Seeing Disorder: Neighborhood Stigma and the Social Construction of "Broken Windows"*

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This article reveals the grounds on which individuals form perceptions of disorder. Integrating ideas about implicit bias and statistical discrimination with a theoretical framework on neighborhood racial stigma, our empirical test brings together personal interviews, census data, police records, and systematic social observations situated within some 500 block groups in Chicago. Observed disorder predicts perceived disorder, but racial and economic context matter more. As the concentration of minority groups and poverty increases, residents of all races perceive heightened disorder even after we account for an extensive array of personal characteristics and independently observed neighborhood conditions. Seeing disorder appears to be imbued with social meanings that go well beyond what essentialist theories imply, generating self-reinforcing processes that may help account for the perpetuation of urban racial inequality.

The concept of neighborhood disorder once again has assumed priority in the social sciences.[1] The most visible inquiry has been played out in urban sociology and criminology. According to the "broken windows" theory of urban decline (Wilson and Kelling 1982), minor forms of public disorder lead to serious crime and a downward spiral of urban decay (Kelling and Coles 1996). The presumed reason is that visual cues such as graffiti, public intoxication, garbage, and abandoned cars are thought to attract criminal offenders, who assume from these cues that residents are indifferent to what goes on in the neighborhood. Few ideas have become more influential than "broken windows" (see, e.g., Duneier 1999; Harcourt 2001; Taylor 2001).

Although perhaps less noticed, it is equally significant that the concept of disorder has penetrated social psychology. Again the notion is that disorder is negative, this time with harmful consequences for individual health and personal well-being. For example, a number of recent studies have linked perceived disorder to physical decline, depression, psychological distress, and perceived powerlessness (e.g., Cutrona et al. 2000; Geis and Ross 1998; Linares et al. 2001; Mitchell and LaGory 2002; Ross et al. 2000). On these accounts, residents read signs of disorder as evidence of a deeper neighborhood malaise, undermining personal health.

Yet there remains a puzzling first-order question about what triggers our perceptions of disorder. Is "seeing" disorder only a matter of the objective level of cues in the environment? Or is disorder filtered through a reasoning based on stigmatized groups and disreputable areas? Simply put, what makes disorder a problem? We find that most research on disorder is based on individual-level perceptions decoupled from a systematic concern with the disorder-generating

[1] Fascination with disorder has a long history. From early observers of London in the 1800s such as Charles Booth (see Pfautz 1967) and Henry Mayhew (1862), to authors of modern classics such as Jane Jacobs (1961), visual signs of disorder in public spaces have been viewed as central to understanding the civic fabric of cities.

environment. This is unfortunate for our understanding of how perceptions line up with independently observed ecological assessments, and how such perceptions are socially structured. As Harcourt (2001) argues, theoretical reflection and empirical evidence bearing on the meaning of disorder are remarkably thin.

Thus we set aside the usual questions: whether disorder does or does not cause crime, or whether disorder is linked causally to poor health. Instead we examine what predicts individuals' perceptions that disorder, defined in the manner of "broken windows," is a problem. Drawing on independent sets of linked data, we examine how the racial, ethnic, and socioeconomic structure of neighborhood contexts shapes perceptions above and beyond observable conditions of disorder.

Implicit Bias and the Social Meaning of Disorder

> In the first instance, "race" is a mode of perceptual categorization people use to navigate their way through a murky, uncertain world (Loury 2002:17).

We begin by noting that the "broken windows" theory assumes an essentialist notion both of disorder and its connection to perception: visual cues are unambiguous and natural in meaning (also see Harcourt 2001). A similar train of thought is seen in the health and social psychological literature, where perceived disorder is thought to reflect external problems that influence local residents' mental and physical health. This is all quite reasonable, especially if residents' perceptions map neatly onto objectively observable aspects of disorder such as garbage, broken bottles, litter, graffiti, abandoned cars, and drug paraphernalia.

Objective cues of "disorder" are certainly salient. So also, we argue, are cultural stereotypes about disorder in American society. Stereotypes loom large when residents are not trained as systematic or neutral observers and are likely to have uncertain or ambiguous information about the neighborhood as a whole. It follows that individuals may act somewhat like Bayesians in judging

whether disorder is a problem, combining uncertain evidence with prior beliefs and cultural stereotypes.[2] Evidence from cognitive psychology suggests that categories are especially important for the organization of information in everyday life (Fiske 1998; Huttenlocher, Hedges and Vevea 2000). If cultural stereotypes are pervasive and if residents have uncertain information about disorder, then they may, in a Bayesian way, augment that information with contextual cues about categories of people who can be seen on the streets.

What categories matter? Research on implicit bias and cultural stereotyping suggests that Americans hold persistent beliefs linking blacks and disadvantaged minority groups to many social images, including but not limited to crime, violence, disorder, welfare, and undesirability as neighbors (e.g., Bobo 2001; Bobo and Kluegel 1997; Quillian and Pager 2001). Beliefs about disorder are reinforced by the historical association of nonvoluntary racial segregation with concentrated poverty, which in turn is linked to institutional disinvestments and neighborhood decline (Massey and Denton 1993; Skogan 1990; Wilson 1987). As Loury (2002) argues in his theory of racial inequality, dark skin is an easily observable trait that has become a statistical marker in American society, one imbued with meanings about crime and disorder that stigmatize not only people but also the places in which they are concentrated.

The use of racial context to encode disorder does not necessarily mean that people are racially prejudiced in the sense of personal hostility. The power of cultural stereotypes is that they operate beneath the radar screen, forming what has been termed *implicit bias* (Banaji 2002; Bobo 2001; Fiske 1998). Suppose, for example, that someone without racial animus has nonetheless been exposed to the historically and structurally induced inequality that is urban America: *on average,* levels of observable disorder are higher in black neighborhoods than in white. Implicit bias arises when this person automatically concludes from such a statistical generalization that a specific all-black neighborhood

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[2] For an overview of Bayesian reasoning see Sedlmeier and Gigerenzer (2001).

has a disorder problem, even when empirical inquiry would lead to contrary evidence. Research in social psychology has shown that automatic racial stereotypes can persist regardless of conscious or personal rejection of prejudice toward blacks (Devine 1989). This situation leads to what Bobo (2001:292) calls "laissez-faire racism." Negative cultural stereotyping, rather than normative prejudice, also has been shown to account for white Americans' widespread unwillingness to share residential space with blacks and other minority groups (Bobo and Massagli 2001). We argue that such cognitive bias, via the stereotypical association of blacks with disorder, works in a similar, implicit way.

The power of implicit bias is seen in a recent and fascinating experimental study (Correll et al. 2002). Researchers used a videotaping strategy to examine the effect of race on shoot/don't shoot decisions in scenarios where subjects were told to shoot armed targets and not to shoot unarmed targets. Participants made the correct decision to shoot an armed target more quickly if the target was African American than if he was white. Interestingly, the magnitude of this racial bias in shooting decisions varied with perception of cultural stereotypes *but not* with personal racial prejudice. In fact, the study revealed equivalent levels of shooting bias in African American and in white participants. This finding underscores the potentially far-reaching consequences of statistical discrimination and cultural stereotypes that reside below the level of conscious racial prejudice (also see Devine 1998). As the authors argue, ethnicity can influence the decision to shoot because cultural traits associated with African Americans, namely "violent" or "dangerous," act as a schema to influence perceptions of an ambiguously threatening target (Correll et al. 2002:1325). African Americans are unlikely to be racially prejudiced against their own ethnic group, but they are exposed, as is everybody, to dominant cultural stereotypes.[3]

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[3] On implicit bias, also see https://implicit.harvard.edu/implicit/ and Banaji (2002).

Neighborhood Racial Stigma

We believe that the literature on implicit bias can be linked productively with Loury's (2002) emphasis on racial stigma, as well as with previous but often neglected writings on the "ecological contamination" of places. Although Goffman's (1963) concept of stigma originally was advanced at the individual level, its contextual or group forms are equally compelling. A contextual stance was taken some time ago by Werthman and Piliavin (1967), who argued that the police divide up the territories they patrol into readily understandable, and racially shaped, categories. The result is a process of what they called ecological contamination, whereby all persons encountered in "bad" neighborhoods are viewed as possessing the moral liability of the neighborhood itself. This process has general implications insofar as citizens themselves impute the character of disreputability (Hagan 1994:150) to neighborhoods containing stigmatized minorities and the "rabble class" (Irwin 1985; Wacquant 1993). Such stigmatization appears to be an enduring mechanism. In the 1800s, for example, Charles Booth produced color-coded maps of London's poor, with the lowest grade "inhabited principally by occasional labourers, loafers, and semi-criminals—the elements of disorder" (quoted in Pfautz 1967:191).

That the social structure of public places is tied to race and class sharply reinforces the production of disrepute (Duneier 1999). As Stinchcombe (1963) argued, access to private space is structured such that disorder by the disadvantaged consists of doing many things in public that would be (and are) legitimate in private (e.g., drinking, hanging out). That is, privileged status enhances private access, reducing exposure to public disorder. The resulting social structure of public spaces reinforces the stereotype that disorder is a problem mainly in poor, African-American communities (Fagan and Davies 2000); this stereotype feeds racial stigma and the creation of a durable spoiled identity for the modern American ghetto (Wacquant 1993).

The insidious quality of implicit bias is realized further when predictions become self-confirming, leading to actions that

increase the statistical association between race and the observable behavior (Loury 2002:23). For example, if more affluent residents use a neighborhood's racial composition as a gauge for the level and seriousness of disorder, unconsciously or not, they may disinvest in predominately minority areas or move out; such actions would tend to increase physical disorder in those neighborhoods. In this way implicit bias leads to reinforcing mechanisms that perpetuate the connection of race to disorder, therefore helping to explain the dynamics reinforcing racial segregation (Charles 2002, 2003).

Prior Evidence and Hypotheses

Surprisingly little research bears on our theoretical framing of the social structures that shape perceptions of disorder as a problem. One stream of research has been stimulated by the theory of broken windows and crime (Wilson and Kelling 1982), but tests of this theory (e.g., Sampson and Raudenbush 1999; Taylor 2001) do not adjudicate our concerns.

A second stream of studies explores the connection of neighborhood conditions to individual-level health and psychological functioning. An important finding has been the persistent correlation of perceived disorder with mental health outcomes such as depression, psychological distress, and perceived powerlessness (e.g., Aneshensel and Sucoff 1996; Cutrona et al. 2000; Geis and Ross 1998; Mitchell and LaGory 2002; Ross 2000; Ross et al. 2000; for a recent review, also see Sampson, Morenoff, and Gannon-Rowley 2002). Similarly, measures of hostility, mistrust, and conduct disorder have been linked to perceived disorder (e.g., Aneshensel and Sucof, 1996; Ewart and Suchday 2002). Nearly all of the studies in the health field measure disorder at the individual rather than the contextual level, however; thus it is difficult to isolate the *neighborhood-level* mechanisms at work in shaping perceived disorder.

A third stream of studies, as noted above, connects race to implicit bias in stereotypes about crime and violence. The literature on implicit bias, however, focuses on the racial status of *persons* rather than on effects of neighborhood racial contexts.

The evidence on disorder relevant to our theoretical approach thus dwindles to a handful of studies, but we find support to motivate further inquiry. One effort is present in Taylor's (2001) long-term study of the city of Baltimore. In 1981–1982 he and his colleagues rated street blocks and conducted a survey of residents in each of 66 neighborhoods. In 1994, Taylor returned to 30 of the original neighborhoods to conduct on-site ratings and another round of interviews. A key finding was that the perception of disorder varied widely between individuals even within the same neighborhood. Perkins et al. (1993), using similar procedures in New York City, found that residents' perceptions and an independent rating of physical disorder were not significantly correlated.

A second and perhaps more relevant study was conducted by Quillian and Pager (2001), who capitalized on residential surveys and police data from Seattle, Chicago, and Baltimore to assess the association of racial composition with perceptions of neighborhood crime. Using individual- and neighborhood-level measures, they found a positive association between perceived neighborhood crime and the percentage of young black men. This finding was robust when the authors controlled for police-recorded crime rates, survey-reported victimization, and measures of neighborhood deterioration. Quillian and Pager (2001) argue that the relationship between race and perceived crime may identify a key mechanism in the process of white flight and residential segregation (Massey and Denton 1993; Schelling 1971). In addition, they underscore the importance of conceptualizing perceived crime and disorder as distinct from actual crime rates.

A third, ethnographic study also suggests the symbolic importance attached to the intersection of race and disorder. In a study of a white working-class Chicago neighborhood, Kefalas (2003) sought to understand the fastidiousness with which residents kept up their property and why they seemed to be obsessed with physical signs of order. She found that homeowners fretted about "the last Garden" and the threats that disorder were thought to bring on the neighborhood

(2003:11, 14, 62, 74). No act of vandalism was too minor; no unkempt yard was too trivial to escape notice. On the basis of numerous interviews, Kefalas argues that residents did not care so much about disorder per se, but were threatened subjectively by the urban underclass, blacks in particular. In Chicago, residents perceive the history of the Southwest Side as a long westward march of decline, where the first signs were the visual cues of disorder. Thus in many ways the residents of Kefalas's Beltway had a "broken windows" theory in mind, but one with a decidedly black face (2003:43). The importance attached to disorder went well beyond the level of its occurrence in the neighborhood, so much so that the deeper meaning of disorder for residents motivated Kefalas's study originally. Pattillo-McCoy's (1999) study of a black middle-class neighborhood reveals a similar concern with the perceived threat of disorder, although in this case the threat came from lower-class residents within the black community.

A small but intriguing body of research thus motivates our general proposition that perceptions of disorder are socially constructed and are shaped by much more than actual levels of disorder. We assess this theoretical framework by combining census and police data on key neighborhood structural characteristics with original data collection in the form of personal interviews and the systematic social observation of city streets. If essentialist theories of disorder are correct, we should find considerable agreement on perceived disorder within neighborhoods, few if any systematic variations by social position within the same neighborhood, and, most important, few if any between-neighborhood variations in perceived disorder linked to social structure when interpersonally observed disorder is taken into account.

By contrast, insofar as disorder is socially encoded, we expect that perceptions of disorder are shaped by individual social position and by neighborhood stratification—especially by race and class. Disorder, in our framework, is part of a larger cultural narrative or generalized stereotype that is tightly bound up in American cities with racially and spatially understood meanings (Bobo and Massagli 2001; Loury 2002; Massey and

Denton 1993). Thus our main hypothesis is that neighborhood racial/ethnic and class composition predicts perceptions of neighborhood disorder, even with adjustments for disorder as measured systematically in those neighborhoods by video cameras and trained observers. This does not imply a simple "relativist" stance: we expect residents' perceptions of disorder to be based in part on their observations of objective indicators such as trash in the streets, broken bottles, graffiti, abandoned cars, drug paraphernalia in gutters, and the presence of loitering, drunken, or hostile adults. Our larger point, however, is that the social and especially the racial composition of a local area, which is associated statistically with disorder, is highly salient in contemporary culture and deeply imbued with stereotypes. If a Bayesian view of human reasoning is integrated with the research on implicit bias, perceptions of disorder then would be constituted as a combination of inferences based on observable evidence of disorder and correlated information, especially skin color. Because racial composition is observed easily and carries powerful stereotypes (even if subconsciously), by this logic it will generate a comparatively large weight; social context may even "trump" actual disorder.

If racial composition independently predicts the subjective perception of disorder, a question then arises: whether this perception reflects pure racial prejudice rather than what social psychologists call implicit or automatic bias (e.g., Bobo and Massagli 2001:93), or what Loury (2002) would call statistical discrimination. Antiblack prejudice would be likely to affect the perceptions of whites (or Latinos or Asians) more strongly than blacks. That is, insofar as nonblacks are particularly infected with negative stereotypes of blacks as a group, they might be expected to report more disorder in predominately black neighborhoods while overlooking similar levels of disorder that might exist in a predominately white (or nonblack) area. Prejudice, in other words, would be the driving force. By contrast, drawing on the idea of implicit bias coupled with the closely allied notion of statistical discrimination, we argue that the association between racial composition and perceptions of disorder ought also to

be independent of the perceiver's ethnicity. As an analogy, consider the black citizen who crosses the street when walking late at night to avoid a group of approaching young black males. Therefore we predict no interaction of individual-level race with racial composition in perceiving disorder.

DATA SOURCES

Our theoretical framework calls for a focus on how individual perceptions of disorder vary within and between neighborhoods, linked to independent assessments of disorder that are reliable and ecologically valid. We achieve this by integrating four sources of data.

Neighborhood Survey

The first source is a neighborhood survey conducted in 1995 as part of a larger study. A stratified probability sample of approximately 500 block groups nested within clusters of 196 Chicago census tracts was selected to maximize variation by race/ethnicity and SES. Within areas, households then were selected according to a multistage probability sample. At stage 1, city blocks were sampled randomly within tracts; at stage 2, dwelling units were sampled randomly within blocks; at stage 3, one adult resident (age 18 or older) was chosen randomly within each selected dwelling unit and was interviewed personally. The final sample size for our purposes was 3,585 persons living in 478 block groups, reflecting a response rate of 78 percent.

We chose the census block group as the smallest and most ecologically meaningful context to assess our main hypotheses. Census block groups average about 1,300 residents in the sample to be described, compared with more than 4,000 for the more commonly used unit of census tracts. As Grannis (1998) has shown, block groups also reflect surprisingly well the layout of pedestrian streets and patterns of social interaction. In fact, neighborhood networks tend to concatenate within what Grannis (1998) calls tertiary communities, defined as areas within which houses can be connected without crossing a nonresidential street or thoroughfare. Block groups are similar to or nest ecologically within tertiary communities because

block-group boundaries typically are drawn on the basis of street use, such that pedestrian streets connect with one another without crossing major thoroughfares or highways.

Perceptions of disorder are measured from six questions put to respondents. In keeping with the disorder literature (see especially Skogan 1990:51–53; Taylor 2001:56), residents were asked "how much of a problem" ("a big problem," "somewhat of a problem," "not a problem") they considered litter/trash, graffiti, and vacant housing/storefronts (defined as *physical disorder*), as well as drinking in public, selling or using drugs, and teenagers causing a disturbance (*social disorder*).[4] We constructed scales of perceived physical and social disorder with reliabilities at the block-group level of .65 and .67 respectively; the combined scale is .70.[5] These reliabilities are relatively high, given that the average block-group sample is under 10, and reflect the fact that 34 percent of the varia-

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[4] Specifically, interviewers told respondents: "I'm going to read a list of things that are problems in some neighborhoods. For each, please tell me how much of a problem it is in your neighborhood. (a) How much of a problem is litter, broken glass, or trash on the sidewalks and streets? Would you say it is a big problem, somewhat of a problem, or not a problem in your neighborhood?" This question was repeated for (b) "graffiti on buildings and walls," (c) "vacant or deserted houses or storefronts," (d) "drinking in public," (e) "people selling or using drugs," and (f) "groups of teenagers or adults hanging out in the neighborhood and causing trouble." Hence all items refer to physical or social aspects that are observed in public spaces, in keeping with the coding scheme of our observational approach. In a recent pilot test conducted in service of a planned replication of the Chicago community survey, interviewers asked the questions about perceived disorder in two ways. They asked first about the perceived volume of disorder (e.g., a lot, some, a little), and second, as in the earlier survey, about the extent to which each aspect of disorder "is a problem." At the individual level, measures of perceived disorder derived from the two ways of wording the questions were correlated at $r = .95$. On the basis of this extremely high correlation, we conclude that residents perceive aspects of disorder "to be a problem" primarily to the extent that they "see" those aspects of disorder.

[5] Reliability is defined as $\Sigma[\tau^2/(\tau^2 + \sigma^2/ n_k)] / K$, the average of block-group specific reliabilities across the set of areas ($K = 478$). This reliability is a function of (1) the sample size (n_k) in each of the block groups and (2) the proportion of the total variance between neighborhoods (τ^2) relative to the amount within neighborhoods (σ^2).

tion in perceived disorder lies between block groups.

From the neighborhood survey we selected a core set of 12 demographic or background characteristics at the person level that we believe influence perceptions of disorder. A key concern is race/ethnicity, which we measure with indicators for *Latino American,* non-Latino *African American*, and *other* (primarily Asian); non-Latino whites serve as the reference category. This strategy allows us to directly compare how blacks and Latinos assess disorder in relation to whites. Other controls include a composite measure of *socioeconomic status* (first principal component of the factor analysis of education, income, and occupational prestige), *sex* (1 = female, 0 = male), current marital status (composed of separate indicators for *married, separated or divorced,* and *single*), *homeownership, residential mobility* (number of moves in the past five years), *residential tenure* (years in the neighborhood), and *age.*

Census Data

We collected a second set of data from the census at the block-group level for 1990, which includes the following theoretically relevant measures for assessing disorder: proportion of families in poverty, population size,[6] density of settlement (persons per square kilometer), and proportion black and Latino. Hence we define racial/ethnic composition in the same fashion at both the person and census structural level. Unlike larger aggregations, block groups provide the additional information necessary to address the well-known multicollinearity among ecological variables. For example, poverty and percent black are correlated at only .37 at the block-group level; this allows us the statistical efficiency to disentangle independent effects. Throughout all analyses we performed checks for multicollinearity and influential observations.

Police Records

Third, we collected the police-recorded number of violent offenses (robbery, homicide, rape, aggravated assault) geocoded to the block-group level. We then constructed the log rate of violent crimes.

Systematic Social Observation (SSO)

The fourth data source is systematic observation conducted within each of the block groups. Building on Reiss (1971) and Raudenbush and Sampson (1999), by *systematic* we mean that observation and recording are conducted according to explicit rules that permit replication, and that the means of observation are independent of that which is observed. During the time of the community survey, observers trained at the National Opinion Research Center (NORC) drove a sport utility vehicle (SUV) at three to five miles per hour down every street within the sample of almost 500 block groups. The original geographic unit of recorded observation was the face block: the block segment on one side of a street. A unique geographic identification code was created for each face block to permit linking to the block group. As the SUV was driven down the street, a pair of video recorders, one located on each side of the SUV, captured social activities and physical features of both face blocks simultaneously. At the same time, two trained observers, one on each side of the SUV, recorded their observations onto an observer log for each face block. Face blocks were observed randomly and videotaped from 7 a.m. to 7 p.m.

In all, 23,816 face blocks were observed and videorecorded for an average of almost 50 per block group. Because videotapes required the expensive and time-consuming task of first viewing and then coding, we selected a random subsample of 15,141 face blocks for videotape coding, an average of about 30 per block group. Observer logs were coded for all face blocks. Coders were trained in multiple sessions, including an intercoder reliability training session where 90 face blocks were double coded independently, differences were resolved, and coding procedures were revised. As a second check on agreement, new observers recoded a random 10 percent of all coded face blocks, and the

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[6] We estimated all models with a logged version of population size. The results were largely the same, although in most cases raw size was a slightly stronger predictor.

results were compared. This test produced over 98 percent interpersonal agreement, an essential condition for the present study (Carter, Dougherty, and Grigorian 1996; NORC 1995).

We constructed six theoretically motivated scales based on the SSO face-block observations. These scales purposefully measure not only traditionally defined disorder but also physical decay, land use, commercial building security, alcohol/tobacco advertising, and bars/liquor stores. This strategy allows us to assess whether residents are influenced more strongly by easily observed physical conditions (e.g., security fences on commercial buildings, abandoned houses) than by comparatively rare social conditions (e.g., prostitution, gangs in public) when making inferences about disorder. *Physical disorder* is defined by 10 items from the observer logs and videotaped coding that capture the presence or absence of cigarettes or cigars in the street or gutter, garbage or litter on street or sidewalk, empty beer bottles visible in the street, tagging graffiti, graffiti painted over, gang graffiti, abandoned cars, condoms on the sidewalk, needles/syringes on the sidewalk, and political message graffiti.[7]

Social disorder was coded from the videotapes. The scale items tap the presence or absence of adults loitering or congregating,[8] drinking alcohol in public, peer group with gang indicators, public intoxication, adults fighting or arguing in a hostile manner, selling drugs, and street prostitution. Taken together, the SSO items cover many more specific aspects of disorder than does the survey, including gangs, prostitution, and multiple types of graffiti.[9]

Our observational scale of physical disorder is limited to behavioral manifestations (e.g., graffiti, garbage in the streets) that can be conceptually decoupled from structural resources. Therefore we examine the separate contribution, to perceived disorder, of *physical decay* that can arise from institutional disinvestments. We coded whether on each face block there was evidence of any of the five following conditions: vacant houses; burned-out, boarded-up, or abandoned commercial/industrial buildings; burned-out, boarded-up or abandoned houses; badly deteriorated residential units; and badly deteriorated recreation facilities. The decay scale was derived from videotapes; again, double-blind coding produced interrater reliability in the high 90s. Although physical decay and physical disorder are related positively ($r = .40$), the data permit us to assess how they predict perceived disorder independently. When the physical decay and physical disorder items are combined, no survey disorder item is missing in the SSO measurement scheme.

Commercial building security is measured by videotapes of each face block, with indicators for whether iron security gates or "pull-downs" were present on the building fronts and whether the windows were covered with security gates. *Alcohol/tobacco advertising* is based on videotapes: simple yes/no codes specify whether there were signs advertising either substance. *Bars/liquor stores* is a two-item scale based on videotaped assessments of the presence or absence of bars and establishments with visible signs of alcohol sales. Finally, we used one item from the SSO, the presence of commer-

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[7] Graffiti not painted over were classified by type on the basis of guidelines informed by gang research in Chicago and internal Chicago police memos on gang identification (NORC 1995). Tag graffiti was identified by stylized forms such as block-letter art or by attempts to create some form of visual expression. Gang graffiti ordinarily was distinguished by the absence of tag art and typically involved a combination of stars, crowns, emblems, and specific colors that distinguish among gangs. Political graffiti was defined as political messages and slogans.

[8] We limited the definition of loitering to groups of three or more adults not waiting for scheduled activities or business. For example, groups of adults waiting for public transportation or standing in line to enter a store would not be included, nor would children playing in public.

[9] Again in line with prior research, the survey asked about groups hanging out and "causing a disturbance." In the SSO we matched the survey as closely as we could, coding separate items not only for loitering but also for peer groups with gang indicators, fighting and arguing on the street, intoxicated people, and visible evidence of prostitution. Although perhaps we did not achieve a perfect match, any omitted SSO item that is an obvious manifestation of "causing a disturbance" would have to be uncorrelated with the items we included to overturn the basic results.

cial buildings in blocks with residential units, to calculate the percentage of face blocks in a block group with mixed land use (see Table 1).

Descriptive statistics on constructed measures from the four data sources are shown in Table 1. The full list of SSO items for the six multi-item scales is also shown in the appendix and in Appendix Table A1, along with parameter estimates for a multi-level measurement model. We correct for three major components of measurement error in constructing scales of observed disorder to be used as independent predictors: item inconsistency within a block group, randomly missing data, and temporal variation.

As in structural equation models, our measurement strategy for observed disorder thus corrects for unreliability in the scale scores in assessing the estimated effects of other independent predictors such as racial composition (Whittemore 1989).

PREDICTING PERCEIVED DISORDER

To address the nested structure of perceived disorder in our research design, we adapt models that account for the dependence of residents' responses within block groups. Each model can be conceived in terms of a *within-neighborhood* and a *between-neighborhood* equation, though the

Table 1. Means and Standard Deviations for Linked Data

	Mean	SD
Survey Data, Person-Level Demographics		
Female	.58	.49
Married	.38	.49
Separated/divorced	.17	.38
Single	.31	.46
Homeowner	.43	.49
Black	.34	.47
Latino	.33	.47
Other	.07	.26
Mobility	1.04	1.48
Age	41.79	16.34
Unemployed	.40	.49
SES scale	−.09	1.36
Survey Data, Person-Level Perceived Disorder[a]		
Litter/trash	.28	.45
Graffiti	.20	.40
Vacant houses	.13	.33
Public drinking	.25	.43
Selling drugs	.30	.46
Group loitering	.27	.44
Census Data, Block Group		
Density	7,451.93	4,732.33
Poverty	.21	.17
Black	.36	.42
Latino	.26	.30
Population size	1,335.63	893.51
Police Data, Block Group		
Ln (violence rate)	8.61	.69
Systematic Social Observation Data, Block Group		
% mixed land use	24.11	11.31
Bars/liquor stores[b]	.01	.98
Alcohol/tobacco advertisements[b]	.00	.62
Commercial building security[b]	.00	.81
Physical decay[b]	.00	.87
Physical disorder[b]	.04	.77
Social disorder[b]	.00	.78

[a] Proportion of respondents perceiving disorder item to be a "big problem."

[b] See Appendix Table A1 for scale items.

two equations are estimated simultaneously by means of maximum likelihood (Raudenbush and Bryk 2002). The within-neighborhood (person-level) model specifies perceptions of disorder as a function of a core set of individual characteristics that have been hypothesized or shown in prior research to be influential. Our person-level model is

$$(Disorder)_{jk} = \beta_{0k} + \sum_{q=1}^{12} \beta_{qk}X_{qjk} + r_{jk}, \qquad (1)$$

where $(Disorder)_{jk}$ is disorder in neighborhood k as perceived by respondent j in that neighborhood, β_{0k} is a neighborhood-specific intercept, X_{qjk} is the value of covariate q associated with respondent j in neighborhood k, β_{qk} is the neighborhood-specific partial effect of that covariate on disorder, and r_{jk} is a person-specific random error assumed to be distributed independently and normally with constant variance σ^2. Covariates include indicators for gender, ethnicity, socioeconomic status, employment status, age, marital status, homeownership, and mobility. To estimate how these covariates are associated with perceptions *within* block groups (in Table 2 below), we center each X_{qjk} around its neighborhood mean. This ensures that between-block-group variation in each X_{qjk} plays no role in the estimation. For this purpose, we allow the block-group intercept, β_{0k}, to vary randomly around its overall mean and fix other coefficients β_{qk}, $q = 1,...,12$ to be constant.

When we estimate associations between block-group covariates and perceptions, however, we center each X_{qjk} around its overall mean, ensuring that contributions of block-group covariates to perceptions will be adjusted for person-level covariates (as in Table 3 below). For this purpose our between-neighborhood model is

$$\begin{aligned}\beta_{0k} = \theta_{00} &+ \theta_{01}(poverty)_k + \theta_{02}(black)_k \\ &+ \theta_{03}(Latino)_k + \theta_{04}(size)_k + \theta_{05}(density)_k \\ &+ \theta_{06}(SSO\ physical\ disorder)_k \\ &+ \theta_{07}(SSO\ social\ disorder)_k \\ &+ \theta_{08}(SSO\ physical\ decay)_k \qquad (2) \\ &+ \theta_{09}(SSO\ building\ security)_k \\ &+ \theta_{10}(SSO\ bars/liquor\ stores)_k \\ &+ \theta_{11}(SSO\ alcohol\ advertising)_k \\ &+ \theta_{12}(SSO\ mixed\ land\ use)_k + u_{0k}, \end{aligned}$$

where θ_{00} is the adjusted mean perceived disorder score, θ_{01} through θ_{05} are the regression coefficients for the census-based structural characteristics, and θ_{06} through θ_{12} are the regression coefficients of the effects of SSO-based assessments. The random effects u_{0k}, $k = 1,...K$, are assumed to be identically and independently distributed with mean zero and variance τ^2. Thus our strategy permits variations at both the person and the block-group levels, with appropriate measurements for each. Although it is possible to allow one or more level 1 regression coefficients to vary over neighborhoods, in the interest of simplicity we set $\beta_{qk} = \theta_{q0}$ for $q = 1,...,12$ in our initial models. All coefficients are estimated simultaneously.

Predictors

Person-level. Although we focus mainly on neighborhood variations, it is important to understand how individuals within the same environment perceive disorder. Thus in Table 2 we begin to examine how perceptions of disorder vary as a function of the perceiver's personal characteristics, with all neighborhood conditions controlled.

The results show that older residents perceive less disorder than do younger residents, those who are separated or divorced perceive more disorder than do widowed persons, and

Table 2. Within-Neighborhood Predictors of Perceived Disorder

	Coeff.	SE	*t*-Ratio
Covariate			
Intercept	1.764	.019	92.69**
Female	.041	.020	2.06*
Married	.011	.033	.34
Separated/divorced	.081	.035	2.32*
Single	.046	.036	1.29
Homeowner	.037	.022	1.61
Black	−.157	.035	−4.45**
Latino	−.059	.035	−1.88
Other	−.116	.039	−2.89**
Mobility	.010	.006	1.58
Age	−.002	.001	−3.13**
Unemployed	−.042	.022	−1.91
SES scale	−.014	.009	−1.56
Level 1 Variance	.231		
Level 2 Variance	.123		

Notes: N = 3,116 persons and 478 block groups. Covariates are centered within block groups.
*$p < .05$; **$p < .01$

females tend to perceive more disorder than do males. Employment status, SES, mobility, and homeownership, however, are unrelated to perceptions of disorder. Most relevant and most evident are the effects of ethnicity: blacks perceive significantly less disorder than do whites *living in the same block group* (coefficient = –.157, t = –4.45). This is true as well for "other" races and for Latinos (p < .10).

This pattern makes sense if blacks and other minorities have been exposed to more disorder in the past; such exposure in turn influences the threshold for considering it a problem. In the segregated and racialized city that is Chicago, for example, a white person living in an all-white area would expect to see, on average, relatively small amounts of disorder. In this case even minor amounts of disorder might be perceived as a problem. A black person living in an all-black neighborhood, however, would see more disorder, on average; thus the level must rise to a higher level to be perceived as a problem. In an integrated area, which (by definition) Table 2 models, this argument implies that the two groups are judging disorder by the norms that have been generated in past, segregated environments: hence blacks perceive less dis-

order and whites more. The basic psychological mechanism involves the perception of discrepancies based on expectation, underscoring the fact that perceived disorder reflects more than meets the eye.

Neighborhood-level. We now turn to the main question. How are perceptions of disorder influenced by neighborhood-level characteristics? To answer this question, we introduce our independent measures of systematically observed disorder to assess between-neighborhood variations in perceived disorder (Table 3, Model 1). We adjust for compositional differences in all person-level covariates through grand mean centering, but because of space limitations, the individual-level coefficients are not repeated in Table 3 (available on request). There is clear evidence that observed disorder strongly predicts perceptions of disorder, underscoring the validity of the measurement scheme. For example, we see large and independent contributions of observed physical and social disorder (t = 10.06 and 6.06 respectively), with 73 percent of the neighborhood level variance explained (unconditional variance = .235). Furthermore, when we add the SSO indicators of the physical aspects of public space in Model 2, we see that a neighbor-

Table 3. Main-Effect Estimates for Neighborhood-Level Predictors of Total Perceived Disorder, With Separate Indicators for Observed Physical and Social Characteristics

	Model 1 (SSO Disorder)		Model 2 (Adding SSO Physical)		Model 3 (Adding Social Context)	
	Coeff.	t-Ratio	Coeff.	t-Ratio	Coeff.	t-Ratio
Neighborhood Level						
Intercept	1.747	115.12**	1.693	40.72**	1.261	25.46**
Physical disorder	.225	10.06**	.146	5.89**	.038	1.55
Social disorder	.123	6.06**	.096	4.74**	.044	2.24*
Bars/liquor stores			.016	.43	.017	.56
Alcohol/tobacco advertisements			.045	1.36	.052	1.50
Commercial building security			.010	.43	.004	.18
Physical decay			.129	6.98**	.068	3.77**
% mixed land use			.002	1.34	.001	.73
Poverty					.756	7.43**
Black					.414	8.03**
Latino					.442	6.63**
Population size					$.015 \times 10^{-3}$	1.10
Density					$.001 \times 10^{-3}$	.44
Level 1 Variance	.233		.232		.230	
Level 2 Variance	.063		.051		.031	

Notes: N = 3,316 persons and 478 block groups. Neighborhood estimates are adjusted for compositional differences in the 12 person-level covariates shown in Table 2.
*p < .05; **p < .01

hood's observable physical decay is related positively and significantly to perceived disorder ($t = 6.98$) net of observed disorder.

In Model 3 we add neighborhood ethnic and social composition to test our main thesis. With controls for observed disorder and physical structure in addition to the person-level predictors, neighborhood social and ethnic composition are linked powerfully to perceptions of disorder. In particular, concentrated poverty, proportion black, and proportion Latino are related positively and significantly to perceived disorder. Moreover, adjusting for racial context greatly reduces the association between SSO and perceived disorder: the coefficient for social disorder is cut in half, and the association between physical observed disorder and perceptions is eliminated entirely. (Compare coefficients for these variables moving between Model 2 and Model 3.) Thus much of the explained variance of SSO disorder in Models 1 and 2 is spurious through its association with racial and class composition.

Principal Components of Disorder

The six scales derived from systematic social observation are correlated, to some degree; they also vary in reliability (see appendix). Therefore it is appropriate to investigate the contributions of a reduced set of constructs that capture common sources of variation among these six measurements. Table 4 displays the results of a principal-components analysis. We found two components that are reasonable on conceptual grounds, accounting for approximately 65 percent of the variation among the six SSO variables. The first component appears to tap commercial areas that sell and/or advertise alcoholic beverages or tobacco, and where building security is extensive. The second component combines physical and social disorder with physical decay.

To achieve greater parsimony we thus substitute these two principal components for the six SSO predictors in predicting perceived disorder. In addition, we disaggregate perceived disorder by type (social and physical): presumably physical disorder is less sensitive to cultural stereotypes or statistical discrimination based on racial context than is the more nebulous concept of social disorder. This strategy simultaneously addresses biases that might emerge from item discrepancies between the survey and the SSO method by type of disorder. In particular, the overlap between survey and SSO items is not exact within subscales (in the SSO scale, for example, vacant houses are considered signs of physical decay and disinvestment rather than of disorder), but in combination the coverage is full.

We also control for two new variables to test the robustness of our main findings. One is the log *violence rate* at the neighborhood level.[10] Violence, especially violent crimes that make the news, may influence subjective perceptions of threat. In particular, the "broken windows" thesis might be read to imply that residents will perceive disorder as a problem primarily when it is connected to public (or official) accounts of personal vio-

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[10] Substituting a survey measure of violence produces quite similar but weaker results. We retain official violence because it provides the stronger test.

Table 4. Higher-Order Principal-Components Analysis of Systematic Social Observation (SSO) Scales

	Rotated Loadings	
	Factor 1	Factor 2
SSO Scale		
Bars/liquor stores	.88	.06
Alcohol/tobacco advertisements	.90	.09
Commercial building security	.62	.46
Physical decay	.03	.74
Physical disorder	.31	.75
Social disorder	.07	.69
Eigenvalues	2.07	1.82
% Variance Explained	34.59	30.32

Note: N = 478 block groups.

lence. Because race and poverty are related to official crime, a spurious connection may exist between perceiving disorder as a problem and large concentrations of minority and poor residents (Quillian and Pager 2001).

The other control stems from a long history of research in urban sociology on the importance of social exchange and ties among neighbors (e.g., Fischer 1982). We specifically introduce a scale measuring *reciprocated exchange* among neighbors. The items comprising the scale are: "About how often do you and people in your neighborhood do favors for each other? By favors we mean such things as watching each other's children, helping with shopping, lending garden or house tools, and other small acts of kindness" (never, rarely, sometimes, or often). "How often do you and people in this neighborhood have parties or other get-togethers where other people in the neigh-

borhood are invited?" "When a neighbor is not at home, how often do you and other neighbors watch over their property?" "How often do you and other people in this neighborhood visit in each other's homes or on the street?" "How often do you and other people in the neighborhood ask each other advice about personal things such as childrearing or job openings?" (scale mean = 2.47, sd = .73). Overall this measure taps the flow of information exchange and network ties among neighbors.

Table 5 assesses the new model specification at both the person and the neighborhood level. The outcomes are total perceived disorder (Model 1), perceived physical disorder (Model 2) and perceived social disorder (Model 3). In every case, both SSO principal components are positive and statistically significant predictors. Yet for all three outcomes, the neighborhood's social and ethnic

Table 5. Main-Effect Estimates of Neighborhood- and Person-Level Predictors of Perceived Disorder, by Type, With Principal Components for SSO Disorder/Decay and Alcohol Density, Plus Additional Controls

	Model 1 (Total Disorder)		Model 2 (Physical Disorder)		Model 3 (Social Disorder)	
	Coeff.	t–Ratio	Coeff.	t–Ratio	Coeff.	t–Ratio
Neighborhood Level						
Intercept	.327	1.26	.635	2.45*	.060	.19
Poverty	.661	6.28**	.690	5.71**	.662	5.74**
Black	.334	5.77**	.250	4.12**	.426	6.09**
Latino	.386	5.90**	.329	4.66**	.441	5.74**
Density	$.003 \times 10^{-3}$	.92	$.000 \times 10^{-3}$	.10	$.005 \times 10^{-3}$	1.15
Mixed land use	.001	.52	.002	1.42	−.001	−.61
Population size	$.016 \times 10^{-3}$	1.31	$−.000 \times 10^{-3}$	−.01	$.034 \times 10^{-3}$	2.14*
SSO alcohol density	.040	2.91**	.040	2.57**	.045	2.89**
SSO disorder/decay	.080	3.84**	.078	3.45**	.084	3.54**
Ln (violence rate)	.116	3.71**	.077	2.51*	.150	3.97**
Person Level						
Female	.026	1.35	.019	.93	.034	1.40
Married	.021	.67	−.026	−.78	.076	2.02*
Separated/divorced	.076	2.27*	.045	1.19	.118	3.02**
Single	.035	1.03	−.012	−.33	.096	2.3*
Homeowner	.039	1.84	.057	2.47*	.023	.86
Black	−.164	−4.95**	−.215	−5.97**	−.119	−2.89**
Latino	−.077	−2.60**	−.121	−3.84**	−.026	−.68
Other	−.128	−3.54**	−.166	−4.03**	−.079	−1.70
Mobility	.007	1.03	−.001	−.17	.017	1.99*
Age	−.003	−3.67**	−.003	−3.83**	−.002	−1.93
Unemployed	−.022	−1.06	.010	.44	−.055	−2.21*
SES scale	−.022	−2.64**	−.014	−1.68	−.033	−3.14**
Exchange/ties	−.061	−4.24**	−.056	−3.81**	−.068	−3.81**
Level 1 Variance	.229		.273		.352	
Level 2 Variance	.029		.034		.034	

Notes: N = 3,116 persons and 478 block groups.
*p < .05; **p < .01

composition remains positively and highly significantly related to perceived disorder. Even for perceived *physical* disorder, which is the strictest test of our thesis, the estimated effect of racial composition is substantively large, with controls for observed disorder. For example, if we use the model presented in Table 5 to evaluate how perceived physical disorder changes as a function of increasing observed physical disorder/decay and racial composition from the 25th to the 75th percentile, the effect of racial composition is approximately three times larger than that of observed disorder/decay, with controls for all personal characteristics and neighborhood ecology.[11] The magnitude of the differential by racial composition is so substantial that measurement error is not a credible explanation, especially in this case, where observed physical disorder is measured with reliability greater than .90. Also, the simple correlation of percent black with observed disorder is positive, as expected: $r = .15$ for SSO social disorder and $r = .11$ for SSO physical disorder ($p < .05$). The magnitude of the racial composition effect on perceptions is all the more revealing in this light.[12]

Two other findings presented in Table 5 are noteworthy. First, the officially reported violence rate in a block group contributes significantly to residents' perceptions of disorder, in line with Quillian and Pager (2001). Survey-measured reports of personal victimization also are linked positively to perceived disorder. Yet in neither case is the effect of racial composition eliminated. Second, residents embedded in networks of greater reciprocal exchange, and thus presumably with access to better information, perceive less disorder than those who are more socially

isolated. It may be that those enjoying more social support are less likely to report more problems of a wide variety. In any case, the racial pattern remains intact.

Cross-Level Interactions With Race/Ethnicity

The results so far support the hypothesis that neighborhood racial context helps shape perceptions of disorder, with controls for carefully observed disorder. Does this tendency depend on the resident's race? Do the effects of an individual's race on perceptions of disorder vary randomly across neighborhoods? We tested this specification; once again, black residents reported less disorder than whites (coeff. = –.13, $t = –3.11$), an effect that varied randomly across neighborhoods. More interesting, however, the contextual effect of racial composition is largely independent of the observer's ethnicity.[13] Specifically, blacks were *not* significantly more or less likely than whites to view predominately black neighborhoods as high in disorder, with controls for observable disorder and other covariates.

A notable exception was the interaction between Latino ethnicity and block-group percent black. Perceptions of disorder increase as a function of percent black for members of each ethnic group, but this tendency is significantly pronounced for Latinos. This relationship is graphed in Figure 1; predictors not displayed are held constant at their means. In neighborhoods less than 25 percent black, whites and Latinos essentially do not differ in their perceptions of disorder. At roughly 25 percent black, however, a threshold suggested by prior research as particularly salient (e.g., Schelling 1971), Latinos begin to diverge sharply from whites: when neighborhoods reach 75 percent black or more, Latinos perceive substantially more disorder than do whites (also see Charles 2000). Overall, as percent black in the block

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[11] Moving from the 25th to 75th percentile of observed physical disorder is associated with about a .08 gain in the perceived physical disorder scale. Moving from the 25th to 75th percentile of percent black, by contrast, shifts the perceived disorder scale upward by about .25.

[12] We also disaggregated at the item level to examine exact matches of physical disorder; again we obtained similar results. For example, the *t*-ratio reflecting the effect of racial composition on perceived graffiti, with controls for observed disorder (including three types of graffiti) and the other factors reported in Table 5, was 5.08 ($p < .01$). For trash it was 3.41 ($p < .01$).

[13] In testing cross-level interactions, we estimated a reduced model that retained significant predictors of total perceived disorder at the neighborhood level shown in Table 5. We estimated a series of alternative models with the same results. We also freed sequentially the slope variance for each racial/ethnic group; it was significant only for blacks. (Full table results are available on request.)
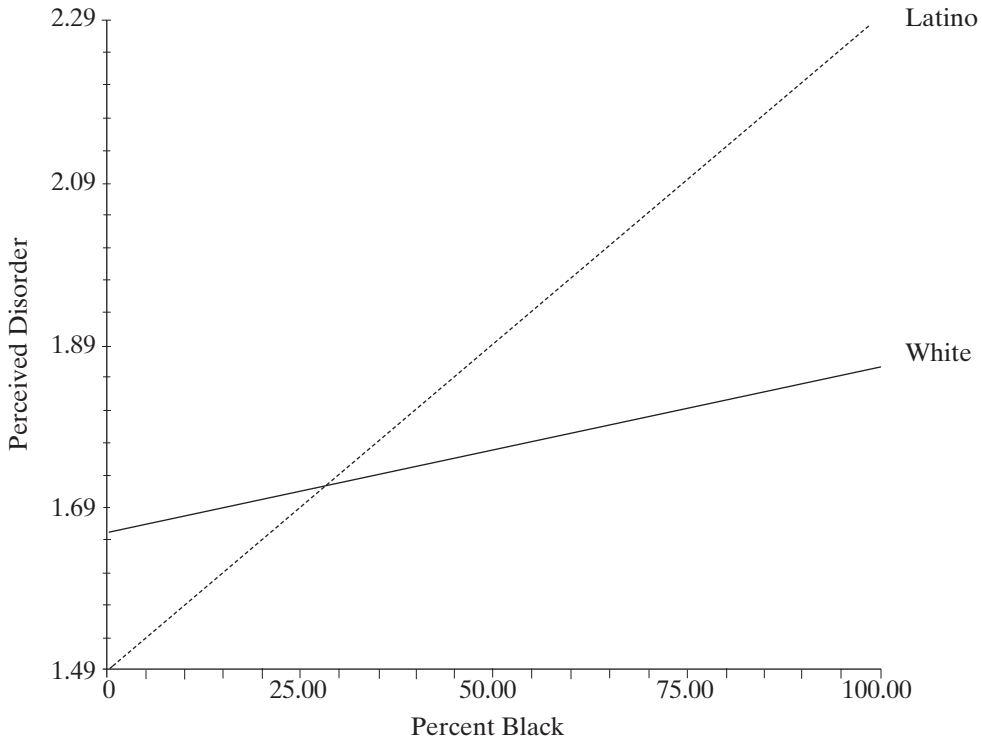
Figure 1. Cross-level Ethnicity Interaction in Predicting Perceived Disorder

group increases (but not percent Latino), Latino respondents tend to perceive significantly more disorder than do whites (coeff. = .59, t = 2.54). This coefficient is double the value estimated for blacks (.29).

Alternative Considerations and Sensitivity Analysis

The large size of the contributions of block-group social and racial/ethnic structure, especially in models where physical disorder is measured virtually without error, undermines the credibility of any claim that our results are mere artifacts of the unreliable measurement of observed disorder. Nonetheless, the reliability of observed disorder may be subject to temporal fluctuations even though we explicitly modeled the hours of videotaping and observation (see appendix). For example, perhaps residents perceive disorder accurately at a given time, and the mismatch between their perceptions of disorder and the SSO arises because the latter information was collected several weeks later. Or even if collected on the same date, it

may be that disorder occurs in the dark of the night, when we were unable to videotape public spaces.

Although such mismatches undoubtedly occur, they are unlikely to account for the systematic importance of racial composition in our models. Neighborhood composition changes much more slowly than observable disorder, and therefore cannot reasonably account for temporal fluctuations in observable disorder. Moreover, physical disorder is highly stable over time; even if some social disorder emerged only at night, our results would be overturned only if such disorder occurred in a large number of areas where other disorder was *not* present during the day. From all we know on the basis of prior research and our knowledge of Chicago, such a reversal of pattern is highly unlikely. Even if it is not, the results for physical disorder remain.

Spatial mismatch is another concern. Suppose that a resident, when responding to questions about disorder, recalled an area different from the block group where he or she lived, or maybe an area just outside the

boundaries of the block group. Although we selected the block group as a geographic unit with ecological integrity and with close links to residents' social-interactional patterns (Grannis 1998), such a mismatch is possible and perhaps even inevitable to some degree. Our measures, however, reflect the block group as a whole rather than geographic differences within or outside block groups in the degree of observable disorder. Moreover, our research design produced a representative survey sample within block groups, which we then used to estimate parameter variance across block groups in assessing contextual effects on perception. Thus we averaged idiosyncratic definitions across multiple residents, a procedure unlikely to produce a systematic influence of racial composition on between-area variations.

Furthermore, we validated empirically the robustness of key results to an alternative ecological definition which allows for the possibility that residents really think about disorder at the level of much larger units, perhaps very large communities in the city. In a multilevel analysis substituting Chicago's community areas (average population size almost 40,000; community $N = 47$) for block groups and controlling for the same set of personal covariates, observed disorder scales, and ecological factors as in the block groups, the t-ratios associated with the effects of percent black and percent Latino on perceived total disorder were 3.63 and 3.09 respectively (both p < .01). The strong similarity of findings across units of analysis suggests that spatial or ecological mismatch does not account for the contributions of racial/ethnic and social composition.

FROM THE OUTSIDE LOOKING IN

It may be that even if we measured perfectly the observable disorder in public spaces, residents would bring insider knowledge to the assessment of disorder that our cameras did not detect. If this is so, then nonresidents, or "outsiders," would serve as external validation of our thesis. We accomplish such a test by capitalizing on a recently completed survey carried out by NORC of community leaders in Chicago. This survey includes not only a very different sample,

including more highly educated elites, but also a different temporal and geographic perspective. By analyzing perceptions of disorder in this new and different setting we can calibrate the generality of our theoretical framework.

On the basis of a positionally based sampling plan, we identified six institutional domains central to the viability of communities: *educational, religious, business, political, law enforcement,* and *community organizations.* Within each of these six domains, NORC constructed a list of more than 10,000 positional leaders in 1995 from public sources of information. Leaders who worked in the same sample of communities as covered in the resident survey analyzed above were then selected randomly and a snowball sample was used to select additional leaders not on official lists. In 1995 NORC eventually interviewed some 2,800 leaders with an 86 percent response rate. In 2002, as part of a second project, a randomly selected subset of the 1995 sample of leaders was drawn; NORC also interviewed them or replacements in the same position, with a 78 percent response rate.

In the 2002 study, each community leader was asked the same set of questions on disorder as in the 1995 resident survey, and whether she or he lived in the community. For the purposes of this paper we selected those community leaders who work in the community but live outside. This criterion produced a sample of approximately 725 leaders who had institutional or official responsibility for the 30 community areas covered in both the 2002 study and the 1995 resident sample, allowing us to match key leaders' perceptions to both the systematic social observations and residents' perceptions. Individual-level controls include race/ethnicity (black, Latino, with white as reference), age, education, and sex. Because of reduced statistical power at the community level ($N = 30$), we focused simply on racial/ethnic composition and disorder.

In Table 6 we present three theoretically informed models that assess how institutionally based leaders perceive disorder in their communities of work: outsiders, as it were, in terms of residence. In Model 1 we see that the systematically observed (SSO) measures yield

Table 6. Main-Effect Estimates for Community- and Person-Level Predictors of Total Perceived Disorder in 2002 by Key Institutional Leaders Who Live Outside the Community

	Model 1 (SSO Prediction)		Model 2 (+ Residents' Perceptions)		Model 3 (+ Racial Context)	
	Coeff.	t-Ratio	Coeff.	t-Ratio	Coeff.	t-Ratio
Community Level						
Intercept	1.990	39.70**	.157	.53	.594	1.80†
SSO alcohol density	.136	2.86**	−.057	−1.28	−.002	−.05
SSO disorder/decay	.272	5.81**	.009	.16	−.007	−.01
Residents' perceived disorder			1.049	6.32**	.661	3.14**
Black					.004	2.85**
Latino					.003	1.95†
Person Level						
Female	.009	.03	.007	.02	.009	.27
Black	−.082	−2.49*	−.082	−2.63**	−.098	−2.74**
Latino	−.029	−.60	−.037	−.79	−.040	−.83
Age	−.004	−2.33*	−.004	−2.41*	−.004	−2.44*
Education	−.007	−.82	−.007	−.88	−.007	−.89
Level 1 Variance	.152		.152		.152	
Level 2 Variance	.063		.026		.019	

Notes: $N = 727$ leaders of 30 community areas, with 1995 SSO and community survey.
†$p < .10$; *$p < .05$; **$p < .01$

further evidence of predictive validity; leaders perceive disorder to be more of a problem when observed disorder is greater. In Model 2 we add residents' perceived disorder; we find that when they perceive disorder to be a problem, community leaders do so as well. This finding is not surprising because residents' complaints about disorder to community officials are a long-standing, major part of local discourse in Chicago (Kefalas 2003; Skogan 1990). And in fact, the effects of observed disorder are mediated fully by residents' perceptions. Once again, blacks, this time as leaders, report significantly less disorder than whites.

The stronger test remains, however: What happens when we add racial composition? By controlling for observed disorder and residents' perceived disorder, we address at once the outsider question *and* the possibility that residents possess special knowledge that we missed. Recall that a potential objection to our earlier results was that residents know things not captured on video; thus, in some sense, it may be that perceptions are a more accurate measure. Model 3 gives a straightforward answer. Despite the vast difference in the research design and the independent sample, percent black ($p < .01$) and percent Latino ($p < .10$) both predict perceived disorder by leaders who live outside the community, with controls for personal characteristics and disorder as measured by both residents and observation. The effects for percent black in particular suggest a durable and generally powerful role for racial context in predicting the perceptions of disorder.[14] One still can marshal objections, such as the possibility that community leaders see things that residents cannot, but the weight of the evidence by now favors a contextual interpretation. Perceptions, whether by residents or by leaders, appear to be shaped directly by the racial composition of the community.

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[14] The "percentage black" effect holds when we control for poverty. We also substituted racial/ethnic composition as measured in 1995 from the community survey, again with similar results. Moreover, as in the resident-based analysis of cross-level interactions, blacks and whites were influenced similarly by percentage black: the cross-level interaction was not significant (data not shown). The main difference is that among leaders, Latinos do not differ from whites in the degree of influence from racial context. Although this finding is beyond the scope of this study, it may occur because Latino community leaders are less likely than Latino residents to be recent immigrants; thus they are more likely to have been in this country longer and to possess more information on local conditions. In any case, for residents and leaders alike, we found no difference between blacks and whites in the way racial or ethnic composition predicts perceptions of disorder.

CONCLUSIONS

Influential research and current social policy emphasize perceptions of neighborhood disorder as central in shaping the actions of various decision makers including current and prospective residents, investors, community leaders, potential offenders, and the police. Our inquiry probed this reasoning by exploring the grounds on which neighborhood residents and outsider observers form perceptions of disorder in the first place. We assumed that reliably observed disorder would increase perceptions of disorder, an assumption supported by the data.

We also theorized, however, that perceptions of disorder would be shaped independently by neighborhoods' racial, ethnic, and class composition. The results supported this notion: in fact, social structure proved a more powerful predictor of perceived disorder than did carefully observed disorder. The data suggest that in shaping perceptions of disorder, residents supplement their knowledge with prior beliefs informed by the racial stigmatization of modern urban ghettos (Wacquant 1993). These beliefs, we suggest, may be incorrect but not necessarily "irrational" or reflections of simple racial prejudice. The rational basis of these beliefs lies in a social history of urban America, which links geographically isolated ethnic minority groups with poverty, economic disinvestment, and visible signs of disorder (Massey and Denton 1993). Skin color is not only visually but also psychologically salient in a society with a long history of slavery, segregation, and racial conflict (Loury 2002).

We suggest that our findings need not reflect pure racial prejudice, in part because of the long-standing empirical association between ethnicity, poverty, and disorder, but also because of another of our key findings: blacks are no less likely than whites to be influenced by racial composition in predicting disorder. Indeed, if racial prejudice were determining the association between percentage black and perceived disorder, this association ought to be much stronger for whites than for blacks: few would contend that blacks are as prone to antiblack racial prejudice as are whites. Although blacks perceive less disorder than do whites living in the same block group, this tendency is not linked to the percentage of blacks living there. These results support the literature on implicit bias (Banaji 2002; Bobo and Massagli 2002; Devine 1989) and are analogous to the findings of the armed shooting experiment (Correll et al. 2002), where blacks and whites succumbed equally to larger cultural stereotypes about the dangerousness of blacks.

We found, however, that the percentage black in a block group is linked more closely to perceived disorder for Latinos than for other ethnic groups. Loury (2002) offers a plausible explanation: new or recent immigrants, he claims, are made acutely aware of racial stratification in U.S. society but may lack the experience to accurately appraise the association between racial composition and disorder. In Chicago, Latinos are disproportionately of Mexican origin, and many are recent immigrants. As Loury (2002:90) argues, "[O]ne of the first things newcomers to America discover about their adopted country is that African Americans are a stigmatized group, to be avoided at all costs." Latino immigrants therefore may draw too heavily on the presence of blacks as a proxy for disorder. In view of reported conflicts between Latino immigrant groups and American blacks, along with differences in housing preference that disfavor blacks (see Charles 2000; Loury 2002), further empirical investigation of this hypothesis seems warranted.

Further, we replicated the main finding of our study on an independent set of data from community leaders who lived outside the community in which they worked. Racial composition strongly predicted leaders' evaluations of disorder, just as for residents, but in this case with controls for observed disorder *and the evaluations of disorder by the residents themselves.*

Implications

Our findings imply that previous studies arguing for an effect of perceived disorder on health and psychological outcomes may be subject to alternative, or at least more complex, interpretations. It may not be the actual levels of disorder that are felt negatively, for example, but the associations of disorder with

residents' perceptions of their racial meaning. If we are right, it may well be that reducing actual levels of disorder will not remedy psychological discomfort, for that discomfort stems from more insidious sources. Our study is not conclusive, of course, and at this point our data cannot precisely identify social psychological mechanisms associated more closely with implicit bias than with Bayesian or statistical discrimination. Yet, given the importance accorded to perceived disorder in much recent work, we would argue that the central findings of our paper deserve to be examined in future research, perhaps even with experimental methods that introduce video scenarios (also see Correll et al. 2002).

Another strategy suggested by our research could be integrated productively with the social psychological literature on well-being: that is, to decompose the effect of perceived disorder on health and psychological outcomes into its within- and between-neighborhood components. Insofar as the within-context variations are carrying the load, the explanation is not an ecological account about disorder. In this scenario, perceived disorder tends to be a characteristic of the person. By contrast, insofar as mean levels of observed disorder dominate in explanation, a neighborhood-level interpretation is reasonable. Using this strategy, one also could determine whether perceived disorder mediates the effect of neighborhood racial composition on self-reported outcomes. It is likely that both individual and neighborhood mechanisms are at work, and it seems prudent for future researchers to explore such decomposition. At least it does not appear justifiable to treat items on perceived disorder as unambiguous indicators of neighborhood ecology. Our results suggest that they carry extra meaning as well.

Theories about broken windows also are at stake, even though we say nothing here about the causes of crime. Attempts to improve urban neighborhoods by reducing disorder—cleaning streets and sidewalks, painting over graffiti, removing abandoned cars, reducing public drinking and the associated litter, and eliminating sources of blight such as prostitution, gang gatherings, and drug sales—are admirable and may produce many positive effects. They seem to be the urban policy of the day. Nevertheless, our results suggest that these steps may have only limited payoffs in neighborhoods inhabited by large numbers of ethnic minority and poor people. The limitation on effectiveness in no way derives from deficiencies in the residents of such neighborhoods. Rather, it is due to social psychological processes of implicit bias and statistical discrimination as played out in the current (and historically durable) racialized context of cities in the United States. In other words, simply removing (or adding) graffiti may lead to nothing, depending on the social context.

Finally, we believe that our study underscores the relevance of social psychological mechanisms for understanding urban inequality, an area dominated in recent years by purely structuralist research (Bobo and Massagli 2002:90). These need not be separate research enterprises. Neighborhoods with high concentrations of minority and poor residents are stigmatized by historically correlated and structurally induced problems of crime and disorder. These historically resilient, psychologically salient correlations have deep roots in American social stratification, which are not likely to be overcome easily through short-term interventions. Yet because people act on their perceptions of disorder, the contributions of racial composition and concentrated poverty are tied reciprocally to the actions of observers. Also recall our findings (Table 2) that whites are more "primed" to see disorder. Perceptions of disorder thus appear to create a self-fulfilling structural prophecy whereby all actors are likely to disinvest in or move away from black or mixed areas viewed as high in risk for disorder, but in which whites are more sensitive in the first place and consequently more likely to move. In this way, implicit bias in perceptions of disorder may be one of the underappreciated causes of continued racial segregation in the United States (Charles 2003). Perceptions of disorder (the new deviance?) clearly matter for reasons that extend far beyond the mere presence of broken windows.

APPENDIX. A MODEL FOR ESTIMATING DISORDER AND QUANTIFYING MEASUREMENT ERROR

We adapt the "ecometric" strategy of Raudenbush and Sampson (1999) to build a measurement model for each of the theoretically defined scales. Starting with physical disorder, we define 10 item responses within each of J_k face blocks in block group k, $k = 1,...,478$. Let $Y_{ijk} = 1$ if the ith item response is affirmative, indicating that the aspect of disorder indicated by item i is present on the face block j in block group k, with $Y_{ijk} = 0$ if not. Let $\mu_{ijk} = $ Prob $(Y_{ijk} = 1)$, and the logit transformation $\eta_{ijk} = \ln[\mu_{ijk} / (1 - \mu_{ijk})]$, the natural logarithm of the odds ratio. A multilevel Rasch model is then estimated with the form $\eta_{ijk} + \gamma_i + \mu_k + r_{jk}$, where γ_i is a fixed effect quantifying the "severity" of the disorder indicated by item i, μ_k is a random effect quantifying the degree of physical disorder present in block group k, $k = 1,...,478$, and r_{jk} is a face-block random effect. We assume $\mu_k \sim N(0, \omega^2)$ and $r_{jk} \sim N(0, \tau^2)$ where the two random effects are independent. With μ_k defined as the average value of μ_{ijk} in block group k, the reliability with which we measure physical disorder in face block k can be defined as

$$\lambda_k = \frac{\omega^2}{\omega^2 + \dfrac{\tau^2}{J_k} + \dfrac{1}{10J_k\mu_k(1 - \mu_k)}}. \qquad (1)$$

An overall measure of reliability is the average of λ_k across the 478 block groups, estimated by substituting maximum-likelihood estimates for the parameters of Eq. (1).

Time-of-day effects are controlled by adding time-of-day indicators to the regression model, and the reliability is estimated from the variances conditional on time of day. Block-group-specific physical disorder is estimated as the empirical Bayes posterior mean, $E(\mu_k \mid Y, \gamma, \omega^2, \tau^2)$, where Y is the vector of all item responses, γ is the vector of all fixed effects, and the parameters are evaluated at their maximum-likelihood estimates. The empirical Bayes estimates are pulled toward zero in proportion to their unreliabil-ity; this corrects for bias when they are used as explanatory variables in subsequent analyses (Whittemore 1989). Reliabilities and block-group measures are specified in parallel fashion for the other observational measures (social disorder, physical decay, building security, alcohol/tobacco advertising, and bars and liquor stores); the number of items depends on the measure. The estimation method allows data missing at random: for example, only a random subset of face blocks was coded to measure social disorder. However, empirical Bayes estimates of social disorder exist even for face blocks that were not videotaped.

As shown in Appendix Table A1, the estimated reliabilities vary from a low of .44 for alcohol and tobacco advertising (a two-item scale) to a high of .93 for physical disorder (a 10-item scale). Consistent time-of-day trends appear for social disorder and for building security, with increases as the day wears on. For physical disorder the pattern is mixed. The measurement models for each scale allow time of day to influence the intercept. In addition, when we found reliable evidence of statistical interactions for time of day by specific SSO items, we controlled them (coefficients not shown). Our goal in this analysis is not to test theory but to control as much variation as possible in observed disorder as a function of time of measurement.

Item severities generally conform to our prior beliefs. For example, in the physical disorder scale we find the rank order of items from least to most severe to be garbage, cigarette butts, beer or liquor bottles, various forms of graffiti, abandoned cars, condoms, and needles or syringes. The more frequently found forms of disorder (garbage and cigarette butts) strike us as less severe than the less common forms (abandoned cars, condoms, needles or syringes). For social disorder, the least severe indicator is adults congregating or loitering; the most severe indicators are adults fighting or arguing, prostitution, and drug sales.

Appendix Table A1. Multilevel Measurement Model and Parameter Estimates for SSO Scales (Item Interactions With Time Estimated but Not Shown)

	Coeff.	SE	t-Ratio
Social Disorder			
Intercept	–6.628	.261	–25.44**
Reference: Gang presence			
Loitering	3.848	.236	16.29**
Open drinking	.641	.286	2.24*
Intoxicated people	–.057	.369	–.16
Fighting, arguing	–.407	.399	–1.02
Prostitutes	–.495	.375	–1.32
Selling drugs	–.814	.457	–1.78
T1: 7:00am to 9:00am	–.865	.187	–4.63**
T2: 9:00am to 11:00am	–1.001	.135	–7.41**
T3: 11:00am to 1:00pm	–.606	.142	–4.26**
T4: 1:00pm to 3:00pm	–.062	.136	–.45
T5: 3:00pm to 5:00pm	–.201	.111	–1.81
(Block group variance = 1.472, reliability = .602, intercept df = 486, other df = 85,507)			
Physical Disorder			
Intercept	–2.254	.050	–44.67**
Reference: Graffiti painted over			
Garbage	4.535	.027	166.43**
Cigarette butts	3.334	.022	153.48**
Beer/liquor bottles	1.111	.023	48.06**
Tagging graffiti	.330	.033	9.96**
Gang graffiti	–.619	.035	–17.82**
Abandoned cars	–1.146	.032	–35.42**
Condoms	–2.599	.072	–35.88**
Needles/syringes	–2.862	.076	–37.79**
Political graffiti	–4.985	.276	–18.09**
T1: 7:00am to 9:00am	.162	.024	6.67**
T2: 9:00am to 11:00am	.022	.016	1.37
T3: 11:00am to 1:00pm	–.047	.021	–2.25*
T4: 1:00pm to 3:00pm	.140	.025	5.52**
T5: 3:00pm to 5:00pm	–.004	.019	–.21
(Block group variance = .663, reliability = .932, intercept df = 538, other df = 160,450)			
Physical Decay			
Intercept	–5.326	.386	–13.79**
Reference: Badly deteriorated houses			
Burned-out houses	1.108	.428	2.59**
Burned-out commercial buildings	.606	.426	1.42
Badly deteriorated commercial buildings	–.520	.494	–1.05
Vacant houses	–.705	.648	–1.09
Badly deteriorated recreational facilities	–2.323	1.058	–2.20*
T1: 7:00am to 9:00am	.606	.482	1.26
T2: 9:00am to 11:00am	.265	.408	.65
T3: 11:00am to 1:00pm	.326	.409	.80
T4: 1:00pm to 3:00pm	.006	.434	.01
T5: 3:00pm to 5:00pm	.447	.405	1.10
(Block group variance = 1.672, reliability = .650, intercept df = 486, other df =73,266)			
Commercial Building Security			
Intercept	–2.195	.100	–21.89**
Reference: Security bars/grates on windows			
Metal/iron gates on front	–1.166	.164	–7.10**
T1: 7:00am to 9:00am	.295	.140	2.11**
T2: 9:00am to 11:00am	.244	.103	2.37*
T3: 11:00am to 1:00pm	.071	.109	.66
T4: 1:00pm to 3:00pm	.473	.112	4.22**
T5: 3:00pm to 5:00pm	.300	.111	2.70**
(Block group variance = 1.017, reliability = .770, intercept df = 486, other df = 24,422)			

Appendix Table A1. (Continued)

	Coeff.	SE	*t*-Ratio
Alcohol/Tobacco Advertising			
Intercept	–3.667	.160	22.93**
Reference: Alcohol			
Tobacco	–3.299	.722	–4.57**
T1: 7:00am to 9:00am	–.070	.251	–.28
T2: 9:00am to 11:00am	.047	.183	.26
T3: 11:00am to 1:00pm	–.190	.192	–.99
T4: 1:00pm to 3:00pm	.262	.204	1.28
T5: 3:00pm to 5:00pm	–.078	.192	–.41
(Block group variance = .904, reliability = .440, intercept df = 486, other df = 24,422)			
Bars/Liquor Stores			
Intercept	–4.822	.215	–22.38**
Reference: Liquor stores			
Bars	1.037	.235	4.41**
T1: 7:00am to 9:00am	–.130	.428	–.30
T2: 9:00am to 11:00am	.227	.247	.92
T3: 11:00am to 1:00pm	–.139	.273	–.51
T4: 1:00pm to 3:00pm	.405	.270	1.50
T5: 3:00pm to 5:00pm	.418	.257	1.63
(Block group variance = 1.164, reliability = .483, intercept df = 486, other df = 24,422)			

*$p < .05$; **$p < .01$

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