

DOES CRIME JUST MOVE AROUND THE
CORNER? A CONTROLLED STUDY OF
SPATIAL DISPLACEMENT AND DIFFUSION
OF CRIME CONTROL BENEFITS*

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Recent studies point to the potential theoretical and practical benefits of focusing police resources on crime hot spots. However, many scholars have noted that such approaches risk displacing crime or disorder to other places where programs are not in place. Although much attention has been paid to the idea of displacement, methodological problems associated with measuring it have often been overlooked. We try to fill these gaps in measurement and understanding of displacement and the related phenomenon of diffusion of crime control benefits. Our main focus is on immediate spatial displacement or diffusion of crime to areas near the targeted sites of an intervention. Do focused crime prevention efforts at places simply result in a movement of offenders to areas nearby targeted sites—“do they simply move crime around the corner”? Or, conversely, will a crime prevention effort focusing on specific places lead to improvement in areas nearby—what has come to be termed a diffusion of crime control benefits? Our data are drawn from a controlled study of displacement and diffusion in Jersey City, New Jersey. Two sites with substantial street-level crime and disorder were targeted and carefully monitored during an experimental period. Two neighboring areas were selected as “catchment areas” from which to assess immediate spatial displacement or diffusion. Intensive police interventions were applied to each target site but not to the catchment areas. More than 6,000 20-minute social observations were conducted in the target and catchment areas. They were supplemented by interviews and ethnographic field observations. Our findings indicate that, at least for crime markets involving drugs and prostitution, crime does not simply move around the corner. Indeed, this study supports the position that the most likely outcome of such focused crime prevention efforts is a diffusion of crime control benefits to nearby areas.

Recent studies point to the potential theoretical and practical benefits of focusing research on crime places (Eck and Weisburd, 1995; Sherman, 1995; Taylor, 1997; Weisburd, 2002; Weisburd, Bushway et al., 2004). A number, for example, suggest that significant clustering of crime at place exists, irrespective of the specific unit of analysis defined (Brantingham and Brantingham, 1999; Crow and Bull, 1975; Pierce, Spaar, and Briggs, 1986; Roncek, 2000; Sherman, Gartin, and Buerger, 1989; Weisburd, Maher, and Sherman, 1992; Weisburd and Green, 1994a; Weisburd, Bushway et al., 2004). The concentration of crime at place also suggests significant crime prevention potential for such strategies as hot spots patrol (Sherman and Weisburd, 1995), which focus crime prevention resources tightly at places with large numbers of crime events (Sherman,

Gartin, and Buerger, 1989; Sherman and Rogan, 1995; Weisburd and Green, 1995a).

Although there is growing evidence that police can have an impact on crime at the specific areas where they focus their efforts (see Sherman et al., 1997; Weisburd and Eck, 2004), such approaches risk shifting crime or disorder to other places where programs are not in place. This phenomenon is usually termed spatial displacement, and it has been a major reason for traditional skepticism about the overall crime prevention benefits of place-based prevention efforts (Reppetto, 1976).

In recent years, this prevailing orthodoxy has been the subject of substantial criticism. The assumption that displacement is an inevitable outcome of focused crime prevention efforts has been replaced by a new assumption that displacement is seldom total and often inconsequential (Barr and Pease, 1990; Clarke, 1992; Eck, 1993; Gabor, 1990; Hesseling, 1994). Clarke and Weisburd (1994), moreover, suggest that scholars need to be cognizant of the reverse of displacement. They point to evidence indicating that situational and place-oriented crime prevention strategies often lead to a "diffusion of crime control benefits" to areas outside the immediate targets of intervention. Such spatial diffusion of crime control benefits has now been noted in a number of studies (Braga et al., 1999; Caeti, 1999; Hope, 1994; Sherman and Rogan, 1995; Weisburd and Green, 1995a).

Whereas much attention has been paid to the idea of displacement, methodological problems associated with measuring it have often been overlooked (Bowers and Johnson, 2003; Weisburd and Green, 1995a; for exceptions, see Barr and Pease, 1990; Pease, 1993). Indeed we could not identify a single direct empirical study of displacement for review. That is not to say that displacement has not been studied, only that empirical examinations of displacement or diffusion have been a by-product of the study of something else. Typically, knowledge of displacement or diffusion has been gained from a study focusing on the effects of an innovative crime prevention program. The problem is that a study designed to measure direct program effects will likely face significant methodological problems in measuring displacement or diffusion (Weisburd and Green, 1995b).

The failure of scholars to examine displacement and diffusion effects directly was to some extent understandable when it was assumed that there would be little overall crime control benefit from focused crime prevention initiatives, and when few practical crime prevention approaches concentrated on places or situations. Given the substantial growth of such crime prevention programs in recent years, however, and the growing controversy over the magnitude and nature of displacement, such focus is now warranted. Our study sought to fill these gaps in the

measurement and understanding of displacement and diffusion. Our main focus is on immediate spatial displacement or diffusion of crime control benefits to areas near the targeted sites of an intervention. Do focused crime control efforts at places simply result in a movement of offenders to areas nearby targeted sites—do they simply move crime around the corner? Or, conversely, will a crime prevention effort focusing on specific places lead to improvement in areas nearby—what has come to be termed a diffusion of crime control benefits? Though our main focus is on immediate spatial displacement and diffusion, we also collect data on other potential forms of displacement and the ways in which focused place-based intervention efforts affect them.

Our data are drawn from a controlled study of displacement and diffusion in Jersey City, New Jersey. Two sites with substantial street-level crime and disorder were targeted and were carefully monitored during an experimental period. One site included a clearly focused geographic concentration of drug crime, and the other street-level prostitution. Two neighboring areas were selected as “catchment areas” to assess immediate spatial displacement or diffusion. Intensive police interventions were applied to each target site but not applied to the catchment areas. More than 6,000 20-minute social observations were conducted in the target and catchment areas during the study period. These data were supplemented by interviews and ethnographic field observations.

DISPLACEMENT AND DIFFUSION

The idea of spatial displacement can be traced to early work by sociologists who noted the role of opportunities for crime at places, but at the same time assumed that the concentration of crime prevention efforts at places would simply shift crime events from place to place without any clear long-term crime prevention benefit. Sutherland (1947), for example, recognized the importance of criminal opportunities in the crime equation even as he presented his theory of differential social learning among individuals. He noted in his classic introductory criminology text that “a thief may steal from a fruit stand when the owner is not in sight but refrain when the owner is in sight; a bank burglar may attack a bank which is poorly protected but refrain from attacking a bank protected by watchmen and burglar alarms” (1947: 5). Nonetheless, like other early criminologists, Sutherland did not see crime places as a relevant focus of criminological study. This was the case, in part, because crime opportunities provided by places were assumed to be so numerous as to make crime prevention strategies targeting specific places of little utility for theory or policy. In turn, criminologists traditionally assumed that situational factors played a

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relatively minor role in explaining crime as compared with the “driving force of criminal dispositions” (Clarke and Felson, 1993: 4; Trasler, 1993).

Though the possibility that crime prevention might move crime rather than curtail it is not new, it was not until 1976 that Reppetto provided the first explicit rationale for displacement.

The police, however, cannot be everywhere; all houses and commercial establishments cannot be secured with attack-proof doors and windows, and all neighborhood environments cannot be altered. A different level of protection between various potential targets, both human and nonhuman, will always exist. Given the differential and no reduction in the offender population, will not the foreclosure of one type of criminal opportunity simply shift the incidence of crime to different forms, times and locales? (1976: 167)

Displacement refers to the shift of crime either in terms of space, time, or type of offending from the original targets of crime prevention interventions (Reppetto, 1976). It is often seen as a negative consequence of focused crime prevention efforts, but harnessing the displacement phenomenon may in fact benefit the community. For example, moving prostitutes from an area near a local school, or shifting the time of prostitution later into the night when younger people or commuters are less likely to be present may be desirable. In turn, if offenders can be displaced from more to less violent crime, the community may benefit (Barr and Pease, 1990). Nonetheless, if displacement is an inevitable result of focused prevention efforts, then the utility of place-based crime prevention approaches would be limited.

CHALLENGES TO TRADITIONAL CONCERN WITH DISPLACEMENT OUTCOMES

Based on assumptions about the large number of crime opportunities available in modern societies, and the highly motivated nature of many offenders, crime prevention scholars have traditionally assumed that most of the crime control benefits of situational prevention strategies would be lost due to displacement. Some early studies appeared to support this position (for example, Chaiken, Lawless, and Stevenson, 1974; Lateef, 1974; Mayhew et al., 1976; Press, 1971). However, careful review of these findings, as well as of a series of studies in the 1980s and 1990s, has led to general agreement that displacement of crime is seldom total and often inconsequential (Barr and Pease, 1990; Clarke, 1992; Eck, 1993; Gabor, 1990; Hesselting, 1994; for an opposing view, see Teichman, 2005).

Evidence suggesting that displacement is much less of a problem than had originally been assumed can be understood only if we abandon

simplistic assumptions about opportunity and crime that have been predominant among crime prevention scholars. The idea that criminal opportunities are indiscriminately spread through urban areas has been challenged by a series of studies showing that crime is concentrated in time and space (Brantingham and Brantingham, 1981; Sherman, Gartin, and Buerger, 1989; Weisburd, Maher, and Sherman, 1992; Weisburd and Green, 1994a; Weisburd, Bushway et al., 2004). Moreover, criminal opportunities are differentially distributed, both in terms of the benefits they offer and the ease with which they can be seized.

In one study of situational measures used to prevent bank robberies, for example, little displacement was noted to other types of targets (convenience stores and gas stations), primarily because they did not offer enough financial reward for the criminal gangs that had been targeting the banks (Clarke, Field, and McGrath, 1991). Using the example of homes and cars, Clarke (1995) suggests that what appears at first glance to be an endless quantity of criminal opportunities, may be bounded both by issues of guardianship and significant variation in the value of goods that can be stolen (see also Hesseling, 1994).

The portrait of offenders as driven to criminality has begun to be replaced by one that recognizes the situational, often serendipitous, character of much offending (Cornish and Clarke, 1986; Weisburd and Waring, 2001). Even for crimes that have been assumed to be most vulnerable to displacement effects, evidence suggests that situational characteristics may dampen displacement impacts. For example, in an evaluation of a crackdown on prostitution in Finsbury Park, London, Matthews (1990) found little evidence of displacement. He explains this by noting that the women involved were not strongly committed to prostitution, but looked at the targeted location as an easy area from which to solicit.

Perhaps the strongest evidence against the assumption of immediate spatial displacement has come from recent studies of focused interventions at crime hot spots. In the Jersey City Drug Market Analysis Experiment (Weisburd and Green, 1995a), for example, displacement within two block areas around each hot spot was measured. No significant displacement of crime or disorder calls was found. These findings were replicated in a series of other hot spots experiments including the New Jersey Violent Crime Places Experiment (Braga et al., 1999), the Beat Health Study (Green and Roehl, 1998), and the Kansas City Gun Project (Sherman and Rogan, 1995). Only Hope (1994) reports direct displacement of crime as a result of a focused hot spots intervention, though this occurred only in the area immediate to the treated locations, and the displacement effect was much smaller overall than the crime prevention effect.

Further challenge to the displacement hypothesis is found in recent studies that suggest a positive though unanticipated consequence of crime control practices. In these cases, investigators found improvement in areas close to, but not targeted by, crime prevention efforts (see Green, 1995; Weisburd and Green, 1995a). Clarke and Weisburd (1994) argue that this phenomenon is general enough to deserve a standard term—"diffusion of crime control benefits." It has been described elsewhere by investigators variously as the free rider effect (Miethe, 1991), the bonus effect (Sherman, 1990), the halo effect (Scherdin, 1986), or the multiplier effect (Chaiken, Lawless, and Stevenson, 1974). In essence, diffusion is the reverse of displacement. It refers to the diffusion of crime control benefits to contexts that were not the primary focus of crime prevention initiatives. Diffusion has now been documented in crime prevention strategies as diverse as police crackdowns (Sherman, 1990; Weisburd and Green, 1995a), book protection systems (Scherdin, 1986), electronic surveillance (Poyner and Webb, 1987), and enforcement of civil regulations at nuisance locations (Green, 1996).

Clarke and Weisburd (1994) identify two main processes underlying diffusion: deterrence and discouragement. In the case of deterrence, offenders generally overestimate the crime prevention efforts of the police or other social control agents and assume erroneously that they are at higher risk of apprehension or punishment. Sherman (1990) cites an example of this process of deterrence when he shows that the crime control benefits of police crackdowns generally last much beyond the actual crackdown periods. Discouragement occurs when a crime prevention program reduces the rewards associated with a criminal act. For example, removing coin-fed gas and electricity meters from apartments that had been burglarized in a public housing estate in England led to an overall decline across the entire housing project (Pease, 1997). In this case, it seemed that taking out a proportion of the meters was enough to discourage potential burglars, who "could no longer be sure of finding a meter containing cash without expending a great deal of additional effort" (Clarke and Weisburd, 1994: 173).

LIMITATIONS OF RESEARCH ON DISPLACEMENT

Since 1990 three main reviews of empirical studies have reported on displacement: Barr and Pease (1990); Eck (1993); and Hesseling (1994). Unfortunately, to date there have been no similar reviews of diffusion of crime control benefits.¹ The three reviews vary in their comprehen-

1. Although there have not been similar comprehensive reviews of diffusion of crime control benefits, Smith, Clarke, and Pease (2002) examine a related phenomenon which they term *anticipatory benefits*. In a review of situational crime prevention

siveness. Barr and Pease restricted themselves to studies from the United Kingdom. Eck assessed thirty-three studies from the United States, Canada, the United Kingdom, and other countries printed in English. Hesselning examined fifty-five studies from North America, Europe, and other areas printed in English or Dutch.

Each of these reviews arrived at the same three basic conclusions. First, there is little evidence of crime prevention strategies that displaced as much crime as was prevented (displacement equal to 100 percent). Second, displacement, when it occurs, is usually less than the amount of crime prevented (displacement less than 100 percent but greater than 0 percent). And, third, for crime prevention evaluations that reported on displacement, the most common finding was that there was no evidence of displacement (displacement equal to 0 percent). In sum, most studies found no, or negligible, displacement of crime.

These results must be taken with three important caveats. First, the amount of displacement depends, in part, on the type of intervention that is applied. For example, Hesselning (1994) suggests that target hardening may displace more crime than access control. Second, the amount of displacement also depends, in part, on the crime or disorder being prevented. Eck (1993) suggests that drug dealing may be more likely to displace than other forms of crime (for the opposite view, see Weisburd and Green, 1995b) and that certain forms of drug markets are particularly susceptible to displacement. Third, and most important, because the studies did not set out to examine displacement, it was rare that evaluators were able to use a methodologically sound research design for detecting it. This is in part because researchers must make decisions about the allocation of scarce research funds and resources. If, for example, a researcher is unsure about the direct crime control benefits of a program, it makes sense to invest in assessing the direct target effects rather than outcomes that are important only if a target effect is found.

Even if resources are available for measuring displacement and diffusion effects, a research design optimal for identifying the direct impacts of a program will often be a weak design for measuring displacement and diffusion. For example, Sherman and Weisburd (1995) designed the Minneapolis Hot Spots Experiment to have a high level of statistical power for detecting the effects of police patrol at targeted locations. However, the sites that provided enough activity to ensure a high enough base rate for the study were often surrounded by high crime

studies, they find that 40 percent of studies including sufficient detail for analysis evidenced some degree of crime prevention effect "before" an intervention had begun. We discuss the implications of these findings for our study in the discussion section.

areas. Weisburd and Green (1995a) demonstrate that potential displacement in the Minneapolis study was extremely difficult to identify using conventional measurement techniques. Although a statistically significant direct program impact was found overall, in any particular hot spot the actual change in the number of crimes was relatively small. At the same time, the areas immediately surrounding the hot spots often had a large number of crimes. Detecting displacement in such cases is a bit like looking for a needle in a haystack.

These problems have been brought up in the past. When first describing the problem of displacement, Reppetto writes, "to date, no concerted attempts appear to have been made to forecast the forms and dimensions of the displacement problem, this topic seems ripe for comprehensive and quantitative research" (1976: 68). We have reason to speculate that displacement is not as inevitable as he believed, but the type of study he described is still lacking. The fact that we now have ample evidence of the effectiveness of spatially focused crime prevention efforts (Committee to Review Research on Policy and Practice, 2004; Weisburd and Eck, 2004) suggests that it is especially important that we conduct direct studies of displacement and diffusion in crime hot spots. This study aims to address the limitations of previous displacement research by using methods specifically designed to capture displacement and diffusion effects.

THE STUDY

Our first task was to identify a police agency willing to develop and implement crime prevention strategies with the goal of understanding displacement and diffusion. We recognized at the outset that such a study would not only demand a very high level of cooperation from a police agency, but also stray significantly from the typical interest of police departments in identifying effective crime prevention approaches. Here, we were requesting that an agency develop crime prevention in a context that would not necessarily lead to the largest crime prevention benefit, but would instead allow for the clearest examination of displacement and diffusion. We were fortunate to have worked with then Deputy Chief Frank Gajewski of the Jersey City Police Department (JCPD) on a series of earlier studies of innovative crime prevention approaches focused on hot spots (see Braga et al., 1999; Weisburd and Green, 1995a), who not only agreed to support the research in the JCPD but also directly supervised implementation of the policing strategies.

Although our selecting Jersey City was based primarily on the willingness of the JCPD to work with us, the city was also attractive as a site because it had robust crime problems and crime trends that followed national patterns. Jersey City (population 240,055 in 2000) is the second

largest city in the state, and home to a predominantly working-class population. According to the 2000 decennial census on population and housing, 33 percent of residents are white, 28 percent are black, and 28 percent are Hispanic. In the late 1990s, when the study was being developed, the city was ranked higher in per capita drug arrests than Cincinnati, Baltimore, Newark, Tampa, and New York City—all among the top ten cities for drug arrests in the United States. At the same time, violent crime declined during the 1990s, as it did in most other major American cities (Blumstein and Wallman, 2000). For example, homicides dropped from sixteen to seven incidents per 100,000 residents from 1994 to 1997. In the same period, assaults dropped from 848 to 224 per 100,000 residents.

SELECTING CRIME SITES

We assembled a team of policing and crime prevention experts to assist in identifying crime sites that were optimal for studying displacement and diffusion. This “strategy review team” included some of the leading scholars and practitioners with expertise in community and problem-oriented approaches to policing.² During a series of meetings, various high-crime areas of Jersey City were assessed using a number of quantitative and qualitative variables to select the most appropriate areas for study. These measures included crime maps created from crime incidence data, police calls for service data, and observations of potential sites.

We looked for sites that consistently showed high levels of activity. This would allow for a more sensitive, statistically powerful research design (see Lipsey, 1990; Weisburd and Green, 1995b)—the larger the number of possible crimes that can be deterred, the greater the amount of displacement that can be expected. Nonetheless, it was decided to exclude target areas in which crime in surrounding areas was so high that it would make it more difficult to detect displacement, like trying to find a needle in a haystack, or so low that it would be impossible to identify a diffusion of crime control benefits. We also sought sites that were isolated from other potentially confounding crime prevention programs and police operations. In addition, places were identified where the predominant criminal activity was thought to be well suited to measure displacement outcomes. Accordingly, crimes were chosen that involved income generation, with the assumption that offenders would feel strong pressure to continue committing crime despite police intervention.

2. The scholars who served on this strategy review team were Ronald Clarke, Herman Goldstein, Stephen Mastrofski, and Jerome Skolnick.

We recognized at the outset that our criteria for selection would lead to a relatively small group of possible sites. This fit our overall study design, which focused on collecting detailed information about displacement and diffusion that resulted from specific crime prevention interventions. We sought to examine displacement and diffusion in a controlled context in which the sites not only met the specific criteria noted above, but in which there would be a good deal of control over police activities and the possibility for collecting very detailed data about crime and disorder in the sites selected (see below). The significant costs of such a data collection effort at any one site, and the demands on the police agency involved in bringing interventions in each site, meant that only a small number of areas could be selected for study.

Twenty locations were identified as possible sites based on the above criteria. Police officers from the Jersey City Police Department provided more detailed information about the crime problems in these sites, which was used to narrow this list down, first to twelve and then to three. Two of these sites, one characterized by drug crime problems,³ and the second by prostitution, are described below. A third site, characterized by burglary, was originally selected but then excluded because our observations suggested that implementation of the crime control strategies had been weak and inconsistent.

Defining displacement and diffusion catchment areas. An important part of our site selection process was to identify sites that had potential for displacement of crime or diffusion of crime control benefits to areas nearby the targeted sites. As noted, we chose the target areas with attention to the overall level of crime in the immediate surrounding street blocks. But we also wanted to make sure that the physical layout of the area would allow crime to shift to areas surrounding the target site. This meant that a target site could not be bounded, for example, by a waterway or other physical obstruction to displacement or diffusion.

For each site, we identified an area, which we termed catchment area 1, of about one block surrounding the target site. If crime were simply to “move around the corner,” we assumed that it would be most likely to be found in this area. At the same time, we also wanted our study to be sensitive to displacement or diffusion to areas farther from the target site. Accordingly, we defined a second catchment area that extended our observations at least two blocks around the target areas.

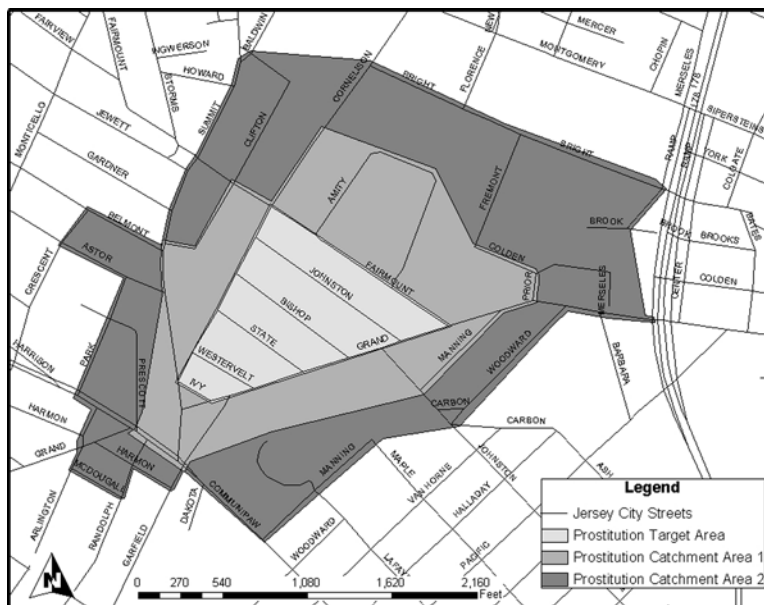
3. Though this area was originally defined as also having high rates of violent crime, we found that the primary crime patterns at the site involved drug crimes, and that the base rate of violent street-level activity was too low in our study for robust statistical analysis.

THE CORNELISON AVENUE PROSTITUTION SITE

The Cornelison Avenue target site had a history of prostitution activity dating back more than a decade (see figure 1). It had once been a neighborhood of thriving businesses, industrial warehouses, homes, and the Jersey City Police Department stables. At the time of this study, however, the area appeared all but abandoned. Only a small number of occupied residential houses remained on Westervelt, Ivy, and Grand streets. There was also a substance abuse treatment center at the northern end of the target site near Fairmount Avenue, and a few warehouses and small factories. Our observations in these areas suggested that the employees of these businesses seldom ventured onto the streets of the target area. Moreover, in preliminary observations, observers reported that the prostitutes in this area worked out in the open and didn't take many precautions to avoid police detection.

Catchment area 1 contained a small number of multifamily housing units and small businesses including an auto body shop, a car wash, and a lumber yard. There was pedestrian traffic during commuting hours, but little motor vehicle traffic. This description was markedly different in the second catchment area, which housed three of the city's largest public housing projects (Booker T. Apartments, Lafayette Gardens, and Montgomery Houses), and had heavy pedestrian and vehicle traffic. Overall, catchment area 2 had few businesses other than a liquor store and small convenience store.

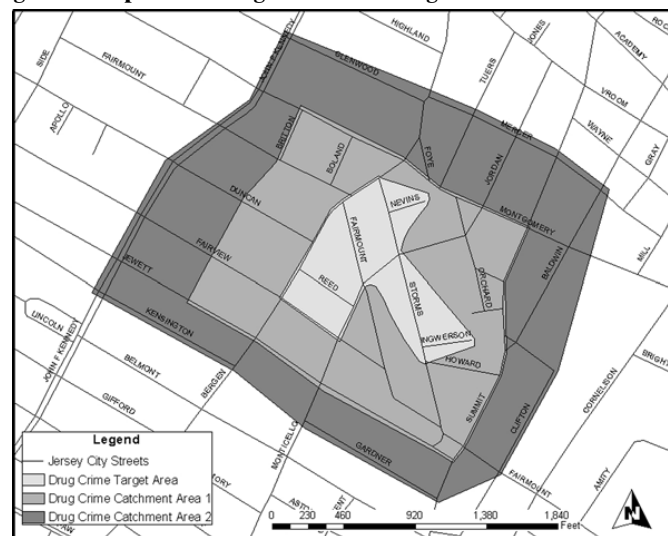
Figure 1. Map of the Prostitution Site Target and Catchment Areas



THE STORMS AVENUE DRUG CRIME SITE

The Storms Avenue drug crime target area was located about a quarter mile from the prostitution target site and was in the same police district.⁴ In contrast to the prostitution target area which appeared to be largely abandoned, this area had the feel of a densely populated urban neighborhood. Half of the ninety-six buildings in the target area were three-story structures with a business or agency on the ground floor and apartment units on the upper floors. The majority of these commercial establishments were on Bergen Avenue, which borders the western edge of the target area (see figure 2). The eastern side consisted of multifamily dwellings and a large number of vacant lots and abandoned buildings. Storms Avenue and Reed Street lie to the east of Bergen Avenue. Both were one-way streets and at the outset of the study exhibited signs of physical decay such as burned out buildings, graffiti, broken glass, and drug paraphernalia. There were two major drug markets in the target area, one on Reed Street and the other on Storms Avenue.

Figure 2. Map of the Drug Crime Site Target and Catchment Areas



4. The location of both sites in one police district facilitated the management of the study. Nonetheless, the large size of our total observation areas (more than one half mile in diameter for each site) led to a small overlap in the second catchment area (six street segments out of a total of thirty-five in catchment area 2 in the drug crime site and forty-six in catchment area 2 in the prostitution site). Because the number of overlapping streets is small and our analysis focuses on specific crimes for each target site, we did not think that this overlap would directly impact upon our measurement of displacement and diffusion in each area. Nonetheless, we recognized that strong displacement effects of one crime might have an impact on another. Our results do not suggest a displacement outcome for either target site.

Catchment area 1 had a very similar feel and look to the target area, with the majority of buildings containing a business on the bottom floor and the upper two floors containing residential apartments. The primary difference between these two areas was that there were no established drug markets in catchment area 1. Catchment area 2 was highly residential with a number of long streets containing trees and large apartment buildings.

UNIT OF ANALYSIS AND MEASUREMENT

We assumed from the outset that the best measure of the effects of the intervention on the targeted sites and catchment areas would be drawn from social observations. Social observations have a rich tradition in criminology (for example, see Park and Burgess, 1921; Reiss, 1971; Sampson and Raudenbush, 1999; Sherman and Weisburd, 1995), though they are infrequently used because of the considerable expense involved. The importance of observational data in this study is reinforced by the nature of the criminal activity examined. The two crime sites chosen include by design large numbers of prostitution and drug crimes—crimes that often occur on the street and thus are amenable to measurement by observational methods.

Researchers conducted social observations using the street segment as the unit of analysis. Observers were instructed to only record events on their assigned street segments from one street corner to the next. We developed a social observation instrument and codebook (see Weisburd, Wyckoff et al., 2004), drawing from observation methods used during the Minneapolis Hotspots Experiment (Sherman and Weisburd, 1995) and the Jersey City problem-oriented policing in public housing study (Green et al., 2000), and check sheets used to catalogue social behavior in clinical settings (Hinde, 1973; Kazdin, 1982). We conducted nine waves of social observations in the drug crime site: one before, six during, and two after the intervention. We also completed nine waves in the prostitution site: one before, seven during, and one after the intervention.

Each wave was conducted over a 7-day period.⁵ Each observation lasted 20 minutes. Fifty-two were scheduled in a day and 364 in a wave. Our researchers completed a total of 3,063 observations in the drug crime site and 3,066 in the prostitution site. We developed a schedule in which one street segment in the target area was randomly selected for observation

5. Any social observations that were not completed during the regular schedule, because of weather conditions or police activities that prevented observers from going into the sites, were made up in the interim period before the next wave. About 3 percent ($n = 199$) of all social observations were dealt with this way.

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every hour between 10:00 a.m. and 2:00 a.m.⁶ It was also necessary to schedule enough observation time in the catchment areas, which included by design a larger number of street segments, to measure possible spatial displacement and diffusion effects. One street segment in each catchment area was randomly selected for observation every hour between noon and midnight, and a second street segment in each catchment area was randomly selected for observation every hour between 4:00 p.m. and 10:00 p.m. because these hours represented the highest hours of activity. It is important to note that our sampling approach resulted in relatively few observations during any particular time period within a specific wave of data collection. This meant that we were unable to systematically examine displacement or diffusion across time of day.

Observations were made from the “epicenter” of the street segment, the location where the greatest amount of social activity could be clearly observed. In residential areas, a building entrance staircase or public bench near the middle of the street segment was often chosen as the epicenter. In commercial areas, where the street segments were shorter, the epicenter was sometimes not located in the middle of the street segment but on the street corner that included the heaviest volume of social activity.

The observers did not interact with citizens unless they were asked a question or spoken to directly. Because 6,129 observations were conducted over 9 months, many citizens became familiar with the observers’ presence. The observers were often mistaken for social workers or census officials. When the observers were asked what they were doing, they explained that they were counting social activities for a study and showed the citizen a copy of the social observation check sheet.

ARRESTEE INTERVIEWS

Social observations provided a direct measure of street-level behavior, but we also wanted to collect data that would provide a more qualitative assessment of the impacts of the interventions on offenders. One method was to interview offenders arrested for targeted crimes in both target areas during the intervention period. Overall, a total of forty-seven arrestees were interviewed from the prostitution site and fifty-one from the drug crime site.

Project staff interviewed offenders while they were awaiting trial at the Hudson County Jail. Offenders were chosen to be interviewed from bulletins

6. This is the time frame in which most crime incidents are reported to the Jersey City Police Department. For example, 85 percent of assaults, 92 percent of drug crimes and 79 percent of prostitution crimes were reported to the police between 10:00 a.m. and 2:00 a.m. according to calls for service for the years 1996 through 2000.

faxed daily to the research office by the Planning and Analysis Unit in the Jersey City Police Department. These bulletins contained the names and contact information for individuals arrested in the target areas the previous day. The arrestees willing to participate in the jail interviews were paid \$15 to do so. Interviews were held in a private holding cell at the Hudson County Jail on Fridays during the study period. To ensure consistency, the interviewers used an instrument containing specific questions, though follow-up questions specific to the interview were also asked.

INDEPENDENT ETHNOGRAPHER REPORT

We recognized at the outset that interviews with offenders arrested in the target area would include an element of bias, in that offenders arrested may not be similar to those who are able to avoid arrest. For this reason we also sought to use ethnographic methods in each of the sites. Because of difficulty in gaining informants in the drug crime site, we were only able to conduct ethnographic field observations in the Cornelison Avenue prostitution site (Brisgone, 2004).

To ensure the validity of the ethnographic field observations, it was decided to have the ethnographer work independently of the other researchers. Regina Brisgone, then a Rutgers University graduate student, did not work under the supervision of project staff but was instead supervised by Mercer Sullivan of Rutgers University, who has extensive ethnographic field work experience. Brisgone (2004) produced an independent report we draw from in the work that follows.

DESCRIPTION OF THE INTERVENTIONS

The choice of which policing strategies to implement in the target areas was a critical component of the study. In contrast to prior research that had assessed displacement or diffusion, our goal was not to identify new strategies that could impact upon crime or evaluate whether existing strategies were effective. Displacement and diffusion were *not* the secondary interests of our study only to be assessed once we had identified a direct program effect. Rather, displacement and diffusion were our primary interests. It was thus essential that we choose established strategies that would allow us to clearly examine possible displacement and diffusion outcomes.

SELECTING STRATEGIES

With the assistance of the strategy review team we identified three main criteria for the selection of crime prevention strategies. First, the strategies should have strong empirical evidence supporting a high likelihood of direct measurable effects on crime. A review of existing literature on

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crime prevention programs conducted by Lawrence Sherman and his colleagues (1997) for the Office of Justice Programs identified a number of strategies that satisfy this criterion. The authors concluded that strategies that concentrate on specific types of crimes within bounded geographic areas have the largest impacts on crime and disorder (Sherman et al., 1997). Examples of strategies with a proven record of effectiveness include nuisance abatement programs (Eck and Wartell, 1996; Green, 1996), hot spots policing tactics (Sherman and Rogan, 1995; Sherman and Weisburd, 1995; Weisburd and Green, 1995a), and street closures (Atlas and LeBlanc, 1994; Matthews, 1993; Newman, 1996).

The second criterion specified that it should be feasible for the police to implement the tactics at a high enough dosage to ensure large effects on crime and disorder in the targeted areas. Regardless of the existing empirical evidence, if the police did not have the capacity to effectively implement a particular strategy and maintain it at full capacity throughout the intervention period, then the strategy was excluded.

The last criterion stipulated that the strategies should, as a group, make a contribution to our knowledge about the nature of displacement and diffusion. Problem-solving tactics that eliminated all possibility of displacement or diffusion in a particular site, for example, would not support a fair test of displacement and diffusion outcomes. The strategies were developed to reduce crime and crime opportunities in the target area, while not focusing attention on reducing displacement effects or actively attempting to create a diffusion of crime control benefits to surrounding areas.

INTERVENTION AT THE CORNELISON AVENUE PROSTITUTION SITE

Seven additional officers were made available for the intervention at the prostitution target site to implement a three-pronged intervention strategy. The first part of the strategy focused on removing prostitutes from the target area. Police officers patrolled the area and arrested prostitutes to get the message out that the area was under surveillance. Police then conducted reverse stings, in which undercover female officers posed as prostitutes, to arrest johns as a way to deter customers from cruising the area. Seven reverse stings were conducted during the intervention and during each between twenty and thirty johns were arrested. After each sting, motor vehicle stops were set up to check for traffic violations and warn drivers that the area was a known prostitution site and that johns were being arrested for solicitation.

The second part of the strategy was to reduce criminal opportunities facilitated by the physical layout of the area by cleaning up trouble spots

that facilitated prostitution. One such area was a wooded lot on Cornelison Avenue littered with mattresses, drug paraphernalia, and pornographic materials. The police also cooperated with Public Works to erect and maintain a fence around this lot. Combined, these approaches were designed to eliminate one prominent location for prostitution activities in the target area. Finally, the police worked with Public Works to close off Cornelison Avenue at Ivy Place and Fairmount Avenue with cement barriers to make it more difficult for johns to cruise through the area.

The final part of the strategy involved working with community groups to help prostitutes solve various problems in their lives. For example, the police worked with Hogar CREA (a substance abuse center on Cornelison Avenue) to help prostitutes cope with their drug problems. The police also involved the Summit Avenue Citizens Group in their prevention activities. Such efforts were an attempt to get at the root causes of prostitution in the target area.

During the study, Deputy Chief Frank Gajewski monitored the implementation of the strategies for the research team. Nonetheless, we used our qualitative data collection to provide an independent assessment of the implementation of the interventions. It is important to note that, to protect them from possible harm, we removed observers from the sites when police crackdowns or other unusually intensive enforcement efforts were carried out. Accordingly, we cannot use social observations as a measure of police initiatives in the target area.

In her research, the ethnographer (Brisgone, 2004) found that the prostitutes were aware of the increased level of police activity in the target area. Indeed, once the intervention was under way, it became the main topic of conversation between the prostitutes and the ethnographer. For instance, Brisgone reported that after the beginning of the intervention the “Wednesday stings” and arrests became the “hot topic” in her interviews. Additionally, after the police cleaned up a lumberyard that was a major location for prostitution activity, the action was discussed by the prostitutes for several weeks. As Sugartoo, a 34-year-old prostitute noted,

Changes as far as the street goes: it's really hard to make money. Cops is out there now and gonna make a sting every Wednesday. They got cops out on motorcycles, and they got bicycle cops out there and the walking cops and the undercover cops in the cars. And you got a take a chance. Johns is afraid to come out 'cause they think you is a cop. They (female decoys) look like they working. There's a big fat girl and a Puerto Rican girl that stand on the corner. I guess they're rookies. They take them (clients) around the corner and that's where the cops are. Then they take them to jail ... You can't make me go out there. It's just too hot. (Brisgone, 2004: 196)

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More than 60 percent (nineteen of thirty-one) of the prostitutes interviewed after arrest reported being aware of increased police activity during the intervention period. Respondents repeatedly mentioned noticing more officers on the streets, significantly more stings, and an intensified get tough attitude among law enforcement. One prostitute explained: "The cops are out there more, they're doing their job for a change. Before they used to give you breaks." Prostitutes saw cops in cars, on foot, and posing as prostitutes. "They were never out there before," one respondent added, "and now they are all out there."

INTERVENTION AT THE DRUG CRIME SITE

The intervention at the drug crime site also involved a combination of approaches. Perhaps the most intensive was to introduce a nine-officer narcotics task force (NTF) to target drug activity and other problem behaviors in the area (two officers had been assigned to the site previously). Because the target area included only twenty-one street segments, the introduction of the task force represented a major increase in police activity. This was supplemented by a commitment by the department to increase routine police patrols in the area. As well, to ensure that the target area received increased attention, the department assigned a captain and a sergeant to work with and supervise the additional officers in the area.

The department also brought a Violent Offender Removal Program (VORP) to the target area. The program was not designed to prosecute a large number of offenders but to focus on the chronic violent and drug offenders, particularly the most violent, who used handguns. The assistant prosecutor, the planning unit, and the NTF officers scheduled meetings to screen potential VORP cases. Once chronic offenders were arrested, the prosecutor's office sought to fast track the prosecution process. Court files were flagged with a VORP stamp and the prosecutors attempted to keep these offenders in custody. It was hoped that VORP would increase the deterrent value of arrests in the area. Twenty-one chronic offenders were prosecuted under this program during the intervention period.

The strategy here, as in the prostitution site, did not involve only traditional enforcement activities in the targeted sites. Because it was assumed that local businesses, especially bars, small groceries, and 24-hour stores, played an important part in the drug trade, police officers used code enforcement to pressure local businesses and residential units to work with them in reducing opportunities for drug-involved offenders. NTF officers also reached out to superintendents and owners of apartment buildings and tried to provide alternative activities for potential offenders, such as a neighborhood program to build a basketball court for local youths.

As with the prostitution site, we use our qualitative data to develop an independent assessment of increased police activity in the target area. As noted, ethnographic data were not available for the drug crime site. We found a much lower level of recognition of the increase in police presence among arrestees in the drug site than at the prostitution site. This may be because many of the arrestees were buyers or others who might not have been as aware of police presence. Of those arrestees interviewed, 27.5 percent (fourteen of fifty-one) mentioned examples of police presence that appeared to be above and beyond a normal level. They spoke of increased surveillance, foot patrol, and raids. One dealer said that he was being personally investigated by officers. Another noted that he had seen nine or so different officers in different cars conducting surveillance. A few respondents mentioned seeing officers every day or almost every day. One dealer noted that police “sweat the block” afternoon to night. “Lately,” another told us, “it has been chilling because the cops are around a lot.”

LIMITING INTERVENTIONS TO THE TARGET AREA

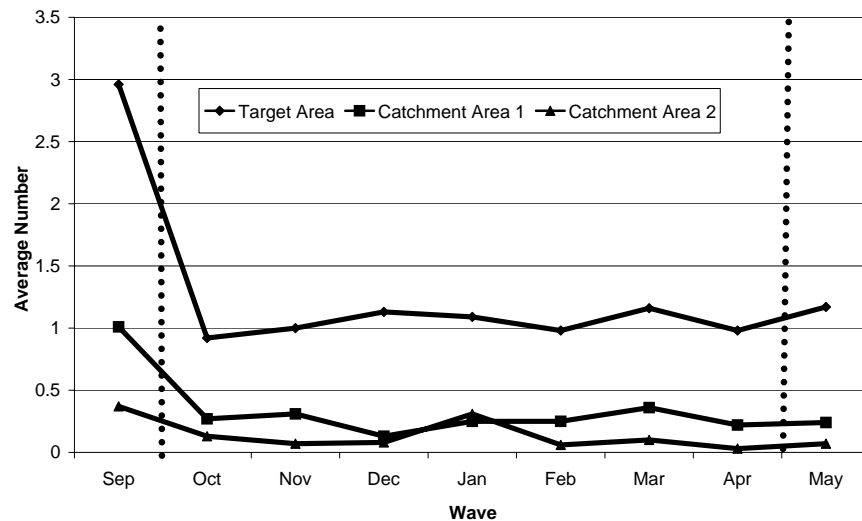
We recognized at the outset that a major threat to our study design was that interventions might spill over into the catchment areas. If this occurred in any appreciable way, the validity of our measurement of displacement and diffusion would be challenged. For example, if there was spillover of police interventions into the catchment areas we might mistake a crime decline as a diffusion effect, when it was in fact the result of a direct intervention improperly applied to the catchment area. Accordingly, we placed strong priority on limiting the application of the proposed strategies to the target areas.

At the start of the study, project staff met several times with Deputy Chief Gajewski and the chief of police to develop clearly defined guidelines to ensure that spillover of interventions into the catchment areas would be minimal. Officers were given maps of the target areas and instructed about the importance of staying within area boundaries. It was made clear that they were expected not to leave the target area except in special circumstances—for example, to pursue a fleeing suspect. Periodic meetings were scheduled with officers assigned to the project to discuss the work being performed in the target areas and to assure that they were not venturing out of the target areas. Officers assigned to the project who made arrests or requested assistance in the catchment areas were told to justify their presence in those locations. At the same time, the catchment areas received normal police service in regard to response to emergency calls for service and police patrol. New crime prevention projects, however, were not initiated during the intervention or follow-up periods in the catchment areas.

FINDINGS: THE PROSTITUTION SITE

The primary crime examined in the Cornelison area was street-level prostitution, which we assessed directly in our social observations. We collapse three mutually exclusive observation categories together to form an overall indicator of street-level prostitution activities: loitering or wandering for the purpose of prostitution, soliciting for the purpose of prostitution, and picked-up for the purpose of prostitution.⁷ In figure 3 we report the mean number of events per observation for each wave (month) of data collection for the target and catchment areas.⁸ It illustrates a dramatic reduction in street-level prostitution activities in the first month of the intervention in the target area. The average number of prostitution events recorded declined by almost 70 percent, dropping from an average of three events per street segment per observation period to only one. Moreover, the reduction is sustained in the target area and continues even after the intervention was discontinued and normal police activities were resumed.

Figure 3. Observed Prostitution Activities



7. We did not measure inter-coder reliability during the study as it was decided that the involvement of more than one observer on a street segment was likely to vastly increase potential reactivity. To increase consistency in observations, each observer in a study participated in a 2-week training period. One part of the training involved multiple observers drawing data from the same street segment. Only when observers had a high rate of consistency with a supervisor (over 90 percent agreement) was an observer allowed to begin collecting data in the study. Variables for which high rates of agreement could not be gained were excluded from the study.
8. We also examined the trends for each of the measures separately. The basic relationships are similar across each measure.

One problem with assessing the meaning of this decline is that our design does not include a comparison area to control for possible secular trends in our data. It could be, for example, that the decline we observe is part of a more general decline in crime across the city. We decided at the outset not to collect similar data in a comparison site for two reasons. First, we did not believe that other sites could be seen as directly comparable to those identified for the study: they were included because of unique characteristics that made them appropriate for a direct study of displacement and diffusion. Second, the collection of such observational data was very expensive and we did not think it reasonable to use scarce research resources to focus on a questionable comparison site.

However, we did not want to assess our data without taking into account possible secular trends in the city overall. During the period of the study, crime was declining in Jersey City. Moreover, as our interventions began in the early autumn, we might expect seasonal trends in the data as well. To adjust our estimates for such secular trends, we used trends in Jersey City call data outside the target and catchment areas during the time of our study.⁹ We could not use prostitution events as a distinct indicator, because the number of prostitution events in the emergency calls to the police database is relatively small and did not provide a stable measure of change over time. Instead, we use crime calls for disorder events (including prostitution).¹⁰ Although this measure does not provide a direct assessment of street-level prostitution activities, we think it provides the best available control for overall trends in street-level

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9. Data were cleaned and geocoded to a street center line file supplied by the Jersey City Crime Analysis Unit. The final match rate was 93 percent. For the pre-intervention, first wave into the intervention, and postintervention periods, the citizen calls for service were divided into 30-day waves. The waves were constructed so that each wave included a corresponding wave of observational data collection. For the during intervention time-period we used citizen calls for service for the span of the intervention (approximately 6 months). In this case, we think it important to note that there were specific periods missing from the data provided by the Jersey City Police Department. After checking with the department it was clear that these periods were also missing in their general records, suggesting problems with the Computer-Aided Dispatch (CAD) system. Because we had over 160 days of calls for service for both sites, we decided that the loss of these days was not of enough concern to disregard the data altogether. To correct for the missing days during the intervention period we averaged the calls for service by the number of days supplied.
 10. Our measure includes prostitution, persons screaming or calling for help, harassment, noise, neighbor dispute, public dispute-argument, riot-civil disorder, assault (no weapon), street fight (no weapon), use or sale of drugs, intoxicated person, loitering, damage to commercial property, damage to motor vehicle, damage to other property, damage to public property, damage to residential property, loitering, other public nuisance, and disorderly conduct.

activities such as prostitution. As expected there was a 32 percent decline in disorder calls for service during the study period.

Table 1. Difference in Mean Observed Prostitution Events per Observation in Selected Periods for the Prostitution Site

<i>Comparison</i>	<i>Mean # Events</i>		<i>Mean # Events</i>		<i>% Change Social Obs.</i>	<i>Adj. % Change⁺</i>	<i>Adj. Change t statistic⁺</i>
	<i>Time 1 (N)</i>		<i>Time 2 (N)</i>				
A. Target Area							
Pre : Wave 1	2.96	(97)	0.92	(112)	- 69	- 59	-5.39***
Pre : During	2.96	(97)	1.04	(769)	- 65	- 33	-3.20**
Pre : Post	2.96	(97)	1.17	(90)	- 61	- 45	-3.59***
B. Catchment Area 1							
Pre : Wave 1	1.01	(107)	0.27	(126)	- 73	- 63	-3.09**
Pre : During	1.01	(107)	0.26	(849)	- 75	- 43	-2.18*
Pre: Post	1.01	(107)	0.24	(96)	- 76	- 61	-3.01**
C. Catchment Area 2							
Pre : Wave 1	.37	(125)	0.13	(124)	- 65	- 55	-2.17*
Pre : During	.37	(125)	0.11	(837)	- 70	- 38	-1.64
Pre : Post	.37	(125)	0.07	(96)	- 80	- 64	-2.70**

† $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

(two-tailed separate variance t -test for means)

+Estimates are adjusted for citywide trends in emergency calls for service for disorder related calls (see footnote 11 for further detail).

Table 1A provides both the raw and adjusted change measures comparing the pre-intervention period with both the intervention and postintervention periods in the target area.¹¹ We also include a comparison of the pre-intervention period with the first month of the intervention because the decline in observed prostitution appears to be most pronounced during that period. These results suggest that even when taking into account the overall declining crime trend in the rest of the city,

11. We used a simple adjustment approach, taking the change observed in our study, and then adjusting it according to the change observed in the citywide citizen call data. This was done by calculating the raw percentage change in the compared time periods of the social observations and then adjusting them up or down according to the citywide trends. This statistic was then used to calculate a corrected mean difference. Standard errors for tests of statistical significance are taken from the unadjusted observational data. Finally, though we use count data, the distribution is not highly skewed in the direction of high counts. Because of this, we report significance results using normal distribution tests. However, we also calculated the outcomes using Poisson regression, a method often used to correct for statistical problems that may develop from highly skewed count data. The results are very similar to those reported here and when substantive differences exist they are in the direction of higher observed significance levels.

there is a large and statistically significant reduction in prostitution events in all three periods compared with the baseline period. By far the largest impact, adjusting for the overall decline in disorder calls in the city, is the 59 percent drop between the pre-intervention period and the first month of the intervention. But adjusted declines in other periods are also large, varying between 33 and 45 percent.

The trend lines for catchment area 1 are very similar to the target area (see figure 3). Though the overall frequency of observed prostitution events is much lower, the adjusted differences between the pre-intervention and intervention periods are large and statistically significant. The largest decline in catchment area 1 (63 percent) is found when comparing the pre-intervention wave with the first wave of the intervention period, though the pre-intervention and postintervention comparison also shows a decline of about 61 percent (see table 1B). If table 1A can be seen as suggesting a direct program effect in the target area, then table 1B suggests a diffusion of crime control benefits into catchment area 1 which did not receive the intervention.

The findings in the first two analyses are reinforced when we look at catchment area 2. With the exception of a spike in activity in January, the trends in observed prostitution events once more suggest a diffusion of crime control benefits, in this case to an area more removed from the target area than catchment area 1 (see figure 3). Using the adjustment methods described, two of the comparisons (pre-intervention period to wave 1 and pre-intervention period to postintervention period) remain statistically significant at the .05 level after taking into account the citywide decline in disorder crimes (table 1C).

FINDINGS: THE DRUG CRIME SITE

We combined three types of observations of drug-related behavior to assess possible displacement and diffusion of drug activity in the drug crime site: soliciting for a drug sale, involvement in a drug transaction, and observed use of drugs. Using this measure, we find a large reduction in observed drug-related behavior in the first month of the intervention, a trend that continues throughout the intervention period and through the postintervention period (see figure 4). The unadjusted level of drug crime falls from an average of 1.3 events per observation in the month before the intervention to less than .14 in the postintervention period.

Following our approach in the prostitution site, we again adjust our estimates for secular trends in the data. In this case, we have a direct measure of drug crime, because the number of drug-related events in the emergency call database is large during the study period. Overall, there was a generally declining trend in drug crime during the intervention and

postintervention periods, with a decline of about 30 percent in the city outside the study sites. Between the pre-intervention month and first month of the intervention, however, there was a slight increase in city-wide narcotics calls for service.

Figure 4. Observed Drug Activities

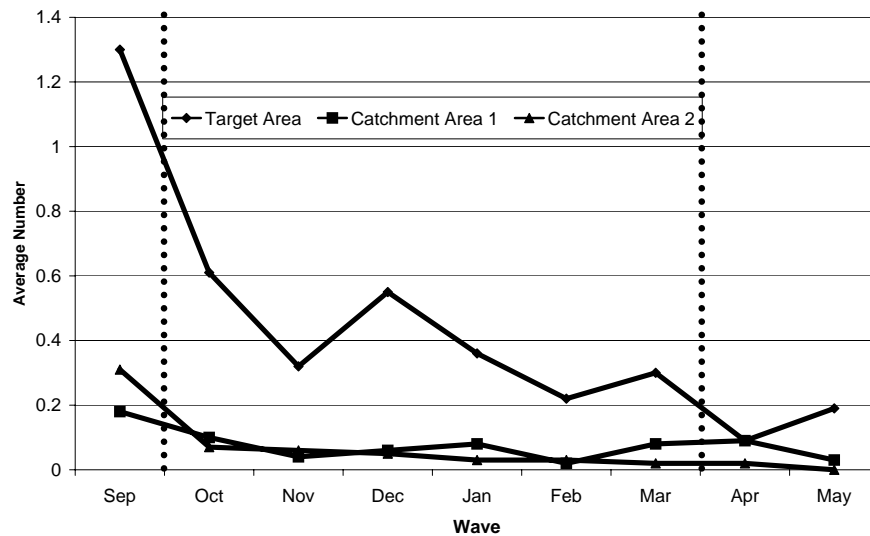


Table 2 provides raw and adjusted estimates of the changes in drug activity in the target and catchment areas. Looking at these estimates in the target area (table 2A), the mean differences are large and statistically significant across each of the three comparison periods. For the comparison between the pre-intervention period and the first month of intervention, the adjusted change represents a 55 percent decline in drug activity. The decline is smaller comparing the pre-intervention and entire intervention periods (41 percent) but again is larger when comparing the pre- and postintervention periods (58 percent).

Figure 4 suggests that there is not displacement of street-level drug activity from the target area into the catchment areas. Indeed, as with the prostitution site, the trends in the catchment areas follow those found in the target area, with large proportional declines in the mean number of events observed (see table 2B and 2C). Nonetheless, because of the relatively lower base rate of activity in the catchment areas, the adjusted data do not lead to statistically significant outcomes at the .05 level, though one comparison—between the pre-intervention period and the first month of intervention—does achieve statistical significance at the .10 level in catchment area 2.

Table 2. Difference in Mean Observed Drug Crime Events per Observation in Selected Periods for the Drug Crime Site

<i>Comparison</i>	<i>Mean # Events Time 1 (N)</i>	<i>Mean # Events Time 2 (N)</i>	<i>% Change Social Obs.</i>	<i>Adj. % Change⁺</i>	<i>Adj. t statistic⁺</i>
A. The Target Area					
Pre : Wave 1	1.30 (83)	0.61 (114)	- 53	-55	-2.72**
Pre : During	1.30 (83)	0.40 (650)	- 69	- 41	-2.39 [†]
Pre : Post	1.30 (83)	0.14 (211)	- 89	- 58	-3.40***
B. Catchment Area 1					
Pre : Wave 1	0.18 (89)	0.10 (125)	- 47	- 49	-0.76
Pre : During	0.18 (89)	0.06 (720)	- 65	- 37	-0.60
Pre : Post	0.18 (89)	0.06 (239)	- 65	- 33	-0.53
C. Catchment Area 2					
Pre : Wave 1	0.31 (95)	0.07 (131)	- 77	- 80	-1.83 [†]
Pre : During	0.31 (95)	0.04 (733)	- 86	- 58	-1.34
Pre: Post	0.31 (95)	0.01 (243)	- 96	- 64	-1.50

[†] $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

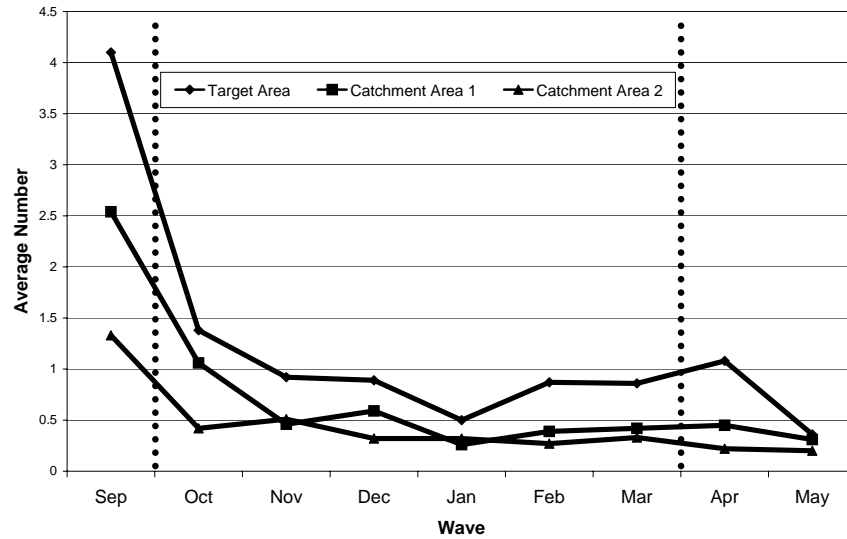
(two-tailed separate variance *t*-test for means)

+Estimates are adjusted for citywide trends in emergency calls for service for drug calls (see footnote 11 for further detail).

EXAMINING OBSERVED DISORDER

A number of studies have noted a link between street-level drug activity and social disorder (see Hope, 1994; Weisburd and Green, 1994b, 1995a). To examine this issue in the drug crime site, we combined a number of different observational measures of disorder into one general disorder category.¹² As illustrated in figure 5, the average number of incidents of disorder in the target area dropped by about two-thirds from the pre-intervention wave to the first wave into the intervention. A further slight decrease is found in the second month of the intervention, after which monthly totals wavered at a low level until the first month of the postintervention period. Another decline appears in the postintervention months from April to May.

12. These included verbal disorder, loud disputes, physical assault, panhandling, prostitution, drunk or high on drugs, drinking alcohol in public, falling down in public, homeless, vandalism, and unattended dogs.

Figure 5. Observed Incidents of Disorder**Table 3. Difference in Mean Observed Disorder Events per Observation in Selected Periods for the Drug Crime Site**

Comparison	Mean # Events Time 1 (N)	Mean # Events Time 2 (N)	% Change Social Obs.	Adj. % Change ⁺	Adj. Change t statistic [†]
A. The Target Area					
Pre : Wave 1	4.10 (83)	1.38 (114)	- 66	- 62	-4.55***
Pre : During	4.10 (83)	.91 (650)	-78	- 48	-3.86***
Pre : Post	4.10 (83)	.75 (211)	- 82	- 60	-4.76***
B. Catchment Area 1					
Pre : Wave 1	2.54 (89)	1.06 (125)	- 58	- 54	-2.69**
Pre : During	2.54 (89)	.53 (720)	- 79	- 49	-2.88**
Pre : Post	2.54 (89)	.39 (239)	- 85	- 63	-3.69***
C. Catchment Area 2					
Pre : Wave 1	1.33 (95)	.42 (131)	- 68	- 64	-4.32***
Pre : During	1.33 (95)	.36 (733)	- 73	- 43	-3.17**
Pre: Post	1.33 (95)	.21 (243)	- 84	- 62	-4.55***

† $p < .10$ $p < .05$ ** $p < .01$ *** $p < .001$

(two-tailed separate variance *t*-test for means)

+Estimates are adjusted for city-wide trends in emergency calls for service for disorder related calls (see footnote 11 for further detail).

Again, to account for secular trends, we used emergency call for service data for disorder crimes to adjust our findings.¹³ The overall trend in the city for this measure of disorder shows a decline during the period of study ranging between 5 percent in the comparison of the pre-intervention period to the first month of the intervention, to 30 percent in the comparison between the pre- and postintervention periods. The decline was 22 percent when comparing the pre-intervention period with the entire intervention period. Table 3A shows that even after adjusting for these citywide trends, the declines in observed disorder in the target area, compared with the pre-intervention period, were large and statistically significant across each of the three comparisons.

The trends in social disorder observed in the catchment areas mirror closely those found in the target area (see figure 5). The differences remain statistically significant for both catchment areas across the three comparisons with the pre-intervention period when taking into account the adjustment for secular trends in the official data (see table 3B and 3C). Rather than displacement of disorder from the target area to the catchment areas, we observe evidence of a diffusion of crime control benefits to areas surrounding the intervention site.

DISCUSSION

Our study, based on a design developed to directly assess displacement and diffusion effects, contradicts perspectives that predict immediate spatial displacement from focused police interventions at hot spots, and reinforces recent crime at place studies that suggest that such approaches are more likely to lead to a diffusion of crime control benefits in areas immediately surrounding targeted sites (Braga et al., 1999; Caeti, 1999; Clarke and Weisburd, 1994; Hope, 1994; Sherman and Rogan, 1995; and Weisburd and Green, 1995a). In discussing these results, we think it important to focus at the outset on how we can understand the resistance to immediate spatial displacement suggested by our data. The assumption that crime will simply move around the corner as a reaction to focused crime prevention outcomes is one that has been cited at least since Reppetto (1976), and is a common reaction of practitioners and lay people to the introduction of such crime prevention approaches.

13. We tried to choose calls for service that mirror the social observation disorder measures for the drug crime site. These include persons screaming or calling for help, harassment, noise, neighbor dispute, public dispute-argument, riot-civil disorder, assault (no weapon), street fight (no weapon), prostitution, intoxicated person, loitering, damage to commercial property, damage to motor vehicle, damage to other property, damage to public property, damage to residential property, loitering, other public nuisance, and disorderly conduct.

While traditional theoretical perspectives have predicted significant displacement outcomes in place-based crime prevention (Weisburd, 2002), recent theorizing in the area of rational choice (Clarke and Cornish, 1985, 2001) and routine activities (Cohen and Felson, 1979) suggests that displacement is likely to be limited. The main assumption of these perspectives is that specific characteristics of places—such as the nature of guardianship, the presence of motivated offenders, and the availability of suitable targets—will strongly influence the likelihood of criminal events (see also Felson, 1994). Studies examining the factors that predict crime at micro-crime places such as street segments or facilities (for example, bars and taverns) generally confirm this relationship (see Roncek and Bell, 1981; Roncek and Maier, 1991; Smith, Frazee, and Davison, 2000).

Most scholars advocating hot spots approaches have argued that the routine activities of places are likely to be fairly stable over relatively shorter periods of time absent police intervention (see Sherman, 1995; Weisburd, 2002). The availability of suitable targets and capable guardians, and the presence of motivated offenders in this context, are not expected to change rapidly under natural conditions in the urban landscape. They are, however, likely to change over longer periods as routine activities of offenders, victims, and guardians change as well. Those advocating hot spots approaches have assumed that the routine activities of places can be altered in the short term by interventions, such as greater police presence (see Sherman and Weisburd, 1995; Weisburd and Green, 1995a). Indeed, the short-term stability of crime at place predicted by routine activities theory and evidenced in longitudinal study (Weisburd, Bushway et al., 2004), and the assumed amenability of routine activities to change through police or community intervention, is seen to provide a strong basis for crime prevention at hot spots (see Braga, 2001; Eck and Weisburd, 1995; Sherman, 1995; Sherman, Gartin, and Buerger, 1989; Taylor, 1997; Weisburd and Braga, 2006).

In this context, it is easy to understand the crime decline in the target areas we observe in our study. But these perspectives also suggest why offenders may not simply move around the corner, or possibly to other areas, in response to police intervention. Rational choice theories emphasize the importance of the balancing of effort, risks, and opportunities with the benefits gained from criminal activities (Clarke and Cornish, 1985, 2001). Our qualitative data, in turn, suggest that spatial movement from crime sites involves substantial effort and risk by offenders.

A number of the offenders we spoke to complained about the time and effort it would take to reestablish their activities in other areas as a reaction to the police intervention. One respondent arrested at the Storms Avenue drug crime site, for example, explained that it is difficult to move

because the “money won’t be the same,” that he “would have to start from scratch,” and that it “takes time to build up customers.” Respondents repeatedly focused on the importance of regular customers. In fact, in the drug crime site we were told that if a buyer was new he or she would have to be recommended by a regular customer. Even buyers we spoke to said they go to the same dealers because they know them and trust their product is good. The focus on the efforts required to move elsewhere is also evident in our interviews with prostitutes who worked at the Cornelison Avenue site, who often argued that such a move would be difficult for their regular customers.

Fear of victimization was also an important factor in preventing spatial displacement. One prostitute gave us a keen sense of why, for safety reasons, it is important to have regulars.

If they aren’t regulars, I try to feel them out. I use precautions. I never will get into a car with two men. I always check the doors to make sure I can get out if I need to, like if an emergency arises, like a guy trying to hurt me. I will always go into an area I know. This way, if I need help, I know that somehow I can find someone or get someone’s attention. But, in the same way, I don’t go into an area that would give away what I am doing and get me arrested. I basically don’t let the guys take me where they want to go. If they insist on this, then I make them pay me up front, before the zipper goes down.

In this context, differences between the target and catchment areas in the prostitution site were likely to affect displacement patterns. Unlike the target site, which had few occupied buildings, the second catchment area included many residential addresses, and thus places where citizens were much more likely to call the police when observing prostitution-related activities.

Another respondent explained that going to a different area of town was difficult because other prostitutes got angry and told her, “this is our turf, stay away.” Similar resistance to displacement was evident in our interviews with offenders arrested in the drug crime site. The dealers’ intimacy with the area in which they work was one of the primary mechanisms preventing spatial displacement. A number of dealers explained that you work near where you live because that is your “turf.” One arrestee elaborated, “you really can’t deal in areas you aren’t living in, it ain’t your turf. That’s how people get themselves killed.” All the prostitutes who shared with us where they lived explained that they lived nearby the site. This suggests that offenders prefer to work in areas close to where they live (see Brantingham and Brantingham, 1984; Rossmo, 2000). However, not so close as to risk being frequently observed by friends, family members, and neighbors. For example, prostitutes who

lived in the public housing projects in catchment area 2, told us that they did not feel comfortable soliciting near their homes, where friends and relatives might see them.

Another emphasis of rational choice theorists is that the factors influencing offender choices are often very similar to those of nonoffenders (Cornish and Clarke, 1986). This insight has been part of a number of important criminological perspectives (see Akers, 1973; Sutherland, 1947), but is sometimes lost in the identification of individuals as criminals and the criminological focus on what distinguishes them from noncriminals (Weisburd and Waring, 2001). One important explanation for the resistance to spatial displacement is simply that offenders, like nonoffenders, come to feel comfortable with their home turf and the people they encounter. As with nonoffenders, moving jobs or homes can be seen as an important and difficult change in life circumstances. One prostitute told us, for example,

I walked over (to the cemetery) and I didn't think I'd make money. It was unfamiliar to me... I didn't know the guys (clients). On Cornelison you recognize the guys. I know from being out there every day (on Cornelison), the cars, the faces. It's different. In my area, I know the people. Up on 'the hill' — I don't really know the people at that end of town. (Brisgone, 2004: 199)

John Eck (1993) describes this phenomenon as familiarity decay, arguing that offenders will avoid areas that they are unfamiliar with. But our data suggest that it is not only familiarity with a site, but also comfort with the nature of criminal behavior that is relevant to offender decision making. For example, the prostitutes we spoke to not only noted that they were familiar with the atmosphere of the market in the Cornelison Avenue area, but that they were comfortable with the style of work there. One explained that people work in the area because it is quiet and spaced out enough so that they can work alone or meet up and talk for a few minutes. Moving to another market may have meant challenging this comfort and would have required extra effort to acclimate. Another prostitute, explaining why she did not move to another central prostitution area in Jersey City, said she was uncomfortable there because it was “faster,” with hotel rooms, fewer regulars, and not as many drugs.

The idea of familiarity decay also suggests that, overall, the level of spatial displacement outside the catchment areas is not likely to be large. Bowers and Johnson (2003) argue that there is a “displacement gradient” in regard to spatial displacement. In this context, “displacement is most likely to occur within close proximity to a treatment area (where familiarity is highest) and it will decrease as the distance from the treatment area increases” (2003: 279).

Although our data reinforce routine activities and rational choice perspectives, and help us understand why we observe little evidence of spatial displacement in our data, they do not explain why we find a significant diffusion of crime control benefits both in the prostitution and drug crime sites. Even if there is good reason not to move to other sites, either because they do not offer similar opportunities, or increase the risks for offenders, why should observed crime and disorder go down in those areas?

One possible explanation is incapacitation. Many offenders were arrested in the target areas, and if these individuals were also responsible for crime in the catchment areas, we might expect observed crime and disorder to have declined in the catchment areas. However, despite the intensive enforcement activities at the target sites, many offenders remained active in these areas throughout the study period. Few prostitutes we studied were imprisoned for extended periods, and most arrests led to just one or a few days off the street. Though the Violent Offender Removal Program in the drug site was intended to remove offenders from the drug site for longer periods, only a small proportion of active offenders were actually prosecuted in the program.

We think it likely that deterrence played a more central role in the diffusion processes we observed (see Clarke and Weisburd, 1994). In our interviews with offenders arrested in the target areas, we found that they often did not have a clearly defined understanding of the geographic scope of police activities. Such understanding often improved in what might be termed a learning curve over time (Brisgone, 2004). Nonetheless, our qualitative data suggest that offenders acted in a context of what rational choice theorists call bounded rationality (Johnson and Payne, 1986), in which they made assumptions about police behavior based on limited or incorrect information. In this context, they often assumed that the crackdowns were not limited to the target areas but instead part of a more general increase in police enforcement.

Support for this argument is found in a review of situational crime prevention studies conducted by Smith, Clarke, and Pease (2002). Examining a phenomenon they describe as “anticipatory crime prevention benefits,” they find that in about 40 percent of studies reviewed, crime declined before the intervention had begun. Smith and her colleagues argue that the crime prevention benefit in such cases can be traced primarily to publicity or disinformation. They speculate that such factors as pre-program media reports about interventions, the visibility of preparations for interventions (for example, the installation of CCTV), or hearsay regarding impending police actions, led potential offenders to assume that the risks or efforts associated with offending have increased. It may be that a similar process of disinformation occurred in the

catchment areas we studied based on offender observations of police activities in the target areas, information from offenders who had been the subject of police actions, or from other members of the community.

Given our findings regarding immediate spatial displacement and diffusion, we think it important to speculate on how offenders reacted more generally to the intensive police interventions in the target areas. As we noted at the outset, the types of crime we chose were expected to be particularly prone to displacement as these offenders often depended on the drug trade or prostitution for their livelihood. Accordingly, we might expect continued involvement in criminality for some if not many of these offenders.

Our qualitative data suggest this to be the case, though contrary to what is often assumed, changes in methods of crime commission represent a less difficult and dramatic change for offenders than spatial displacement.¹⁴ As reported in our ethnographer's field notes,

the most dramatic shift during this period was in the incidence of method displacement.... Narratives suggest that this occurred as research subjects became more aware of what the intervention entailed and began engaging in different tactics to avoid being detected and arrested by police. Research subjects began pre-arranging dates by means of phone or beepers and working from home (combining spatial and method displacement); quizzing potential clients to ensure they were not police officers; disguising their looks and engaging in stealthy solicitation. Also at this time, research subjects began talking about (and some actually followed up) converting street clients into full-time customers. (Brisgone, 2004: 200)

Although these adaptations suggest that the crime prevention benefits of focused enforcement efforts are to some extent limited, it is important to recognize that method displacement often means that the level or intensity of criminal behavior has been reduced. For example, when prostitutes have to make "dates," they are likely to have fewer customers than if they were free to solicit on the street. The same is true for the drug dealers. Also from the perspective of the police and the community, even if such crime continues indoors or in other settings, the interventions have significantly reduced the problematic street-level disorder associated with such crimes.

14. It is important to note that our qualitative data do reveal cases where offenders did displace to the catchment areas, or even outside them. Nonetheless, such movement appeared to be sporadic and not part of a consistent effort to reestablish criminal activity by large numbers of offenders.

It is also important to note that we did observe desistance in our study. Indeed, nine of forty-nine prostitutes interviewed in the ethnographic research claimed that they had decided to stop criminal activities altogether. As one explained,

I was tired of being tired. Sick of running. Then it started to scare me. It seemed like there would be stings (police roundups) constantly. I got scared of going to jail. I got tired of hurting my mother—letting her watch me do the things I did. She hated the fact that I worked the street. I got tired of hurting my family in general. I started to dislike myself. I started getting scared. I had a fear in my heart that I was going to die. I felt someone was going to kill me or I would do something terrible to get locked up for a long time... I was at the point. I was over the edge. I didn't know how I was doing this job. I had been told that I had a warrant. I didn't want to do it (prostitution) anymore. Or my drug habit anymore. (Brisgone, 2004: 205)

CONCLUSION

Over the last decade a substantial number of studies have focused on hot spots and hot spots policing efforts (Weisburd and Braga, 2006). Overall, these studies show that hot spots policing approaches have strong impacts on crime in targeted sites (Weisburd and Eck, 2004). In turn, when immediate spatial displacement has been examined, the findings generally support the position that displacement is small and that diffusion of crime control benefits is more likely. Nonetheless, as we noted in our introduction, studies designed to measure direct program impacts are likely to be flawed when they are used to examine displacement and diffusion. This study was designed to overcome such methodological flaws by directly focusing the intervention and data collection on the possibility and characteristics of displacement and diffusion.

Although this research is the first direct study of crime displacement and diffusion of crime control benefits, and thus allowed us to overcome many of the weaknesses of prior studies, we think it important to note specific limitations of our design and approach. One strength of our study is that we were able to focus, in great detail, on two crime hot spots, allowing us to collect not only detailed observational data in our sites, but also to critically assess our quantitative measures with qualitative methods at each site. Focus on only two hot spots, however, naturally limits our ability to generalize from this study. We believe our study provides persuasive evidence on displacement and diffusion of market-based crimes, such as drugs or prostitution. Nonetheless, it does not allow us to make conclusive statements about crime displacement or diffusion of

crime control benefits at hot spots dominated by nonmarket crimes such as burglary. In this regard, our study suggests the importance of further direct study of displacement and diffusion to identify whether the phenomenon differs across other crimes and crime circumstances.

We also think it important to note that the nature of our site selection meant that we did not have comparison areas for examination. We explained earlier our view that the unique nature of the sites meant that valid comparison areas could not be identified in Jersey City. Moreover, given questions regarding the validity of such comparisons, it did not make sense in our view to invest in the very costly data collection efforts that would have been required in those sites. However, we recognize that confidence in our conclusions would have been reinforced had we been able to identify valid comparison areas, in particular had we been able to develop a true experimental design. A randomized experiment would have required a large number of sites, and the random allocation of sites to an experimental condition in which intensive police enforcement efforts were present and a control condition that did not receive the programmatic interventions. There is wide agreement that experimental studies of this type provide the highest level of confidence in the validity of the outcomes observed (Campbell and Boruch, 1975; Farrington, 1983; Weisburd, 2003). Although a randomized experimental design was not possible in this study, our findings regarding the salience of crime prevention programs at hot spots—not only in preventing crime at targeted sites but also in areas nearby—certainly suggest that such an investment in experimental research on displacement and diffusion is warranted.

Finally, we think it important to recognize that our study does not provide solid evidence about displacement at much larger geographic units, such as neighborhoods, communities, or even entire cities and states (for example, see Ratcliffe, 2005; Teichman, 2005). Nor does it examine possible long term displacement and diffusion outcomes, or “anticipatory crime control benefits” that might emerge in the weeks or months before an intervention is actually implemented (see Smith, Clark, and Pease, 2002). Nonetheless, within the limitations we have described, we think that our methods have led to a much more robust understanding of displacement and diffusion than has been gained in prior research, and that our methods provide a convincing portrait of spatial displacement and diffusion in the contexts we have examined.

Our main focus has been upon immediate spatial displacement or diffusion to areas near the targeted sites of intervention. Do focused crime prevention interventions simply move crime around the corner? Or conversely, do the positive impacts of hot spots policing efforts lead to a diffusion of crime control benefits to areas immediately surrounding the

target areas but not the focus of treatment? This study shows, that at least for crime markets involving drugs and prostitution, crime does not simply move around the corner. Indeed, these findings support the position that the most likely outcome of such focused crime control efforts is a diffusion of crime control benefits to nearby areas.

Our study also suggests some caution to those who have argued that hot spots policing will produce strong crime prevention outcomes without displacement of crime. Our ethnographic field work and arrestee interviews show that though some offenders desist from criminality as a result of hot spots interventions, others seek out adaptations that will allow them to continue offending in the targeted areas. This may in fact lead to an overall crime prevention benefit, because such adaptations often require greater effort and thus reduce the actual level of offending of specific individuals. However, more generally, this study illustrates the importance of examining other forms of displacement, especially method displacement, before reaching a conclusion about the overall impacts of crime prevention efforts.

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