0.72		
<i>Immigration and Cultural Isolation</i>			
		1.64	81.86
Foreign Born	0.91		
Linguistic Isolation	0.91		
<i>Housing Structure</i>			
		1.61	80.61
% Rental Housing	0.90		
Housing Density (persons per room)	0.90		