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Incarceration and the Economic Fortunes of Urban Neighborhoods

JEFFREY FAGAN AND VALERIE WEST

Introduction

Research on the growth in incarceration has focused on both the sources of incarceration and its public safety returns.¹ 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 both 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, 2004; Katz, Levitt, and Shustorovich, 2003) or smaller areas within cities (Clear et al., 2003; Lynch and Sabol, 2004; 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 on both inmates and

the family members they left behind and to whom they return (Nagin, Cullen, and Jonson, 2009; Durlauf and Nagin, 2011). Recent studies have examined the intergenerational impacts of incarceration on the economic and social well-being of children and families (Geller, Garfinkel, and Western, 2011; 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, 2003; Travis, 2005; Petersilia, 2003). Prisoners' reentry is complicated by the specific effects of incarceration on work (Western, 2006; Pettit and Western, 2004), crime (Chen and Shapiro, 2007), and earnings (Lyons and Pettit, 2011). 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, 1996; Pettit and Lyons, 2007; Lyons and Pettit, 2011) or by attaching a stigma that discourages employers from hiring them even for low-paying, unskilled-labor jobs (Pager, 2003, 2007; Pettit and Lyons, 2007). 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 developmental transitional turning point that diminishes the life prospects for stable marriage and employment (e.g., Sampson and Laub, 1993; Laub and Sampson, 2003, 290–292). 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, 1998; Maurer, 2006; Manza and Uggen, 2006; but see Miles, 2004). The racial concentration of incarceration means that these effects are especially pronounced for African Americans (Maurer, 2006; Loury, 2008; Fagan, 2004, 2008).²

These studies show how 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 and Sampson, 1997; Fagan et al., 2010; Fagan and Davies, 2004; Sampson and Raudenbush, 2004).³ A handful of studies have illustrated this spatial concentration of incarceration and examined whether this

spatial concentration reduces or contributes to crime (e.g., 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, consequences 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 incarceration not just for individuals or families but for the 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, West, and Holland, 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, and family and child well-being—of neighborhoods that are intricately bound up with incarceration and crime (see Crutchfield and Wadsworth, chapter 6 in 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.⁴

In this chapter, 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 to 1997, a period

when there was a perfect storm of crime crises and their sequelae: epidemics of gun violence and highly addictive drugs (Fagan, Wilkinson, and Davies, 2007), economic instability (Drennan, 1992), a significant increase in incarceration per crime (Fagan, West, and Holland, 2003), and high rates of residential mobility (DeGiovanni and Minnite, 1992; Beveridge, 2008). These dynamics disproportionately affected the city's minority citizens (Fagan, West, and Holland, 2003; Fagan, 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 New York City's neighborhoods and embed neighborhoods in the endogenous dynamics of crime, incarceration, and 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 of incarceration on New York City census tracts over an 11-year period from 1985 to 1997, a period which saw crime rates rise and then fall (Karmen, 2000; Fagan, Zimring, and Kim, 1998; Bowling, 1999; Fagan et al., 2010; 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.

Background

Neighborhoods exert strong effects on a wide range of social behaviors (for a review, see Sampson, Morenoff, and Gannon-Rowley, 2002), including crime (Fagan, 2008). These effects influence the social and

economic behaviors not only of their residents but also of residents of the surrounding areas, through dynamics of diffusion or contagion of neighborhood effects (Reordan et al., 2008; Lee et al., 2008; Reordan and Sullivan, 2004; Grannis, 1998). Neighborhood effects capture the intricate interplay between social structure, social organization, and social control, which 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, social and physical disorder, drug use, and adolescent delinquency (see, for example, Coulton et al., 1995; Miles-Doan, 1998; Crane, 1991; Gould, Wallenstein, and Kleinman, 1990; Gould et al., 1990; 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 elements 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 (nonrecursive) feedback processes between crime and the social dynamics and compositional characteristics of neighborhoods (e.g., Bellair, 2000).⁵ 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 in which 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 Heitgerd 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 chapter, we are concerned with the effects of both 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 and also a public policy choice produced by factors exogenous to the neighborhoods, affects the developmental history of neighborhood economics. If the effects are salutary, then we might conclude that incarceration produces the ancillary benefits of promoting neighborhood resilience to 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 to 1996, Fagan, West, and Holland (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. The authors 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 of 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 nonsignificant effects on local crime rates, moderate prison admission rates produced modest effects on crime, and the neighborhoods with the highest rates had the strongest increase in crime. Provocative as this study may be, it 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 the effect of those rates 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, West, and Holland 2003)—through an instrumental variables model to estimate the effects of law enforcement (arrest)

on incarceration net of crime.⁶ 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.⁷ 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.

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) hypothesize 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 *coercive mobility* as the mechanism for the erosion of social cohesion and social capital (also noted by Lynch and Sabol). Coercive mobility is a dynamic process of residential mobility that is induced by high rates of removal to and return from prison, as well as high rates of crime and victimization. Such mobility has long been implicated in higher crime rates in communities (e.g., Shaw and McKay, 1942), 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, 2007). Rose and Clear suggest that coercive mobility undermines the less coercive and more influential institutions of social control, such as families and 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,⁸ 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, 2008; Uggen and Manza, 2004). High rates of imprisonment raise questions of the legitimacy of government and potentially 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 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, 1996; Fagan and Freeman, 1999; Western and Pettit, 2000; Western, 2006). As a person's 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 who are 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%, 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, Kling, and Weiman (2001) and Western (2006) showed not only that incarceration 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, Kling, and Weiman, 2001, 414). These aggregate effects become a collective problem in neighborhoods marked by high incarceration, decreasing the prospects for desistance by returning inmates (Western, 2002; Laub and Sampson, 2003), 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 to hire 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 Sabol and Lynch's (2003) Baltimore study, they examined labor force participation using releases from prison as a proxy for incarceration rates. Using race-specific models, they found that release rates were positively and significantly related to unemployment for blacks but that 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 argue that incarceration "can also reduce the earning power of family left behind because they must tend to tasks for-

merly 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” (2004, 273). 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 increase 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, 2003). 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., 2009, 2012). These effects further burden the efforts of former inmates to avoid crime once back in their communities but also diminish 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 shows how incarceration can weaken families by removing men from existing families, by reducing the supply of marriageable men in the neighborhood, and in turn by attenuating or skewing family formation toward unstable couplings (see also Wilson, 1996). Her work shows the effects of incarceration on the capacities of families as socializing agents for children and on their ability 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 to maintain

parental ties that are important to preventing children's involvement with the law (Geller et al., 2009, 2012). 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 strained not only family ties but also family economic well-being. Fatherhood increased the pressure on men to provide materially for their children, not just with strollers and playpens when they are younger but for clothes and shoes when they become 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 do other children (Wildeman, 2010; Murray et al., 2009; for a review of earlier work, see Johnson and Waldfogel, 2002). Even when parent behaviors prior to incarceration have had negative influences on child development, 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 children's 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. 2009, 2012).

These effects fall more heavily on nonwhite 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 (2004) 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 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” (1996, 104).

The children of African American incarcerated mothers are far more likely to be placed with another family member or in foster care compared to the children of white incarcerated mothers, 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; Wildeman, 2010). Social organization and social control are spatially embedded processes that influence neighborhood-level variations in violence (Morenoff, Sampson, and Raudenbush, 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 (Bursik and Grasmick, 1993). But social control is intricately tied to social structure, supporting citizen activities—social regulation—that can sustain or inhibit crime (Sampson, Raudenbush, and Earls, 1997). When economic conditions are weak, the strains of everyday life can compromise the participation of local residents in social regulation. 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, West, and Holland, 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, West, and Holland, 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 attenuate a neighborhood's economic fortunes through three possible mechanisms (Fagan, West, and Holland, 2003): (1) incarceration complicates the efforts of individuals to forge links to legal work (Hagan and Palloni, 1990; Fagan and Freeman, 1999; Pager, 2003; Holzer, Raphael, and Stoll, 2004); (2) concentrated incarceration compromises social control in multiple ways, by increasing the number of single-parent households, by 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, 2006; Uggen and Manza, 2002; Uggen, Behrens, and Manza, 2005). In addition, high rates of incarceration may mark a neighborhood as risky or high crime and may 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 1985–1996, the most recent era of sharp increases in incarceration in New York City and New York State (Fagan, West, and Holland, 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.

Research Setting and Methods

Crime and Incarceration in New York City

Trends in crime and incarceration in New York City from 1985 to 1997 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, Zimring, and Kim, 1998; Karmen, 2000; Harcourt and Ludwig, 2006). Table 8.1 shows that violent crime rose 29.1% from 1985 to 1990, and the total index crime (i.e., major felonies) rate rose by 18%. 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% from 1985 to 1990, rising more quickly than the crime rates.⁹ 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 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, West, and Holland, 2003). Most—about 70%—of the state's inmates come from New York City.¹⁰

The jail population grew more slowly than did the prison population

Table 8.1. *Crime and Punishment, New York City, 1985–1997*

	1985	1990	1995	1997	% change 1985– 1990	% change 1985– 1997	% change 1990– 1997
Reported crime							
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	26.0	9.8	16.1	5.7
Sentences							
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)
Incarceration rates							
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	35.50	37.20	42.90	44.50	4.8	25.4	19.6
Prison sentences per 100 convictions	7.20	12.80	10.50	8.80	77.8	22.2	(31.3)
Jail sentences per 100 misdemeanor arrests	50.70	60.60	33.90	37.40	19.5	(26.2)	(38.3)

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

after 1985 but continued to grow as prison populations declined in the 1990s. The city's average daily jail-inmate population was 17,897 in 1999, a small decline from the population of 19,643 in 1990, when crime rates were twice as high (Zimring, 2006).¹¹

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, West, and Holland, 2003). Aggressive street enforcement and drug enforcement programs such as Operation Pressure Point, the Tactical Narcotics Teams, the Street Crime Unit, and Operation Condor produced consistently high rates of felony drug arrests since the mid-1980s (see, for example, Letwin, 1990; Herman, 1999; Smith et al., 1992; Belenko, Fagan, and Dumarovsky, 1994; Greene, 1999; Rashbaum, 2000; Fagan and Davies, 2000; Ketcham, 2002). Despite the dramatic decreases in crime in New York City, drug-related arrests continued to increase each year through the late 1990s.¹² For most of the 1990s, 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 1996.¹³ 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 the state's incarcerated population (Fagan, West, and Holland, 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, West, and Holland, 2003). We obtained a 25% sample of all individuals sentenced to prison and a 5% 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, Sampson, and Raudenbush, 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.¹⁴ 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 by using a population denominator for each year in the time series.¹⁵

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 markets (Baumer et al., 1998; Ousey and Lee, 2002). This time series was created by obtaining a 10% sample of drug arrests from 1985 to 1997 from the New York State Division of Criminal Justice Services (see Fagan and Davies, 2002). 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 tract equivalencies were developed to adjust for changes in census tract configuration of 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 (percentage high school graduates), labor force participation (weeks worked by persons 16 and over in past year), and job skills (percentage 16 and over with skilled occupation) (see Fagan, West, and Holland, 2003). These are indicia of work experience and labor market skills that tend to increase earnings (e.g., Becker, 1994) 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 that 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 nonrandom 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 nonrandom differences in crime, social structure, and law enforcement (Fagan, West, and Holland, 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 (e.g., Land, McCall, and Cohen, 1990; for a review, see Fagan and Davies, 2004). 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, Morenoff, and Gannon-Rowley, 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. The appendix 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. A strong factor efficiently 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.¹⁶ We also computed the percentage of population for African Americans and nonwhite 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, West, and Holland, 2003).

Analysis

We estimated growth curve models using random effects regression methods¹⁷ to examine incarceration effects on neighborhoods (Gelman and Hill, 2006; Singer, 1998; Raudenbush, Bryk, and Congdon, 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 (Bursik and Grasmick, 1993; Rose and Clear, 1998; Lynch and Sabol, 2004). As shown in the appendix, this measure is a factor score that combines the concentration of youth population,

the percentage of female-headed households with children under 15, and the ratio of youths to adults. The general model is

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

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, with the interaction with time as the longitudinal effect. We focus on the latter to identify the cumulative longitudinal effects of incarceration.

Results

Patterns and Trends

We begin by showing the concentration of prison admissions and their relationship to income and human capital in New York City neighborhoods. Figures 8.1A and 8.1B compare prison admissions by median household income for two periods: 1985–1990 and 1993–1996, periods of increasing and then declining crime in New York City; figures 8.2A and 8.2B 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.

Tables 8.2 and 8.3 show change over time in household income and human capital using quartiles to group neighborhoods according to their concentration of prison incarceration.

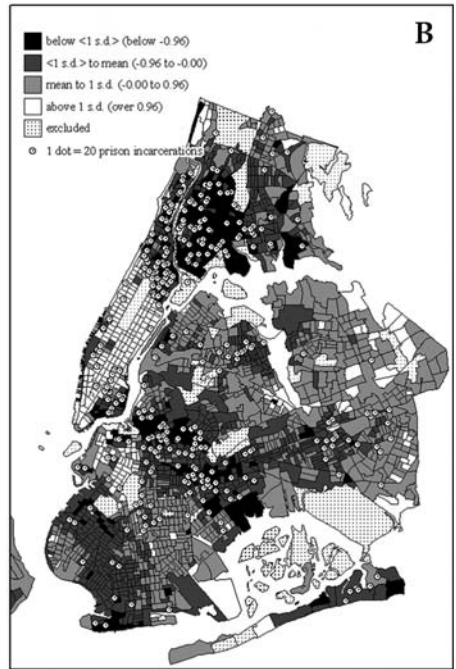
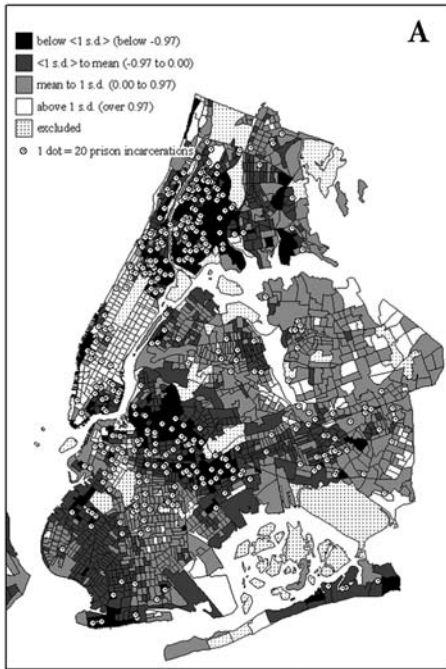
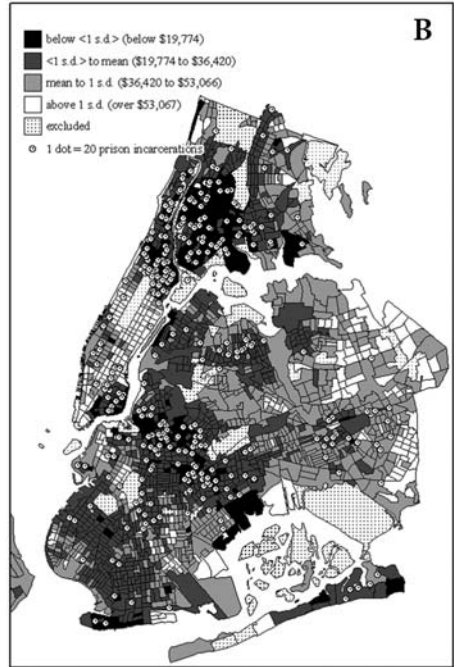
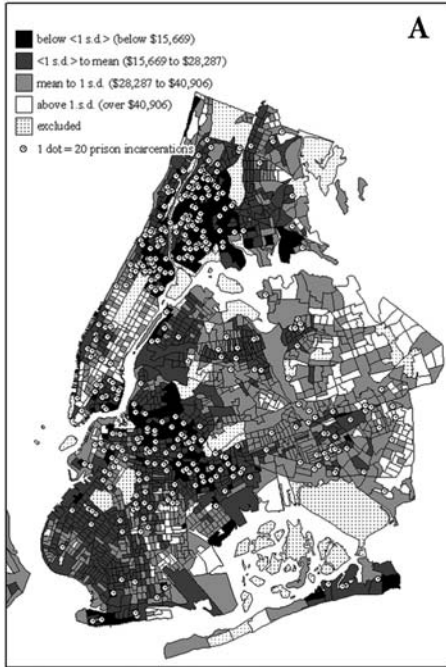


Table 8.2. Median Household Income by Incarceration Quintiles, 1986–1997, New York City Census Tracts (Means, Standard Deviations)

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 8.3. Human Capital (Factor Score) by Incarceration Quintiles, 1986–1997, New York City Census Tracts (Means, Standard Deviations)

Quintile	Year				
	1986	1988	1991	1994	1997
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

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Top, Fig. 8.1, A, 1985–1990 median household income; B, 1993–1996 median household income

Bottom, Fig. 8.2, A, 1985–1990 human capital; B, 1993–1996 human capital

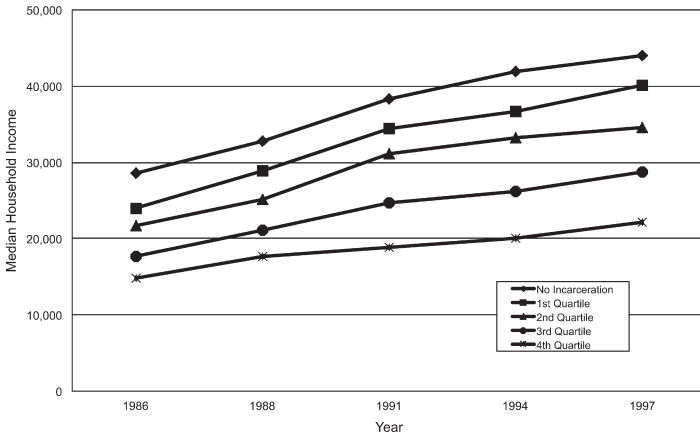


Fig. 8.3. Median household income by prison quartile, 1986–1997

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 and in the no-incarceration group; however, there is less fluctuation when the values for income are standardized. Figure 8.3 shows the adjusted median household income (Z-scores) over time, and table 8.2 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 the lowest levels of 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. As expected, household income was greater in the neighborhoods with no incarceration and lowest in the areas with the highest rates of prison admissions. There are slight differences between the observed pattern in 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, which seems invariant to changes in crime rates or other economic or social externalities. Table 8.3 shows 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 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 identify more specifically 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.¹⁸ Descriptive statistics for the variables used in the models are shown in table 8.4 and also in the appendix.

Table 8.4. Descriptive Statistics

	Mean	Std. Dev.	Minimum	Maximum
Median household income	31,541	15,208	4,757	177,088
Population > 15	3018	2361	16	34079
% African American	26.2	32.1	0.0	100.0
% nonwhite 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 [†]	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 8.5. *Random Effects Regression of Jail and Prison on Median Household Income (Z-score) by Census Tract, 1986–1997 (Coefficients, p(z))*

	Prison only	Jail only	Addictive effects	Conditional effects
Main effects				
Prison (propensity)	-.448***		-.121	-.360***
Jail (propensity)		-.224***	-.188***	-.276***
Interaction				.065***
% black	-.078	-.057	-.005	.332***
% Hispanic	-1.037***	-.949***	-.918***	-.517***
Effects over time				
Prison (propensity)	.036***		.026	.058*
Jail (propensity)		.014***	.011**	.007
Interaction				-.000
% black	-.036***	-.024***	-.029***	-.036***
% Hispanic	.008	.015**	.012**	.001
Model statistics				
R ²	.648	.662	.662	.688
χ ² (Wald)	3595.10	3694.45	3749.04	4742.71
p (χ ²)	.000	.000	.000	.000
Rho	.928	.928	.926	.911

Note: 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

Incarceration Effects on Household Income

Table 8.5 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 over time these negative effects are significantly amplified.

In the first three models, there are no significant effects for blacks. Higher percentages of Hispanics in neighborhoods, however, are associated with lower household income, and the effects increase over time. The effect of race/ethnicity persists 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, while 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 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 they are 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 anticrime activities are more likely to produce prison-generating felony arrests (Fagan, West, and Holland, 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 8.5, 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 8.6, columns 1 and 2) are significant and negative. However, neither jail nor

Table 8.6. *Random Effects Regression of Jail and Prison on Human Capital by Census Tract, 1986–1997 (Coefficients, p(t))*

	Prison only	Jail only	Addictive effects	Conditional effects
Main effects				
Prison (propensity)	-.116*		-.002	-.092
Jail (propensity)		-.055*	-.058	-.070
Interaction				-.026
% black	.657***	.656***	.668***	.708***
% Hispanic	-.168	-.156	-.154	-.121
Effects over time				
Prison (propensity)	.026*		-.008	.028
Jail (propensity)		.004*	.006	.012**
Interaction				-.006**
% black	-.028***	-.028***	-.026***	-.038***
% Hispanic	-.032***	-.032***	-.030***	-.042***
Model statistics				
R ²	.732	.732	.733	.736
χ^2 (Wald)	3123.05	3023.45	3392.95	3683.06
p (χ^2)	.000	.000	.000	.000
Rho	.892	.896	.886	.884

Note: 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

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 has 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.

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 prison's 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 have 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, West, and Holland, 2003; Smith 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 (Smith et al., 1992; Fagan, 1994; Kleiman, 1992). TNT units were assigned to broad areas of the city rather than to 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, West, and Holland, 2003). But jail populations were driven by enforcement of misdemeanor laws, including lesser drug crimes and local enforcement of incivilities and minor misdemeanors. 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 (OMP) 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 loosely coupled police regimes producing different arrest streams that influence 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 nonwhite residents, lower-level enforcement of disorder was a citywide campaign that—although skewed somewhat toward poor areas—affected residents of neighborhoods across the city. The effects of race or ethnicity seem to 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 target certain Hispanic communities. Effects are different for human capital than for income. The size of the Hispanic population is unrelated to a community's human capital, but the black population is related in an unanticipated way. Since Hispanic communities in New York are heterogeneous with respect to the balance of immigrants and native-born residents, as well as differences by country of origin (Kasinitz et al., 2008), more research is needed on the effects of incarceration on neighborhood economics that account for subgroup differences among Hispanics.

Two Kinds of Poverty Traps

Incarceration effects are more pronounced for household income than for 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, effects that persist over time. Incarceration in prison seems to give rise not only to more imprisonment (Fagan, West and Holland, 2003) but also to lower incomes. Jail serves not only as a pathway to prison but also as 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 nonoffender 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 New York 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, create a churning effect on neighborhoods that destabilizes social control and instills a sense of chaos and disorder more typical of a 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 to become socially cohesive (Jacobson, 2005). Ex-inmates also have dim prospects in the workplace, but their diffusion across neighborhoods dilutes their concentrated effects on local incomes.

Race and ethnicity effects on income work in unanticipated ways and require further analyses. While prison and jail inmates come from predominantly poor and segregated communities, once incarceration is factored out of the equation, the 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 effects for neighborhoods with higher proportions of Hispanics, notwithstanding

differences in Hispanics by country of origin. Still, 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 now represent a higher percentage of residents in Hispanic neighborhoods and of Hispanic populations than they represent in 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 is less sensitive to incarceration effects than are 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 have the potential to diminish the workplace prospects both of those who have gone to prison or jail and of their neighbors (Pettit and Lyons, 2007; Lyons and Pettit, 2011). 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 who are 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 business microinvestment and housing development could potentially help offset the local embeddedness of poverty and disrupt its connections to incarceration and crime (Deutsch, 2006; Sen, 2011). Job creation is potentially the most productive step to disrupt poverty traps. Microinvestments typically are small business startups that employ fewer than 10 persons, often in economically deprived areas where business development and job creation lag. Because of their small size, these enterprises often fail to qualify for typical business loans from larger lenders and are too small to attract

private investment capital (Sen, 2011). Microinvestment banks, as economic innovators, fill this gap and provide startup opportunities where other support is harder to access. Some governments also have experimented with this model to spur economic development and job creation in economically isolated areas (Deutsch, 2006). Locating these businesses in the neighborhoods where incarceration rates are higher could provide access to jobs for former inmates and remove some of the barriers to employment that seem to sustain these poverty traps (see, generally, Lyons and Pettit, 2011).

Housing issues also intersect with economic development in areas characterized by high rates of crime and incarceration (Schwartz, Susin, and Voicu, 2003). New York experienced a housing and real estate boom starting in the mid-1990s that was concurrent both temporally and spatially with crime declines that persisted through much of the following decade (Fagan and Davies, 2007; Fagan, 2008). At the same time that residential real estate rose in value, so too did the value of commercial real estate, suggesting potential demand for sustainable small businesses in the neighborhoods with high crime and incarceration rates. Abandoned or dilapidated housing was condemned and then transformed into affordable low-income units and made available to local families who qualified for housing assistance (van Ryzin and Genn, 1999). Beginning in 1990, at the outset of New York City's crime decline, the city created nearly 250,000 *in rem* housing units from abandoned properties in the city's poorest and highest crime and incarceration neighborhoods. These units were made available to families qualifying under a variety of low-income and affordable housing programs (van Ryzin and Genn, 1999; Fagan, 2008). The increase in affordable housing in high-crime areas such as the South Bronx, which transformed during that time into a stable, low-crime, and economically diverse neighborhood (Fagan, 2008), suggests the potential for housing to intervene in neighborhoods to disrupt the poverty traps that link crime, incarceration, and economic disadvantage (Sampson and Morenoff, 2006).

Human capital may also be sensitive to these types of economic-development policies, as well as to the linkage between education and crime-control policies. One connection may be in the use of Order Maintenance policing strategies in schools, which results in high rates of suspension and expulsion for both violations of school rules and

low-level crimes (Dodge, 2008). Dodge (2008) suggests that any 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 in areas scarred by high crime and incarceration, the attenuation of educational capital in poor neighborhoods through school expulsion may offset newly created chances and block access to these new workplaces. And the deterioration of education and training programs in prisons—and their nonexistence 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 potentially help offset the adverse effects of incarceration, ignoring the economic consequences of incarceration has its own risks.

Appendix: 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		

NOTES

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2. Disenfranchisement disproportionately and severely affects African American males, consistent with their disproportionate presence in the incarcerated population: of the 3.9 million American felons who were disenfranchised in 1999, nearly 1.4 million were African American males, representing 13% of all black males (Maurer, 2006).
3. 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, West, and Holland, 2003).
4. See, for example, Fagan, West, and Holland, 2005, showing the persistence over time of incarceration rates 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.
5. 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 on the basis of changes in their subjective evaluation of the likelihood of crime affecting them personally.
6. That is, they computed the portion of the rate of drug arrests in each neighborhood that was not explained by the index crime rate.
7. 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 prosocial interactions among 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).

8. See, for example, Laura Dugan and Robert Apel (2002) on the coerced mobility of women who flee from violent relationships with intimate partners.
9. 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 the peak in 1990. Overall, the total number of index crimes in New York City dropped by 50% between 1990 and 1997, and violent crimes dropped by 47% (Fagan, West, and Holland, 2003). However, felony arrests dropped by only 12%, and misdemeanor arrests increased by 73% in the same period, despite the dramatic decrease in overall crime numbers.
10. In 1987, 75% of all New York State prison admissions originated from cases disposed in New York City, 69% in 1990, and 69% in 1994. New York State Division of Criminal Justice Services (DCJS); and U.S. Department of Justice, Bureau of Justice Statistics, *National Corrections Reporting Program* (NCRP).
11. New York City Department of Correction (DOC), online data report, <http://www.ci.nyc.ny.us/html/doc/html/avrdaily.html>.
12. From 1990 to 1997, misdemeanor drug arrests in New York City were steadily increasing—accounting for 27% of all misdemeanor arrests in 1990 to 31% in 1997. During the same period, felony drug arrests remained relatively stable—accounting for approximately 32% 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> (accessed May 30, 2003).
13. U.S. Department of Justice, Bureau of Justice Statistics, NCRP 1985, NCRP 1990, NCRP 1996.
14. Beginning in 1994, the New York City Police Department launched a computerized crime-mapping system, COMPSTAT (Bratton and 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.

15. 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.
16. 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.
17. 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.
18. Alternate specifications included race-specific incarceration measures and models that included a dummy for whether the neighborhood was in the highest quartile of incarceration rates to identify whether effects were concentrated at the extremes of the distribution of jail or prison rates. The results were unchanged.

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