Responses to Disorder: Relative Impacts of Neighborhood Structure, Crime, and Physical Deterioration on Residents and Business Personnel

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September 1995

Final report for grant 94-IJ-CX-0018 from the Office of Justice Programs, National Institute of Justice. Points of view or opinions in this document reflect solely the author's opinions, and do not necessarily represent the opinions or the official policies of the Department of Justice or the National Institute of Justice. I also received support from grant 93-IJ-CX-0018 during the course of this project. Data analyzed here were originally collected by Marlys McPherson and Glenn Silloway under grant 80-IJ-CX-0073 from the National Institute of Justice while they were affiliated with the Minnesota Crime Prevention Center, and were provided by the ICPSR at the University of Michigan. I thank Pamela Lattimore, without whose support this project would not have been possible. Grant Snyder provided invaluable field assistance. Joachim Savelsberg also encouraged and supported this project in various ways. David Linne, Ruth Eichmiller and Mary Poulin assisted in data processing.
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Abstract

We examine impacts of physical deterioration, neighborhood structure, and crime on a range of responses to disorder among residents living near (n=870) and business personnel working (n=210) in 24 small commercial centers (SCC) in Minneapolis-St. Paul. We use hierarchical linear models (HLM) to separate between-person from between-location variance in outcomes. We examine impacts of perceived crime-related problems on between-person outcome variance, and assessed incivilities and local crime rates on between-location outcome variance. It appears that for all six outcomes based on the resident surveys, and for three out of four outcomes based on the merchant surveys, significant outcome variation between-locations exists. Perceived incivilities consistently influence between-person outcomes, as hypothesized. Assessed incivilities, and local crime rates, however, generally fail to dramatically influence between-location outcome variance. Assessed incivilities and crime apparently fail to predict responses to disorder for either or both of the following reasons: each is strongly correlated with at least one dimension of neighborhood structure; in addition, for several resident-based outcomes, after controlling for neighborhood structure, no significant between-location, unexplained variance in the outcome remains. Further, for the merchant surveys, in two cases impacts of physical or behavioral features related to incivilities demonstrated causal impacts opposite what has been predicted by resident-centered theory. Results confirm Miethe's (1995) earlier conclusion that research has not yet shown impacts on assessed incivilities on fear of crime and perceived risk. The strong, consistent impact of perceived incivilities, coupled with the weak or unexpected impacts of assessed incivilities, or of features related to incivilities, raises several theoretical and policy-related questions. Are perceived incivilities and assessed incivilities tapping the same underlying phenomena? If assessed incivilities contribute minimally to responses to disorder after controlling for community fabric, perhaps more attention should be focused on maintaining community fabric, rather than on reducing incivilities.

STATEMENT OF THE PROBLEM

Using Census, crime, survey, physical assessment, and behavioral observation data collected in subneighborhoods surrounding 24 small commercial centers (SCCs) in Minneapolis-St Paul in the early 1980s, we will focus on the contextual and individual determinants of individual-level commitment to locale, informal social control, and responses to crime such as perceived risk and fear of crime. We seek to pinpoint the independent contributions of three classes of neighborhood-level factors to these individual-level outcomes: neighborhood structural conditions, crime, and physical and social incivilities.

Conceptual work suggests each of these classes of contextual factors play key roles in spurring neighborhood decline. Crime, of course, itself has a destabilizing impact on neighborhood viability (Taylor, 1991). Recent analyses over the last 10 years suggested that physical (e.g., litter, graffiti, abandoned buildings) and social (e.g., noisy or unruly teens, people "hanging out") incivilities can accelerate processes of neighborhood decline (Skogan, 1986, 1990). Landuses such as bars can be sites of increased crime, perhaps because of the routine activity patterns surrounding such locations (Roncek & Bell, 1981).

Work to date, however, has not specified the independent contributions of each of these classes of factors. We do not know, controlling either for current or changes in neighborhood structure, if landuse, neighborhood crime rates, and incivilities such as litter and abandoned buildings have an independent deleterious impact on outcomes such as fear of crime or commitment to the locale. Nor has work pinpointed the exact elements within each class that might contribute more substantially to outcomes related to neighborhood destabilization. Nor has it examined how such neighborhood-level factors might have stronger impacts on some types of residents. We address each of these issues in the proposed research.

BRIEF COMMENT ON BACKGROUND WORK

In this section we briefly review some key recent work relating neighborhood structure, crime, and physical deterioration to measures of commitment and responses to disorder.

Neighborhood Structure

Factorial ecology identifies three orthogonal dimensions of neighborhood structure, and three comparable dimensions of neighborhood structural change. Socioeconomic status can be reflected in variables such as average house value, average educational level, percent of professional or managerial workers, and average household income. Race and youth composition can be reflected in variables such as percent of African-American households, or percent of persons under 18 years of age. Stability can be reflected in the percent of owner occupied households, the percent of married households, or the percent of one-unit housing structures (Hunter, 1971, 1974a, b).

Crime and delinquency

Work on the geography of crime and justice connects each of these dimensions, cross-sectionally, to crime (Harries, 1980; Sampson & Lauritsen, 1994: 63 - 64), with several types of crime being higher in less stable, lower income, and more predominantly African American or more predominantly Hispanic communities, or more heterogeneous communities.

Work also has connected change on each of these dimensions with changes in crime, in accord with the ecological model of social disorganization promulgated by Shaw and McKay (Shaw & McKay, 1942), and others (Bursik, R. J., 1988). Changes in status have been linked to changes in violent and property crime (Covington & Taylor, 1989; Taylor & Covington, 1988). Changes in racial composition connect with changes in delinquency rates (Bursik, R. J., 1986; Bursik, R. J. & Webb, 1982). Changes in stability couple with changes in violent crime (Taylor & Covington, 1988).

Rapid neighborhood changes result in crime or delinquency changes because local social disorganization increases, and residents are increasingly unable to effectively address local problems. Bursik and Grasmick (Bursik, R. J.,Jr & Grasmick, 1993) recently synthesized an expanded social disorganization model. The central concern of their model is social control. "The central underlying dynamic of neighborhood social control is to attempt to protect the area from threats that may undermine its regulatory ability" (Bursik and Grasmick 1993:15). Their **systemic model of crime** goes beyond the social disorganization model in two important ways. First, they clearly separate disorganization from the consequences of disorganization, a confusion that has haunted some earlier formulations of the theory (Bursik and Grasmick 1993:34). Second, they extend social control dynamics to more micro- and macro-scales by including, respectively, family dynamics and extra-neighborhood dynamics such as how neighborhood leaders relate to city hall. In their expansion, based on Hunter's (Hunter, 1985) classification, social control refers explicitly to multi-level processes: dynamics in the household, on the streets of the neighborhood, and between local leaders. Hunter calls these private, parochial and public levels of social control.

The theoretical kernel of the systemic model of crime can be stated as follows (Bursik and Grasmick 1993:39). Neighborhood socioeconomic composition influences residential stability and racial and ethnic heterogeneity in the neighborhood. Racial/ethnic makeup and stability then influence the three levels of social control. These processes, in turn, influence socialization of youth, and the crime rate in the locale. The authors cite a range of recent research supporting their general formulation. Bursik and Grasmick (1993:102) show how their general systemic model of neighborhood crime is fully consonant with Skogan's disorder model, discussed below.

Fear of crime and other responses to crime

Community structure also helps predict responses to crime, such as fear of crime. Fear appears more prevalent in less stable, lower income, more predominantly African American, and more racially heterogeneous communities (Covington & Taylor, 1991; Ferraro, 1994; Merry, 1981; Miethe, 1995; Taylor, Gottfredson, & Brower, 1981, 1984). Of these different dimensions, and in accord with predictions of human ecologists (McKenzie, 1921), stability may be the dimension of community structure with the strongest impact on fear of crime (Taylor, in press).

Community structural change also can inspire fear, if it is rapid. But it is not clear if the increased fear derives from the change itself, or changes that may beset a community after it has experienced rapid change. For example, rapid racial change may be associated with higher subsequent daytime fear levels (Taylor & Covington, 1993). It appears that the emerging racial composition, and its close relationship with physical deterioration and unsupervised teens (Sampson & Grove, 1989) is responsible for the higher fear, not the change per se.

Crime rates, and victimization experience, also help predict fear (Dubow, McCabe, & Kaplan, 1979; Skogan & Maxfield, 1981; Taylor & Hale, 1986) but the connection is not always overwhelmingly strong, does not appear consistently (e.g., Covington and Taylor 1991), and leaves ample room for additional explanatory factors.

Fear of crime and individual level factors

Fear appears stronger among: older persons, women, African Americans, those with less education, or lower income levels, those with fewer friends in a locale, recent victimization experience, weaker ties to the community, or stronger concerns about local disorder-related issues (Ferraro, 1994 for a review).

Interactions between individual and contextual factors

Over the past decade, several proposals suggest or imply contingent impacts of individual level factors on fear. In terms of **age**, Maxfield (Maxfield, 1984) found evidence in three San Francisco neighborhoods indicating that impacts of age on fear were stronger in higher crime neighborhoods. Regarding **perceived incivilities**, Lewis and Salem (Lewis & Salem, 1986) suggested that perceived incivilities (see below) would have a stronger impact on fear in higher crime neighborhoods. Warr (Warr, 1984, 1985, 1990; Warr & Stafford, 1983) found that women were more sensitive to threatening stimuli, such as dark scenes. Extrapolating to actual situations, women as compared to men may be more sensitive to recent ecological changes, if they are so rapid as to be threatening. Stanko argues along similar lines that women are more aware then men of potentially threatening settings (Stanko, 1995: 52), although this greater awareness is little recognized. The analyses we will conduct here allow systematic assessment of each of these hypothesized interaction effects.

Physical Deterioration

In the last decade researchers have investigated extensively the effects of signs of disorder on community viability, fear of crime, community crime, and victimization (Hunter 1978; Wilson and Kelling 1982; Lewis and Salem 1986; Taylor 1987; Greene and Taylor 1988; Perkins, Meeks, & Taylor, 1992; Perkins, Wandersman, Rich, & Taylor, 1993). Signs of disorder include disorderly behavior on the street, such as public drug dealing, "hey honey" hassles, fighting, rowdy behavior by teens or large volumes of them, and a variety of indicators of physical deterioration: vacant houses, trash filled lots, buildings not well maintained, litter, graffiti, and abandoned stores. Although the proposed causal dynamic has been stated in different ways, the central sequence can be stated as follows. Unrepaired physical deterioration, and disorderly behavior on the street allowed to continue, arouses residents' concerns for their personal safety. They retreat from the public arena, removing the "eyes on the street" essential for public safety (Jacobs, 1961). Local miscreants, further emboldened, continue to "trash" the environs, and graduate to petty street crime. Eventually, offenders from outside the area migrate into it, perceiving the opportunities and lack of natural guardians there.

Work to date has used either assessed measures of incivilities, or perceived measures. The assessed measures come from ratings made by on-site teams of raters of specific features of streetblocks or neighborhoods. The perceived measures most typically come from resident surveys where residents rate the severity of different problems. Often the outcome measures such as fear come from these same surveys, so that incivilities and outcome measures share method variance.

Results using assessed indicators for incivilities confirm that: they do relate to perceived measures, and to perceptions of crime related problems (Perkins, Meeks, & Taylor, 1992); they correlate modestly with fear (Maxfield, 1987; Skogan, 1990), and much more strongly with crime and neighborhood structure (Taylor, Shumaker, & Gottfredson, 1985). Results using perceived indicators find stronger correlations with fear (Covington & Taylor, 1991). Both assessed and perceived indicators may contribute independently to fear of crime (Covington & Taylor, 1991).

Skogan (1990) recently provided an extended theoretical and empirical investigation of how these signs of disorder influence crime and fear at the neighborhood level. It is worth closely examining his thesis, and results, since they have garnered significant policy attention.

Skogan's variant of the incivilities thesis (1986, 1990:2) focuses on neighborhood change as the ultimate outcome of interest. Labeling incivilities as disorder (1990:2), he "argues that disorder plays an important role in

sparking urban decline." Incivilities spur neighborhood decline because they influence a range of psychological, social psychological and behavioral outcomes such as, respectively, fear, informal social control, and offender immigration and resident outmigration. In short, according to Skogan, physical and social incivilities engender a range of consequences that result, ultimately, in neighborhood decline.

He is clear about the processes mediating the connection between incivilities and neighborhood decline. First, incivilities undermine informal social control. "Disorder . . . fosters social withdrawal, inhibits cooperation between neighbors, and discourages people from making efforts to protect themselves or their community" (Skogan 1990:65). Second, it "sparks concern about neighborhood safety, and perhaps even causes crime itself. This further undermines community morale" (Skogan 1990:65). Third, incivilities "undermine the stability of the housing market" (Skogan 1990:65).

Skogan states clearly that signs of incivility play an important part in this process. "Disorder can play an important, **independent** role in stimulating this kind of urban decline" (Skogan 1990:12, emphasis added).

What evidence does Skogan use to support his thesis? He joined data from different studies spanning 40 neighborhoods in six different cities, originally gathered between 1977 and 1983. Eighteen of the different study areas are Chicago natural areas, some of which were surveyed three times (Skogan 1990:188). He operationalizes incivilities using subjective, survey-based responses where respondents said how serious they perceived different incivilities to be in their own neighborhoods. He analyzes neighborhood level outcomes using simple and multiple regressions. Treating the time of the surveys as roughly comparable, he analyzes all the data in a cross-sectional design.

Skogan examines the causes of incivilities (Skogan 1990:60, Fig. 3-3). He finds that nonwhite neighborhood racial composition, poverty, and instability are all linked to higher incivility levels. He also examines a range of consequences of incivilities. In neighborhoods where incivilities are perceived to be more intense neighbors are less willing to help one another (Skogan 1990:71), robbery victimization is more extensive (Skogan 1990:75), residential satisfaction is lower, and more people intend to move (Skogan 1990:82).

The analyses presented by Skogan, however, fail to make the case, definitively, that incivilities spark neighborhood decline for three reasons. First, the data analyzed are cross-sectional, and thus cannot be used to provide a definitive test of what is in essence a longitudinal argument. Second, the data merged by Skogan contain two levels of aggregation: between cities, and between neighborhoods. In his analyses he does not separate these two levels of covariation. It is clear from several scatterplots that between-city differences are substantial. It is not unusual in a scatterplot to find all the neighborhoods from one city at the extreme end of the regression line, well separated from the neighborhoods of other cities (e.g., Fig. 4-1, p. 71; Fig. 4-2, p. 74). Consequently, we do not know how much of the results reported by Skogan emerge from between-city differences, and how much emerge from between-neighborhood differences. Since the incivilities-decline theory is clearly couched at the neighborhood level, to provide a definitive test of the model we need data gathered from a large number of neighborhoods in <u>one</u> city, or, alternatively, to control for between-city variation in multicity data sets. Third, Skogan's analyses rely upon subjective estimates of the extent of incivilities, rather than assessments of site features made by trained raters. He argues that residents' "reports [of incivilities] can be treated with confidence as indicators of actual conditions" (Skogan 1990:55). The use of these proxy measures is unwise for several reasons. First, as mentioned above, they are drawn from the same source of information as is used for the outcome measures. Their common source may inflate their correlations

somewhat (Campbell & Fiske, 1959). But the more compelling reason has to do with policy. Community police officers, working as ombudspersons, seek to alter extant conditions, not people's perceptions of problems. Their goal is to remediate the problems that exist in the community that contribute to a disorderly and fear-inspiring residential setting. Therefore, from a policy perspective, we want to know what impacts these observed conditions, which will be the focus of community policing efforts, have on residents.

Skogan's evidence deserves consideration in two contexts. First, has he made a persuasive case that incivilities link cross sectionally to outcomes like fear of crime at the neighborhood level? I would suggest that the case be probably not persuasive for several reasons. (1) Perceived rather than assessed indicators are used. As long as we stick with measures of perceived rather than assessed conditions, we will not know what the impacts are of conditions observed on the street. (2) Between-city covariation is not separated from between-community covariation. It seems plausible that between-city differences could be contributing somewhat to the incivilities-fear covariation observed at the neighborhood level. (3) Finally, perceived incivilities correlate extremely strongly with some aspects of neighborhood structure (e.g., > .80 between unemployment and perceived incivilities). Under such conditions it is extremely difficult to separate ecological structure from perceived incivilities. Second, results can be viewed in a longitudinal context. I think here the case is definitely not persuasive because longitudinal measures are not used.

Summary Statement of Specific Issues to be Examined

In sum, we seek to establish the independent impacts of crime, neighborhood structure, and observed physical deterioration on commitment to the locale, expressed in attachment, responses to crime such as fear and perceived risk, and informal social control, as expressed in territorial responsibility. We will analyze survey data from residents, and from business personnel as well. We will use hierarchical linear models to separate effects due to differences between people from effects due to differences between locations. For descriptive purposes only, we will use measures of structural change, as well as measures of current neighborhood structure.

SETTING AND DATA SOURCES

Overview and Setting

We use a set of ICPSR files gathered by Marlys McPherson, Glenn Silloway and David Frey of the Minnesota Crime Prevention Center in the early 1980s in Minneapolis-St. Paul (McPherson & Silloway, 1984; McPherson, Silloway, & Frey, 1983). The initial research project funded by NIJ examined the connections between different types of commercial landuse, crime, and resident attitudes toward and use of the small commercial centers.

Minneapolis and St. Paul are two adjoining cities straddling, respectively, the west and east banks of the upper Mississippi River. They are typical, large Midwestern cities with a significant degree of social problems. In 1980 the cities totaled a population of 726,953, with significant African American and Asian communities. Substantial poverty exists. 16.1% of all persons were placed below the poverty line, and 25.7% of all children were below the poverty line. Many families were headed by a female (34.5%). Significant income inequality is present. The 1989 per capita income was $16,818 for Whites whereas African Americans reported a per capita figure less than half of that, $7,930. Recent figures also show significant residential instability. 54.3% of occupied housing units are rental, and 55.3% of householders reported a length of residence of five years or less. The reported total crime rate for Minneapolis for 1989 was 5,797/100,000

inhabitants, while the national rate was 5,741/100,000. The typicality of the site suggests that findings may have broad policy applicability to other cities.

Units of Analysis

Of central interest to the original researchers was the relationship between the small, commercial centers (SCCs) and the surrounding neighborhoods. In the first stage of their project they completed on-site assessments of landuses in 93 small commercial centers in the two cities. They categorized commercial development not located in shopping centers as belonging to one of three types: strip, strip-node, or node.

Several streets in both cities have significant volumes of commercial activity located along major arteries. On some streets the commercial development is continuous for miles. University Avenue typifies this situation most dramatically. Starting in Minneapolis, on the east bank of the river near the University of Minnesota East Bank campus, one goes southeast and then east to the state capital, viewing only commercial landuse for well over five miles. The mix changes, to be sure, but there are no readily discernible "seams" in the development, and industrial and institutional land use mixes in with commercial development. One sees abandoned grain silos and convenience stores; micro breweries and used car lots. They labeled this strip development. Because there were no clear breaks in this development, in the first phase of their project researchers arbitrarily defined strip segments of a certain length, and gathered information on a random sample of those strip segments.

With the other two types of commercial centers they gathered information on the full population of cases in the first phase of their research. On other streets commercial development also is spread along major arteries, but is not continuous. It occurs at intersections of a major artery, and is oriented largely to the main artery, but with some residential development between the different centers. They called these strip-node centers. The final type of center was a node, with commercial development on all four corners, clearly centered on a specific intersection, and at least two surrounding blocks of residential landuse.

The 93 SCCs assessed in the first phase of their project comprised all node and strip-node SCCs, but only a sample segments of strip SCCs. In effect, it is a subpopulation of non-shopping center commercial developments. Given the layout of commercial development in the Twin Cities, resources for the original project, and the volume of commercial activity along main arteries, this represented a reasonable strategy.

Around each SCC they defined an adjoining neighborhood: census blocks within .3 miles of the commercial center, and usually containing about thirty census blocks. In making these definitions they also considered natural boundaries such as highways, water, and landuse changes.

In Stage II of their research they focused on a stratified sample of 24 SCCs and their adjoining neighborhoods. Unfortunately, detailed boundaries for these surrounding neighborhoods were not available. We traced the boundaries as best we could using their map of sampled areas, and an available street map. Generally, the neighborhoods defined represent compact areas with layouts making it plausible that people would shop at the commercial center in their center.

Sampling

In the first stage of their project they collected on-site and crime information for ninety-three small commercial centers in both cities. The centers in Stage I included all node and strip-node centers, but only a sample of strip segments.

For the second stage of their project they selected a stratified sample of small commercial centers, drawn from the population of node and strip-node SCCs. So strip segments were dropped at this point. The subpopulation of fifty-six eligible centers was stratified on three parameters: percent minority change in the neighborhood 1970 - 1980, personal crime rate in the center and adjoining neighborhood, and level of physical deterioration observed in the centers by raters. Splitting each stratification variable at the median, and randomly sampling an even number of centers from each of the eight cells, resulted in a sample of 24 SCCs.

The locations of these twenty-four sampled SCCs are depicted in Figure 1; the scores of each center on the stratification variables appear in Table 1. Both are reprinted from (McPherson, Silloway, & Frey, 1983).

-- Insert Figure 1 about here --

-- Insert Table 1 about here --

Representativeness of sampled SCCs

We compared the sampled 24 SCCs with the subpopulation of ninety-three SCCs including all strip-node and node centers. Results of these z tests appear in Table 2. For all characteristics assessed, save one, the sampled twenty-four are nonsignificantly different from the subpopulation of ninety-three. The only significant difference is in volume of vehicular traffic on the main artery through the center. But if we restrict the subpopulation to just the fifty-six centers that are either node or strip-node centers, and exclude the strip segment centers, then this difference is nonsignificant. In short, the sampled SCCs, and the neighborhoods surrounding these 24 SCCs, appear perfectly representative of the larger subpopulation of 93 SCCs.

-- Insert Table 2 about here --

Behavioral observations

Researchers conducted extensive behavioral observations over several weeks in each SCC, classifying users by age, sex, race, and type of activity. The observations allow us to construct measures of social incivilities such as people hanging out. The observation times included weekday mornings (15% persons observed), weekday noontimes (19% persons observed), weekday afternoons (17% persons observed), weekday rush hours (21% persons observed), Saturday middays (20% persons observed), and a Friday or Saturday night, starting around 10:00 p.m. (8% persons observed). In total, 7,110 persons were counted in the twenty-four centers. Each center was visited for at least forty-eight and no more than fifty different observations during this summer period.

For the present analysis we constructed three measures from the observations that tap social incivilities (see Table 6). These include the percent of people categorized as "nonpurposeful" -- pedestrians in the center who were not clearly shopping, and not clearly passing through -- and the percent of teenagers. We also constructed a measure of social "civility" which was the percent of single women observed in the center. If residents feel safe in the center, women will feel comfortable walking there unaccompanied. Since the bulk of the observations was made during weekdays, we do not think these counts reflect many streetwalkers.

Resident Survey and Sample Characteristics[1]

Researchers conducted a telephone survey in August and September 1982 of adult residents (1/household, randomly selected) surrounding each SCC (average = thirty-six interviews per SCC, total N=870).

The sampling frame was constructed from the reverse telephone directory, published the month before the interviewing. First, within each adjoining neighborhood, the available numbers were divided into the three different zones (near, medium, or far distance from the commercial center). Then the numbers within each zone were divided into eleven or twelve equal sized intervals. Choosing a random start within an interval, interviewers contacted households until an interview was completed, then moved on to the next interval. This procedure assured that the twelve or eleven respondents within each zone around each SCC were geographically dispersed. Calls were made during weekday, weekday evenings, and weekend hours.

Beyond the main wave of interviews, an additional thirty interviews were conducted with minority group members in neighborhoods with more than 10% minority population.

Eligible respondents were defined as those eighteen and over. Interviewers first attempted to interview the youngest male in the household.

The overall resident survey completion rate was 54%.

Comparing survey profiles for each neighborhood with 1980 census profiles for each of the same areas, and taking into account the substantial volatility of some of these areas in the early 1980s, suggests moderate agreement between the two on the three ecological dimensions of race, stability, and income. The following Pearson correlations were obtained:

> .47 between percent nonwhite in 1980 and percent nonwhites interviewed in each neighborhood
>
> .49 between proportion owner occupied housing units in 1980 and percent home owners interviewed in each neighborhood
>
> .32 between z scored average household income in 1980 and average reported income by respondents in each neighborhood. Income, however, had a sizable nonresponse rate (16.3%, n=142) on the survey.

The respondents (n=870) had the following characteristics: an average of 13.4 years at the current address (median = 9); an average age of 43.5 years (median=37); 75% owners, 25% renters; 89% were white, 7% were black, and the rest belonged to other ethnic groups; 55% were women, 45% were men; 38% of the households reported having one or more children under 19 at home when surveyed; 55% of the respondents were from married households; 89% of respondents had completed high school and 28% had completed college; 41% of respondents were employed full time when interviewed; average household income for the prior year was between $20,000 and $30,000.

For Level 1 predictors we used mostly dummy scored variables or z scored variables. A dummy variable was used for women (FEMALE) and living alone (ALONE). We experimented with dummy variables discriminating those with high school or college degrees, but ended up just using Z scored years of schooling completed, after logging. Similarly for age, we used the z scored variable, after logging. For victimization, the survey asked three questions about victimization in the past year. Residents were asked (Q58) if they had been "held up on the street, threatened, beat up, or anything of that sort?"; if

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[1] This information about resident and business survey procedures is drawn from McPherson, Silloway and Frey (1983, pp. 34 on).

their "home has been broken into? (Q59)"; and if they had "been the victim of any other crime during the past year?" (Q60). 27 (3%) reported being the victim of a street crime; 98 (11%) reported being the victim of a break-in, and 102 (12%) reported being the victim of another type of crime. Each of these dummy variables was z scored, and then averaged to get an overall victimization index. Of those who had been the victims of a street crime, ten reported that it had occurred somewhere in the neighborhood, and only one reported that it had happened in the center.

Business Survey and Respondent Characteristics

Researchers also interviewed business persons in 1982 from 50% of the sampled businesses in each SCC. Across the 24 SCCs there were 438 commercial landuses, and researchers obtained a total of 213 interviews. Respondents were either business owners (66%) or managers. The refusal rate was 23%. Businesses were randomly selected, except for bars and restaurants. For the latter, researchers attempted to interview a person in each establishment. Each sampled business was contacted up to three times as needed. If an interview was still not completed after three attempts, the business was dropped from the sample. Interviewers were hired and trained for these interviews, and the in-person interviewing was completed between September and October of 1992.

Respondents in the business survey (n=213) had the following characteristics: 66% were owners, 27% were managers, and the remaining 7% held other positions; respondents had been working for the establishment an average of 9.6 years (median=6, range=0 to 50); on average their business had been located in the center for 19.5 years (median=12); 67% of respondents were male, 33% female; ethnicity was predominantly (91%) white, with 5% African American; average age was 42 (median=40); 88% had completed high school, and 29% had completed college; average household income, reported only by 74% of the sample, was between $20,000 and $30,000.

The businesses of respondents tended to be small. The number of full time employees in the establishment averaged 4 (median=2), and the number of part time employees averaged 3.8 (median=1). A third of the respondents reported gross profits from the preceding twelve months of less than $100,000, and only 13% reported gross profits over $500,000.

Crime Data

Researchers aggregated address-level reported crime information for calendar year 1980 (St. Paul) or the period 8/1/80-7/31/81 (Minneapolis). Two crime indices for each SCC were constructed: a **commercial crimes** (ZCOMCRMR) index, and a **personal crimes** (ZPRSCRMR) index. The commercial crime rate was the average of the following z scored crime rates/1,000 businesses: commercial burglary, robbery (including service station, convenience store, and bank) and shoplifting. The personal crime index was the average of the following z scored personal crime rates per 1,000 population: robbery, rape, assault, and personal theft.

Neighborhood Structure and Structural Change

1970 census data, 1980 census data for populations only, and 1970-1978 change data based on small-area estimates using census data were also gathered and aggregated by the original researchers. In working with these variables we first attempted to transform them to as nearly normal distributions as possible, then z scored them. The measures are listed in Table 3.

-- Insert Table 3 about here --

We have cross-sectional measures for all three ecological dimensions of neighborhood fabric: stability, status, ethnic composition. But we only have change dimensions for two out of three of the dimensions from factorial

ecology: race and stability. It was not possible to construct a decent measure of status change, although information on house prices was available. It was not possible to use a measure of changes in house value because between 1970 and 1980 so many lower value areas had increased so dramatically. McPherson et al. (1983: 22) comment:

> [T]he housing value change measure is distorted in the fact that the unusual housing market of the 1970's produced relatively large gains in low-end housing in many areas in Minneapolis and St. Paul. It is not clear whether these gains were due to speculation, inner city revitalization projects, or simply the frantic scramble of first-time home buyers to join the middle class. The effect is to make the indicator an unreliable estimate of neighborhood economic conditions or class composition.

Table 4 lists 1970 house values for each neighborhood, and two indicators for 1980 house values. The 1970 value is based on interpolated 1970 census data, based either on block group or tract level information (presumably the former). One 1980 indicator uses a comparable census estimate from the 1980 figures. Another 1980 indicator is based on assessors' files purchased by the researchers and aggregated. Although the two 1980 indicators agree relatively closely in many locations, they provide markedly discrepant figures in a few sites. Most notably, at 15th and Nicollet (Minn.: 830) and Selby and Western (St. Paul: #200). These large discrepancies are understandable in these two different locations. At 15th and Nicollet, just below the central business district, there are few owner occupied houses; the area is dominated by large apartment buildings. With so few owner occupied houses, estimate procedures could easily be widely discrepant from assessed values. At Selby and Western, the area was beginning to undergo extensive gentrification around this time; in such a location assessed values are likely to lag behind what owners think they can get for their property.

Table 5 ranks each neighborhood based on these house values. Ranks are of interest given our ecological orientation. Ecological processes address how communities change their role in a given urban area. Ranks tell us how a community scores compared with other communities in the same locale. Large changes in a neighborhood's rank between 1970 and 1980 show dramatic changes in the role that neighborhood plays in the larger arena, during that time. Again, as we can see looking at the ranks, which indicator we choose for 1980 strongly influences the ranks of some locations. Most notably, if we use the census estimate rather than the assessed value, 15th and Nicollet is the highest priced area in 1980, rather than being the 9th highest ranked in house value.

-- Insert Tables 4 and 5 about here --

We can better grasp these changes if we graph these 1970 and 1980 ranks. Figure 2 does so using the assessors' offices figures for 1980; Figure 3 does so using estimated census values for 1980. On each of these figures, a lower rank shows a higher average house value. Further, on both figures, if there were no changes in relative position of the twenty-four neighborhoods during the decade, the values would line up perfectly along a 45-degree line ascending from the bottom left to the top right. If a neighborhood increases dramatically in house value, relative to other neighborhoods during the period, it will appear below such a diagonal. The further below such a diagonal it appears, the more dramatically it has increased, relative to other neighborhoods. If a neighborhood loses house value dramatically, relative to other neighborhoods, its data point will appear above the ascending diagonal;

the further above it appears, the more dramatically it has lost relative value.

-- Insert Figures 2 and 3 about here --

Unfortunately, both figures do not represent perfectly comparable pictures of ecological change in status, as captured in house value. But there are many points where the two pictures of change appear roughly comparable. Both figures suggest dramatic relative increases in status for the following areas: 15th and Nicollet (830), 20th and Selby (200), Grand and Fairview (160), and 54th and Nicollet (750). Both figures also suggest dramatic relative decreases in relative value for: 28th St. and 42nd Ave (970), and 38th St. and 23rd. Ave (810), both in Minneapolis. Both figures also agree in suggesting little change in many neighborhoods: 640, 770, 740, 260, 730, 40, 950, 450, 670, and 910.

Some notable discrepancies are as follows. Census values for 1980, but not assessed values, suggest dramatic relative increases in house value for Penn and Cedar Lake (590), an isolated, middle to upper-middle income area in far western Minneapolis. Observations and conversations with residents and police personnel in that location suggest that the area has "come back" in the last ten to twenty years. Census but not assessor 1980 values suggest dramatic relative decline at Baker and Smith (350) in South St. Paul. On site observations in this heavily Hispanic section of the city, including vacant lots, a closed movie theater, a vacant store, and several marginal looking businesses, suggests the decline may indeed have been dramatic during this earlier period.

In sum, because of these discrepancies between these two measures, and lacking any compelling rationale for choosing one over the other, we do not have a clear indication of ecological changes on the status dimension. In short, we can assess ecological change only for stability and ethnic composition.[1] This data situation prohibits rigorous testing of any hypotheses about impacts of ecological change on responses to disorder.

Considering this development, we opted to explore impacts of ecological change only on a few outcomes, pursuing the analysis of change impacts for purely descriptive purposes.

On site Assessments

In 1981, researchers visited each of the 93 SCCs in the subpopulation and recorded landuse and physical deterioration. In Stage II of the project researchers returned to each sampled SCC a year later -- 1982 -- and observed incivilities and landuse changes since the earlier observation. These incivilities measures cover the standard items addressed by the incivilities model such as litter, graffiti, and vacant stores, either for sale or rent or boarded up. The data also provide measures of the buildings in bad condition, and raters' assessments of the economic vitality of the locale. Again, with the landuse variables, we attempted initial transforms to approximate

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[1] Another option we explored was using census tract level data to describe each neighborhood. We found, however, that in more than one case a census tract covered more than one neighborhood. Therefore, we could not use census data and still have completely independent measures of community fabric across the 24 locations. In addition, use of tract level data expands the area around each commercial center well beyond the confines of the original neighborhoods defined by the researchers. Another alternative we did not explore due to lack of funds, was geocoding block group level data to the specific neighborhoods. This would be a viable option for a future project.

normality, before z scoring the variables. Measures from these assessments that are of potential interest given our focus, appear in Table 6.

-- Insert Table 6 about here --

We point out that many features were assessed by raters. Therefore, should we find that assessed features contributed minimally to explaining outcomes, it seems unlikely that the poor results would be due to assessing too few dimensions of physical deterioration and social disorder.

Of course, questions arise regarding data quality for the assessments. Researchers do not report inter-rater reliability. It is possible, however, for measures assessed in the same way in 1981 and in 1982, to calculate test-retest reliability. We have done so and it was acceptable.

In our analyses, graffiti emerges as the assessed feature most closely correlating with several outcomes after controlling for individual-level sociodemographics in exploratory OLS multiple regressions. Test-retest reliability for this measure was .76 (Cronbach's alpha). Comparably decent reliabilities also appeared for other features assessed twice. For example, the n of boarded up units in the centers yielded a test-retest reliability measure of .85. In short, although we do not have measures of inter-rater reliability for assessed features in the SCCs, data quality appears more than acceptable.

DEPENDENT VARIABLES

Resident Survey

From the resident survey we constructed indexes representing our outcome variables. The items contributing to each index, and the internal consistency of each, appear in Table 7.

-- Insert Table 7 about here --

Three of our dependent variables capture perceptions of vulnerability to potential street crime or property crime. We constructed a fear and worry index (FEARWORY) focusing on perception of vulnerability while out and about in the neighborhood. The index also includes and item tapping worry about personal property crime. Although in prior work (e.g., Taylor & Hale, 1986) we and others have separated worry from fear, including worry and fear together allowed us to generate an index with an acceptable level of internal consistency. If we separate them we are unable to construct an acceptable index.

The same fear and worry questions were asked with respect to the small commercial center itself, tapping the respondent's concerns specifically while in that location (SCCFRWRY), or his or her concerns about problems coming from that center. Since potential respondents who did not know about the center were excluded from the interviews, respondents were answering based on experience in the center.

Two items asked residents about their own, and other neighbor's chances of being beaten up while in the neighborhood. Combining these two items

resulted in an index of perceived risk (PERCRISK) with marginally acceptable internal consistency (SCCFRWRY).[3]

Two indexes assessed residents' involvement with their locale. One index (ATTACHED) focused largely on the respondent's attachment to the neighborhood, asking how committed and involved he/she felt. It also included items asking about overall satisfaction, and investment potential in the neighborhood. Attachment to place deserves to be examined here because several authors have proposed or observed that disorder (Taylor, Gottfredson, & Brower, 1985), or physical deterioration (Wilson & Kelling, 1982) will reduce how closely connected people feel to their neighborhood.

The other aspect of involvement examined was respondents' perceived informal control over public locations on their block (TCBLORSP). These territorial cognitions focus on how much responsibility and control the respondent thinks he/she has over events occurring on his/her block. The incivilities' thesis argues that deterioration occurring in a locale should erode residents' ability and willingness to informally monitor and manage events occurring on the sidewalks (Wilson & Kelling, 1982). Work on the ecology of disorder generally suggests that if crime is higher in a locale, in response to, and facilitating that disorder, resident-based, informal control will weaken (Kurtz, Koons, & Taylor, 1995).

One final index, used as a predictor in some equations, but also worthy of investigating as an outcome in its own right, addressed residents' perceptions of disorder and disorder-related problems in the small commercial center (SCCPROBS). These perceptions of disorder have been extensively examined by Skogan (Skogan, 1990) and others.

The raw correlations between these dependent variables appear in Table 8. The strongest correlations are between our three variables addressing vulnerability. Concern in the neighborhood correlates strongly with concern focused on the center (.55). Both fear-worry indexes correlate relatively strongly with estimated risk of street crime victimization (.48, .39). Perceived incivilities in the center correlate moderately with all the other outcomes, yielding rs ranging from .38 to -.30. Not surprisingly, the strongest correlation is with the other index also focusing on the center itself (SCCFRWRY).

-- Insert Table 8 about here --

The two indexes addressing person-environment transactions, attachment and informal control, correlate moderately with one another (.29). In general, each correlates more weakly with the reactions to disorder.

The raw correlation matrix suggests that our different outcomes, although modestly to moderately correlated with one another, do not consistently correlate strongly with one another. No correlations are so strong as to suggest we are addressing different aspects of the same construct. Therefore, rather than collapsing outcomes by means of principal components analysis, we think it is worthwhile to investigate each outcome on its own.

Business Survey

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[3] Internal consistency of the index may have been low in part because of potentially confusing wording on one question, making reference to both the street and the neighborhood. Even though the question was asking about street crime in the neighborhood, some respondents may have thought the item was asking about chances of being victimized on their own street.

We focused on four outcomes from the business personnel surveys. Three of the outcomes are closely comparable to outcomes from the resident surveys: an index assessing fear and worry while in the center, an index assessing perceived risk of victimization, and an index assessing perceived problems in the center. The business interviews included several items examining steps residents took to protect their businesses, and these were used to construct a fourth index of protection. The items in each index, and the consistency of the index, appear in Table 9. The correlations between the dependent variables appear in Table 10. As with the resident surveys, perceived risk and fear/worry correlate relatively strongly among business personnel (.52). Perceived risk also correlates strongly with perceived problems in the center (.43). The remaining correlations, although substantial, are smaller than these. Again, given correlations not suggesting strongly overlapping constructs, we opted to analyze each outcome separately.

-- Insert Tables 9 and 10 about here --

ANALYTIC APPROACH

Rationale for Using HLM

Hierarchical linear models (HLM) represent a family of models specifically devoted to analyzing hierarchical data where individuals are nested within larger units such as students in schools (Bryk & Raudenbush, 1992; Bryk & Thum, 1989). They also have been applied to changes in individuals over time (Bryk & Raudenbush, 1987; Raudenbush & Chan, 1992, 1993). Combining maximum likelihood and empirical Bayes estimation techniques they separate out between-group from within-group effects, provide estimated true scores of group means, generate empirical Bayes estimates of predictor slopes within each group, and allow cross-level interactions to be explored by allowing varying slopes for individual predictors across groups, and examining the group-level determinants of those varying slopes. An important advantage of HLM is its use of precision weighting techniques. These techniques address varying group sizes, such as we have here, and take varying data quality into account across groups. Finally, HLM makes assumptions about error structures that are more appropriate for clustered data, such as we have here, than the assumptions made by OLS regression.

For our purposes here HLM offers several advantages.

- First, we can gauge the amount of variation in our outcomes that is due to differences between neighborhoods. This is useful descriptive information.
- In addition, we can test whether the between-neighborhood variation is significantly greater than zero.
- Third, after entering our aggregate-level predictors we can see how much between-community variation they explain, and test if significant between-community variation remains.
- In addition, we can simultaneously explore impacts of individual-level factors on outcomes of interest. The impacts of these individual-level or Level I predictors will be completely independent of the Level II, aggregate impacts because we will group mean center Level I predictors. Thus each predictor tells us about the contrast between the individual, and the neighborhood mean, pooled across neighborhoods.
- We can explore the hypothesized interactions between Level I ('individual') and Level II (community) characteristics, described above. We can see, for the residents, if impacts of gender, age, and perceived problems vary across locations. Since specific hypotheses about these interactions have been made only for fear of crime, it is only for this outcome that we will

explore these interactions. For the other outcomes, and for the merchant surveys, we will fix the slopes of our individual-level predictors.[1]

Assessed and Perceived Incivilities

As a Level I predictor we incorporated group mean centered perceptions of disorder in the commercial center itself. We reasoned that differences in perceived disorder between a resident and his/her neighbors, or between a merchant and nearby merchants, could well contribute to perceived vulnerability or weak informal control, or a weakening of attachment. In short, this variable, at this level, and group-mean adjusted, is telling us about psychological differences.

As a Level II predictor we used assessed incivilities. We reasoned that these measures provided information about ecological differences between locations. We did not, however, use group means on perceived incivilities as Level II predictors, for three reasons.

First, from a policy perspective, community policing operations, and local organizations concern themselves with pinpointing the locations with the most troublesome conditions, not the most troublesome perceived conditions. Community police officers, working with other agencies, can focus on problems like cleaning up vacant lots, or getting vacant houses boarded up, or getting junked cars towed. They cannot work directly on people's perceptions of those problems. From a policy perspective it is important to know the contribution to our outcomes of the conditions as they might be assessed by a person moving through the locale.

Our second reason is that prior work, much of which has used perceived incivilities as measures of disorder, has done so because assessed measures were not available. The perceived measures were used as rough proxies with the assumption made that they would provide results roughly comparable to results using on-site assessments. The implicit assumption has been that the perceived measures were used by default because more direct measures were not available. But perceived measures and on-site measures might provide markedly different results. Since the differences in disorder across communities is best reflected in on-site assessments, we opted for using those.

Beyond policy and methodological considerations there also are theoretical issues. Specifically, we are not sure how to interpret cross-community differences in perceived disorder after we have controlled for crime, and physical and social conditions reflecting disorder. What do these reflect? If residents' perceptions of problems, net of actual crime levels, net of community structure, and net of observed disorder, contribute to (e.g.,) fear of crime, what is this telling us conceptually? What ecological conditions could be producing such an impact? The only plausible explanation that is theoretically relevant would be that the wrong conditions of disorder were assessed. This seems extremely unlikely given the broad scope of conditions assessed in this study.

In sum, given the excellent array of on-site features assessed by raters, given the policy relevance of between-neighborhood differences in actual conditions, and given the theoretical ambiguities, after controls are applied, of between-neighborhood differences in perceptions of disorder, we did not use perceived disorder as potential Level II predictors.

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[1] For the business personnel surveys, the number of respondents per commercial center is too few for exploring these possible interactions. For these merchants then we fill carry out hierarchical linear models with fixed Level I slopes

Variable exploration strategy

We examined zero order correlations, and for each dependent variable carried out a series of multiple regressions allowing Level I and Level II predictors to enter. Level I sociodemographics significantly predicting the outcome were entered, followed by Level II predictors making significant contributions. We then used these results to help select variables for inclusion in HLM.

RESULTS

Resident Survey

Between-group Variance and Reliability

Two important questions that can be addressed via HLM are the proportion of the outcome that is between groups (i.e., between communities), and the reliability of the mean scores of each group (i.e., each community) on the outcome. The between group variance tells us the proportion of the variance in the outcome that is due to differences between small commercial centers, rather than differences among residents within each center, pooled across centers. It is equivalent to the intraclass correlation (Bryk and Raudenbush, 1992, p. 63). If everyone in each community around each small commercial center agreed perfectly with each other on the outcome, and differences on the outcome only existed at the group level, the intraclass correlation would be 1. If there was no agreement at all on rating an outcome by the people in each of the respective groups, and there were no mean differences across groups, the intraclass correlation would be 0.

Related to the intraclass correlation is the reliability of the group means. It suggests how reliably the sample means of each group, averaged across all twenty-four groups, reflect the "true" group means on the outcome. These estimates of "true" group means are derived using empirical Bayes estimation procedures, and are generally shrunken toward the grand mean, in comparison to the observed group means. The degree of shrinkage toward the grand mean is a function partly of data quality and group size. In other words, each observed group mean (Y.j) is presumed to reflect an underlying true group mean (B0j), and each of the latter is estimated. Of course, reliability increases also as sample size increases.

HLM provides a chi square test testing the null hypothesis that the amount of between-group variance on the outcome is significantly different from zero. There is no parallel hypothesis test for deciding if the reliability of the observed group mean scores on the outcome is acceptable.

The results from the one-way ANOVAs establishing the amounts of between- and within-group variance in the outcomes appear in Table 11. The percent between-group variance ranges from 3% to 33%, averaging 11.3%. The amount of between-group outcome variance does not appear linked to the type of variable. Although perceived incivilities have much more between group variance than the other outcomes (32.6%), outcomes assessing responses to disorder range from 3 to 8 percent, and person-environment transactions reflected in attachment and informal control range from 12 to 3 percent. Chi square tests show that for all outcomes, the amount of between-group variance is significantly larger than zero.

-- Insert Table 11 about here --

Reliability of observed group means ranges from .94 to .51, averaging .72. Perceived incivilities have by far the highest reliability (.94). As must necessarily be the case, the higher intraclass correlation goes with higher

reliability of observed group means. None of these reliabilities is so low as to suggest abandoning any of the outcomes.

It is necessary to estimate models with different sets of Level II predictors because of some extremely strong correlations among Level II predictors. For example, neighborhood stability correlates -.93 with the personal crime rate, and graffiti correlates .87 with the percent nonwhite population. The correlations among Level II predictors relevant to the fear of crime model appear in Table 12.

-- Insert Table 12 about here --

Table 12 shows both parametric (Pearson) and nonparametric (gamma) coefficients. Some extremely strong Pearson correlations have much weaker nonparametric counterparts. Data inspection reveals this to be due to strong outliers in the data.

With stability and the personal crime rate, one neighborhood, #830, surrounding 15th and Nicollet, is extremely unstable, and has a personal crime rate much higher than the other neighborhoods. This neighborhood, lying just south of the Minneapolis central business district, has many qualities associated with the traditional "transition zone" in human ecology - an unstable and highly mixed population, large through traffic associated with the nearby CBD, and mixed landuse. On the street, early on a weekday morning, it is not unusual to see street people, professionals going to work, and elderly eastern European women ambling down the street with their pull-behind shopping carts.

With graffiti and ethnic composition, two neighborhoods with outlying high scores on both variables "drive" the large correlation seen here. The neighborhood around Selby and Western in St. Paul (#200), just west of the state capitol, was around 40% African American, Hispanic, or Asian in 1980. The neighborhood in Minneapolis around 38th St. and 4th Ave. (#990) was 75% nonwhite in 1980. Graffiti in both these centers was noticeably higher than in the other small commercial centers. The unweighted average percent nonwhite, across all neighborhoods, was 10.6.

It would not be appropriate to remove these extreme-scoring centers merely for the purposes of reducing collinearity of predictors because these centers play such important roles in the total ecology of the Twin Cities. At the time of the surveys significant transition was occurring at Selby and Grand, and ongoing unstable conditions were persisting at 15th and Nicollet. In the broader ecological perspective, the "functions" being served by these locations is extremely important.

These strong correlations will make it extremely difficult for crime or assessed incivilities to make independent contributions to the outcome. What we opted to explore, for illustrative purposes only, and for this outcome only, was the contribution of each of these -- crime and the selected feature of observed incivilities -- after removing the structural dimension with which it correlated most strongly.

Fear and Worry in the Neighborhood

We first estimate various models with all slopes fixed. That is, we do not allow for any Level I predictor to have varying impacts on the outcome across different groups. For illustrative purposes only, and for this outcome only, we also estimate models where structural dimensions closely correlating with crime or assessed disorder have been removed, and models where we substitute distance from the respective CBD as a rough, one-dimensional proxy for the three dimensions of neighborhood structure.

In addition, having identified the fixed model we explore results allowing particular slopes to vary in accord with previously stated hypotheses.

Fixed slopes, three structural dimensions. We first estimate a model where all Level I slopes are fixed, suggesting that their contributions to the outcome be similar across the different small commercial centers. In addition, we estimate the model using all three dimensions of neighborhood structure: status, captured by household income; ethnicity, captured by the percent nonwhite population in the neighborhood in 1980; and stability, captured by the percent homeowned units in the neighborhood in 1980.

Level 1 only. The first two columns of Table 13 show the results when we enter only significant Level I predictors, and force in distance from the small commercial center as a covariate. All of the Level I predictors, save gender and distance from the center, have been group mean centered. Thus, they tell us about differences between respondents, and the average respondent in their neighborhood. The Level I predictors, in toto, explain 34% of the within-group variance in the outcome.

-- Insert Table 13 about here --

The strongest Level I predictors are gender (β=.257) and perceived incivilities (β=.218). Women and those perceiving more problems **in the center** report feeling more vulnerable in the neighborhood. The gender effect has been widely observed in other studies. The effect of perceived incivilities observed here is specific to reported problems in the center. The impact observed suggests that residents perceiving more problems in the center than their neighbors feel more generally vulnerable when abroad in the larger neighborhood. They apparently connect the problems specific to the center with more general threats elsewhere in the neighborhood.

We observe weaker but statistically significant effects of age (β=.082), victimization (β=.104), and education (β=-.082). Those older, more victimized, and less educated than their neighbors report feeling more vulnerable when abroad in their neighborhood.

Level I, and structural ecology. The next two columns in Table 13 include the same Level I predictors as mentioned above, and three dimensions of neighborhood structure. All Level II coefficients are in the expected direction. Residents living in lower income (γ=-.186), less white (γ=.210), and less stable (γ=-.357) neighborhoods report feeling more vulnerable. None of these coefficients, however, approach statistical significance. In toto, these three dimensions explain 35% of the between-neighborhood variation in fear.

Level I, crime, and graffiti. The next two columns report results when we include the same Level I predictors, and Level II measures of crime and disorder. This equation does not control for neighborhood structure, which covaries closely with these indicators of disorder. Those living in higher crime neighborhoods (γ=.084), and living near centers with more graffiti (γ=.364) have significantly higher average fear levels. Crime and graffiti explain 50% of the between-group variance in fear.

Since our between-group variance in the outcome was 3.5% of the total variance, these results tell us that the three dimensions of neighborhood structure, entered by themselves, explain about 1.2% of the total outcome variance, and that crime and graffiti, entered by themselves, explain about 1.7% of the total outcome variance. Comparing explained variances suggest that crime and assessed disorder explain an independent .5% of total fear, after controlling for neighborhood structure.

Level I, crime, and neighborhood structure. If we include only the personal crime rate as our indicator of disorder, and control for neighborhood status and racial composition, crime makes no independent contribution to group fear levels (γ=.046). This equation does not include neighborhood stability, given its extremely high correlation with the personal crime rate.

Level I, graffiti, and neighborhood structure. If we include only graffiti as our disorder measure, and include neighborhood income and stability, but exclude neighborhood racial composition, graffiti shows a significant Level II impact on fear (γ=.316, $p < .05$). Neighborhood fear levels are higher for those groups where the centers were rated as having more extensive graffiti. These Level II predictors explain 58% of the between-group variation in fear, although the remaining variation is still significant (p=.038).

If we include graffiti and all three dimensions of neighborhood structure as Level II predictors, results suggest significant multicollinearity problems (results not shown). The standard error for graffiti is doubled in size. In addition, we have evidence of "beta bounce," with the ethnicity variable changing its sign. Further, the coefficient for graffiti almost doubles in size (γ=.579, $p < .05$) when we include three rather than two dimensions of neighborhood structure. In sum, given these problems, we cannot assess the contribution of observed graffiti while controlling for all three dimensions of neighborhood structure.

Summary. Crime appears to make no independent contribution to explaining fear differences between communities. Observed graffiti appears to make a marginal contribution to explaining fear differences between neighborhoods, but this cannot be reliably estimated given multicollinearity problems. In interpreting these effects we need to keep in mind the amount of outcome variance - 3% - that is operating between rather than within groups.

The more substantial contributions of crime and disorder appear at the individual level. Those more victimized than their neighbors, and those perceiving more problems in the small commercial centers than their neighbors, are substantially more concerned about their personal safety.

Fixed slopes, use distance from CBDs as structural proxy. Human ecological research in urban contexts prior to WW II has suggested that increasing distance from the central business district (CBD) can be used as a rough indicator of a neighborhood's position in the larger urban fabric (Shaw & McKay, 1942). When cities in America were rapidly growing between world wars I and II, neighborhoods closer to the CBD were unstable areas. As a business district expanded to serve growing city population, the areas nearby suffered from real estate speculation and deteriorated housing. Areas close to the city center were locations of run down apartments and boarding houses, and transient, lower income populations.

Since large cities, particularly those in the northeast and upper Midwest are no longer expanding rapidly if at all, the engine of city growth no longer fuels speculation and transition in areas close to CBDs. Nevertheless, because of the historical instability of places closer to the city center, and the historical stability of locations further away, distance from the CBD may, under some circumstances, still capture important information about a neighborhood's position in the larger urban ecology. Further, given the relevance of distance from the CBD for delinquency and offender location, we thought it would be useful for descriptive purposes to explore its relationship with fear of crime.

In the Twin Cities we have two CBDs: downtown Minneapolis, and downtown St. Paul, the latter located a few blocks south of the capitol and state office complex.

We find, across the 24 neighborhoods, that their structural characteristics correlate with distance from the CBD in ways we would expect given the historical roles played by communities closer to city centers. As distance from the CBD increases, income increases (r=.374) as does stability (r=.274), and presence of African American, Native Americans, Asians or Hispanics decreases (r=-.371).

Table 14 shows the results of HLM models with fixed slopes using distance from the CBD as a proxy for neighborhood structure. We include in

these models the same Level I predictors shown in the previous table. The first two columns show what happens when we add distance as the only Level II predictor. Increasing distance is associated with significantly lower fear and worry in the neighborhood (γ=-.46), explaining 62% of the between-neighborhood variation in fear. There is still a marginally significant amount of between-neighborhood variation remaining to be explained.

-- Insert Table 14 about here --

The next two columns enter crime and graffiti, in addition to distance, as Level II predictors. Residents, controlling for their distance from the CBD, report more fear if they live in neighborhoods with a higher personal crime rate (γ=.075). But graffiti does not make a significant independent contribution to fear.

Moving further to the right, we explore what happens if distance and crime are entered, and graffiti is excluded. The impact of crime on fear is about the same. In the farthest right two columns we examine impacts of distance and graffiti, with crime excluded. Graffiti still fails to make an independent contribution to fear after controlling for one dimension of position in the urban ecology.

In the last three regressions shown in the table, the amount of remaining between-neighborhood variation in fear is not significantly different from zero. The Level II predictors entered in these models have successfully explained the fear differences between communities.

Summary. These results suggest that when we control for neighborhood position in the urban ecology with the distance measure, neighborhood personal crime rates make an independent contribution to fear differences across communities. These results are different from those that used three separate dimensions of neighborhood structure to control for urban position. In the latter, as we saw in Table 13, deterioration, as reflected in prevalence of graffiti in the centers, contributed to fear, but crime did not, when we controlled for two of the three dimensions of neighborhood structure. Briefly, how we control for neighborhood structure determines if crime or deterioration make independent contributions to differences across neighborhoods in fear. If we control for all three dimensions of neighborhood change, neither crime nor graffiti can be entered into the model because they correlate so strongly with neighborhood structure. Comparing explained variances suggest that crime and graffiti by themselves explain about .5% more of the outcome variance than do the three structural dimensions.

Fixed slopes, structural change. The data also include several measures of recent ecological change. As discussed above, there are problems with the status change measures. See Table 15 for parametric and nonparametric correlations among these measures. A stability change measure estimates residential turnover in each community for the period 1976-1978. A census-based measure captures percent change in nonwhite populations between 1970 and 1980. Lacking a measure of status change, we use a static measure of 1980 statuses.

-- Insert Table 15 about here --

Retaining the same Level I predictors as used in previous models of neighborhood fear, and keeping all slopes fixed, we carried out two equations. In the first we entered a cross-sectional status measure, and longitudinal measures for race and stability as our Level II measures. In the second we included the personal crime rate as an additional Level II predictor to see if it made an independent contribution. Given the high correlation between graffiti and recent turnover (r=.73), it made little sense to also include graffiti in this second equation.

The results appear in Table 16. The first equation shows that the three structural measures explain a significant 65% of the between-neighborhood fear variation. These to structural change measures, and our static status measure, explain about twice as much outcome variation as the three static dimensions of neighborhood structure, underscoring the idea that fear represents, in part, a response to recent changes. Fear is higher in lower income communities (γ=-.22), and in communities that have experienced more recent turnover (γ=.866). The remaining between-neighborhood fear variation is nonsignificant.

-- Insert Table 16 --

These results suggest slightly different structural impacts than we observed when using only cross-sectional measures. There none of the indicators reached significance. Here, our longitudinal measure of instability does prove significant.

When we add the personal crime rate, the explained variance remains about the same, and the new variable makes no significant independent contribution (γxx=.03), but it does reduce the contribution of neighborhood status to nonsignificance.

Summary. When using change measures for two out of three dimensions of neighborhood structure, changing stability emerges as important, and neighborhood income as marginally important. This longitudinal view of structure explains all of the significant between-neighborhood fear differences. Crime and graffiti appear to make no independent contribution to neighborhood fear. Structural instability appears to make a significant contribution to explaining different neighborhood fear levels.

Varying slopes for Level I predictors. As explained above, three theoretical arguments exist suggesting that the impacts of individual-level factors on fear will vary. Maxfield suggested that the impacts of age on fear are stronger in higher crime neighborhoods. Lewis suggested that the impacts of perceived disorder on fear will be stronger in higher crime locales. Finally, Warr has suggested that women respond more fearfully than men to stimuli representing urban threats. If this is the case, in locations where threatening conditions exist, perhaps represented as recent neighborhood instability, or deterioration, or high crime rates, the impact of gender on fear should be stronger.

Age. Our analysis of a varying age slope revealed interesting differences between OLS regression results and HLM results. When we looked at the OLS estimates for the slope of fear on age across the twenty-four communities, we saw a negative correlation between the age slope and the personal crime rate, and a curvilinear relationship between the age slope and the OLS estimate of mean fear across neighborhoods. But when we moved to the empirical Bayes (EB) estimates provided by HLM for the age slope in each community, these interesting relationships disappeared as the differences in age slopes across locations shrunk dramatically (u11=.00179), leaving us unable to reject the null hypothesis that the variance in the slopes was significantly different from zero (p=.37).

Perceived incivilities. Empirical Bayes (EB) estimates suggested that there may be significant variation in the slope of fear on perceived incivilities in the center (u11=.01050, p =.091). Unfortunately, the covariance between the EB estimates for mean fear in each community, and the EB estimates for the slope of fear on incivilities, was extremely large. The slope and the means correlated -.99. This prevented us from untangling the variance of the perceived incivilities slope from the group-level variance in the outcome.

Gender. EB estimates suggested a marginally significant amount of variation in the slopes of fear on gender (u11=.01181, p=.157). The slope appeared to have an acceptable reliability of .225. [5] The slope ranged from .39, in the neighborhoods where the gender gap in fear was greatest, to .12 where the gender gap was least.

It was highest -- i.e., women were much more fearful than men -- for respondents around Selby and Western (#200) in St. Paul near the Capitol, an area close to high crime, minority neighborhoods, undergoing substantial gentrification and transition at the time of the survey. It was also relatively high in the neighborhoods around Cleveland and Marshall in St. Paul (#140), around Grand and Fairview (#160), also in St. Paul, and around 3rd and Maria in St. Paul (#450). Cleveland and Marshall had a moderately high crime rate at the time, and the neighborhood around Grand and Fairview was experiencing transition from older, white-Irish to younger white professional residents at the time. The area around 3rd and Maria was experiencing a changeover from a white to an African American and Hispanic locale at the time.

The neighborhoods where the gender gap seemed least looked to be generally stable areas: around Johnson and 29th in Minneapolis (#950), a relatively stable area at the time, 38th and Grand (#670) in Minneapolis, and around 60th and Portland in Minneapolis (#770), another area appearing relatively stable at the time.

In short, the areas where women are much more afraid than men are the areas where we would expect a gender gap, given Warr's thesis that women are more sensitive than men to potentially threatening conditions. They are areas that are in transition, either economic (Selby and Western), class-based (Grand and Fairview), or ethnic (3rd and Maria). The locale with the strongest gap -- the neighborhood around Selby and Western -- was the neighborhood experiencing the most dramatic transition of all twenty-four neighborhoods at the time of the survey, as extensive gentrification and rebuilding were taking place there.

Scores on the gender gap correlated substantially -- .39 -- with EB mean fear estimates; the gender gap was stronger in neighborhoods were residents in general were more fearful.

We explored many Level II predictors, in different runs, as predictors of the gender slope. Our modeling ran into some problems, probably stemming in part from the limitations of our data, with a modest number of communities, and a modest number of respondents in each community. The impact of predictors of the gender slope depended in part on what predictors were used for the fear intercept. In addition, the correlation (T01) between the fear intercept, and the gender slope, varied sizably depending upon the predictors entered. In general, these runs showed that characteristics suggesting structural instability were moderately successful at predicting the gender slope. The gender gap in fear was stronger in neighborhoods: closer to the respective CBD, experiencing more sizable recent racial change, or more substantial transience. There was a slight suggestion that observed disorder was associated with a wider gender gap, the gap being larger in neighborhoods around centers with more vacancies, or more stores with late night hours.

In sum, the results suggest marginally significant differences in the gender gap on neighborhood fear. The gap appears most substantial in locales experiencing sizable ecological change at the time of the surveys. But due to modeling difficulties arising from the structure of the dataset, it is not

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[5] Bryk and Raudenbush (1992) suggest using .05 or .10 as the lower reliability cutoff for varying slopes, and explain why reliability of slopes is so much lower than reliability of intercepts (p. 69).

possible to precisely identify determinants of the gender gap, although results tend to suggest that indicators reflecting sizable ongoing change, or enduring instability, are associated with a larger gender gap in neighborhood fear.

Fear and Worry in the Small Commercial Center

Residents also reported how concerned they were while in the neighborhood center, and the extent to which they thought persons in the center threatened their property. The index constructed using these items refers to a spatial context more focused than is generally used for fear questions.

The EB estimates of the group means on neighborhood fear and center fear show a substantial correlation (.67), but there are some noteworthy differences in the ordering of the neighborhoods on the two means. The most noticeable discrepancy occurs for the center at Grand and Fairview (#160) in St. Paul. Whereas residents were third highest on fear in the neighborhood, they were ranked next to lowest on commercial center fear. Low fear in the center is explained by a relatively well-kept and stable commercial site hosting, at the time, a movie theatre, large pharmacy, large supermarket and hardware/paint store, many of which had been at that location for many years. Their high neighborhood fear, as explained above, was due to gentrification ongoing then, displacing an older, blue collar population.

Using three dimensions of cross-sectional neighborhood structure. Table 17 shows the results of an HLM model with individual-level predictors, and three dimensions of neighborhood structure entered as Level II predictors.

-- Insert Table 17 about here --

The same individual-level factors predict fear and worry in the commercial center that predicted fear and worry in the neighborhood. Women, and those who in comparison to their neighbors have more education, are older, and have been victimized more, report more concern about the center. In addition, those perceiving more problems in the center feel more vulnerable there. The Level I predictors explain 17% of the individual-level variation in the outcome.

We see two noticeable differences in comparison to the Level I effects in the equation for neighborhood fear. In this equation perceived incivilities have a larger coefficient than they did in the equation predicting fear and worry in the neighborhood. This makes sense since both the predictor and the outcome now focus on the same specific location. In addition we see a slightly larger and marginally significant effect of distance from the center, on fear. Those living closer to the center report more fear and worry about the center. Since the index included an item asking about problems coming from the center, those living closer may have felt that potential offenders could get more easily from the center to their property.

Results show two significant effects of neighborhood structure on fear in the center. Those living in neighborhoods with a lower proportion of whites, and those living in areas with a lower proportion of homeowners, report feeling more vulnerable in the center. Both these findings agree closely with prior work on fear showing impacts of instability (Taylor, in press) and neighborhood racial composition (Taylor & Covington, 1993) on general neighborhood fear. Status, ethnic composition, and stability together explain 93% of the between-neighborhood variation in commercial center fear. The outcome variance remaining at Level II is nonsignificant. Therefore, crime and deterioration, which correlate, as mentioned above, with neighborhood structure, are not given a "chance" to explain neighborhood differences in commercial center fear, because only a nonsignificant amount remains.

Using distance from CBD as proxy for neighborhood structure. The Level II effects using distance from the respective CBD as a proxy for neighborhood structure appear in Table 18. The same individual-level predictors are retained here as were used in the last regression, but they are not shown.

-- Insert Table 18 about here --

When we enter distance, it explains about a quarter (27.2%) of the between-neighborhood variance in commercial center fear, and has a significant coefficient in the expected direction (γ=-.47). But the remaining, unexplained between-neighborhood differences on center fear are still sizable.

When we control for distance, and add in both the personal crime rate and graffiti observed in the center, these three factors explain almost all (96%) of the neighborhood differences on center fear. A higher neighborhood crime rate, and more graffiti in the center, both make residents more concerned about their safety while in the center when we use distance from the CBD as the only structural control variable.

Using changes in neighborhood structure. When we use longitudinal rather than cross-sectional measures for racial change and stability, we find that, after controlling for 1980 income, there was a marginally significant positive relationship between turnover and neighborhood fear. Cross sectional income, and longitudinal race and stability in toto explained about half of the neighborhood center fear differences. If we added the personal crime rate, it also had a significant impact on center fear ((xx=.146), controlling for the other three dimensions of neighborhood structure. The personal crime rate, by itself, explained about a quarter of the between-neighborhood differences in center fear. (See Table 19.)

-- Insert Table 19 about here --

Varying slopes for Level I predictors. The variance in the slopes of perceived incivilities, and age, were extremely small, not allowing us, therefore, to explore possible variations in the impact of these Level I predictors on our outcome. Further, there was no point in exploring the effects of varying slopes of center fear on gender, because, after entering our three Level II structural predictors, the remaining between neighborhood variation on the outcome was already nonsignificant. To allow the gender slope to vary would have substantively amounted to removing some of this already nonsignificant residual variance (u0j) and attributing it to varying gender slopes (u1j). (See Bryk and Raudenbush, 1992, pp. 20-21.) We did not do this. In short, there is no variation in the gender gap on center fear, as we observed for neighborhood fear. The differential between men and women appears relatively constant.

Summary. Controlling for neighborhood structure, crime and signs of disorder do not explain residents' feelings of vulnerability in various small commercial centers. What makes people more or less afraid while in their local center is the overall stability and ethnic composition of their neighborhood. If we use distance from the central business district as a simple, one-dimensional substitute for neighborhood structure, then we do find that crime and graffiti both help explain why people feel more afraid in some commercial centers than others. If we use longitudinal measures for two dimensions of neighborhood structure, we find crime making an independent contribution to center fear.

Perceived Incivilities in Commercial Center: Holding Slopes Constant

Residents reported how serious various crime-related problems were in their neighborhood's center. The variance in mean true scores on this index accounted for a third of the total variation in perceived problems. Looking at

the mean true scores across the centers showed that these perceived problems were related to but also distinct from neighborhood fear and fear while in the center. Scoring dramatically higher than all other centers was 15th and Nicollet (#830) in Minneapolis. Its estimated true score, 1.30, was far above the next highest scoring center (Selby and Western, #200), at .65. Cleveland and Marshall (#140) ranked fifth on perceived incivilities in the center, although residents only ranked the center 10th in terms of center fear. This center is the site for a large liquor store on Marshall. These discrepancies suggest that perceived incivilities are tapping issues that have some distinctiveness, at the ecological level, from feelings of vulnerability in the center.

Results for our HLM equation including both Level I effects, and cross-sectional measures of neighborhood structure appear in Table 20. The first equation shown has just three dimensions of neighborhood structure for Level II predictors. The second equation adds the personal crime rate as an additional Level II predictor.

-- Insert Table 20 about here --

Level I effects. The Level I predictors suggest a markedly different pattern of impacts than we observed for neighborhood fear and center fear. The influence of age and education on perceived problems was opposite what we would expect given their impacts on neighborhood fear and center fear. Whereas residents older than their neighbors reported being more fearful, we find here that residents younger than their neighbors report perceiving more problems in the center (β=-.054). Similarly for education; whereas those with less education than their neighbors reported being more fearful, we find here that those with more education report more problems (β=.068).

The age effect may represent one or both of the following dynamics. One dynamic may center on differential levels of adaptation occurring among neighbors in a locale. We have argued elsewhere (Taylor & Shumaker, 1990) that over time people become cognitively adapted to local problems. Those who are older, and have lived longer in a locale, have had more exposure to it and thus are more "used" to what goes on there. A second possibility may arise from age-related differences in using the center. Older residents may use it less often than younger ones, and thus be less aware of the problems occurring in the center. The less visible conditions and dynamics there cause the less frequent users, the older residents, less concern. Analyses using frequency of use of the center (results not shown) yield nonsignificant a coefficient for use, and do not change the pattern of results observed here.[4]

The class effect mirrors what Crenson, and others, have observed in other locales (Crenson, 1983: 301). Residents with more education than their neighbors are more likely to become involved in local informal governance and problem solving. Several urban studies find that those involved in local organizations perceive more intense problems (Rosenbaum, 1987). In this group of respondents, however, we find no relationship between participation in local organizations and perceived intensity of problems in the commercial center (r =.02).

One result here that does parallel what we found with fear is the impact of victimization: those more victimized than their neighbors perceive more problems (β=.10). The victimization experience may resensitize residents to

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[4] The resident survey included an item asking the respondent how often he went to the neighborhood center, or stopped there when passing through. Adding this z-scored item to the Level I predictors resulted in a nonsignificant coefficient (-.009).

troubling local conditions, conditions to which they had previously become adapted. Also in the same direction as the fear equations, we find women perceiving more extensive problems than men. The effect, however, is much weaker than we observed for fear, and is only marginally significant.

In toto, the predictors used here explain 6% of the individual-level variation in perceived problems.

Level II effects. Controlling for three dimensions of neighborhood structure explains 87% of the between-neighborhood differences in perceived incivilities. All coefficients are in the expected direction, and significant for race and stability. Perceived incivilities are more intense in less stable neighborhoods (γ=-2.42), and in neighborhoods with fewer whites (γ=.65). The effect of stability far outweighs the impact of racial composition, suggesting that instability is the aspect of neighborhood structure most conducive to the emergence of problems in the public arena.

A traditional human ecological interpretation would be that in unstable neighborhoods, residents are unable to develop the organizational and informal ties needed to control life on the street. But local social ties, and participation in local organizations, did not relate to the outcome here. Since the problems addressed here are those occurring in the commercial centers, a different interpretation may be more appropriate. Center location, combined with the particular historical period, produced high levels of community instability, overlaid in some locations with rapid change at the time, resulting in extremely heterogeneous users of the commercial centers.

When we added crime, or graffiti, or both, there was no increase observed in the percent of between neighborhood outcome variation explained. Further, both items yielded highly nonsignificant coefficients.

Distance from CBD as proxy for neighborhood structure. When we enter distance from the respective CBD as a rough proxy for neighborhood structure, we find it explains 25% of the between-neighborhood differences in perceived incivilities (γ=-.84, t=-2.64, $p < .05$). If we also add the personal crime rate and observed graffiti as Level II predictors, all three explain 87.9% of the between-neighborhood differences in perceived incivilities. All three have significant and roughly comparable coefficients, all in the expected direction.

Structural change. When we enter longitudinal measures for racial composition and stability, the three Level II predictors explain 33% of the between-neighborhood differences in outcome true scores. The coefficients appear in Table 21. When we add the personal crime rate, and observed graffiti, the Level II predictors account for 84.5% of the true-score between neighborhood variation.

-- Insert Table 21 about here --

In sum, between-neighborhood perceived incivilities in the center, after controlling for neighborhood structural differences, are influenced neither by crime nor observed incivilities. Neighborhood stability may be the structural factor having the largest impact on perceived problems in the center.

Perceived Incivilities in Commercial Center: Allowing Slopes to Vary

We tested two hypotheses about varying Level I slopes.

As noted earlier, given some of the high correlations between some of the structural predictors used, and graffiti, the individual coefficients in the second equation shown should not be interpreted. Most notably, it "flipped" the sign for stability.

Gender. In keeping with our previous argument that women are more sensitive than men to threatening conditions, we expected that the effect of sex on perceived incivilities would be stronger in more unstable, or more problem-ridden communities. In short, we expected the slope of perceived incivilities on fear to be stronger in neighborhoods with less stability, higher crime, or more extensive observed incivilities.

Victimization. Victimization may have a stronger impact on perceived incivilities either in places that have more observed incivilities, or in places where there is more dramatic structural ongoing change. This hypothesis represents an extension of Lewis's congruence hypothesis, (Lewis & Salem, 1986). He argued that perceived incivilities in a high crime environment had a more dramatic impact on residents' sense of personal vulnerability. By extension, if victimization occurs in the context of deteriorating or rapidly altering neighborhood structure, the cognitions emerging in part from that victimization are strengthened, resulting in a more dire assessment of conditions in the center.

The deviance statistic shows if the same model of fixed effects better fits the data when a varying slope is added. For the gender slope, the chi square was quite nonsignificant. But, for the victimization slope, the chi square was strongly significant ($\chi^2(df=2) = 9.34$, $p < .01$), suggesting better fit when we allow the victimization slope to vary.

Minority change, current racial composition, and observed graffiti in the center all could explain the variation in victimization slopes, and rendered the remaining variance nonsignificant. For example, observed graffiti had a coefficient of $\gamma=.308$, $t=3.70$, $p < .01$. Results of the equation allowing the victimization slope to vary, and predicting that slope with assessed deterioration, appear in Table 22.

-- Insert Table 22 about here --

The variations in victimization slope, and the impacts of Level II variables on that variation, although both statistically significant, are small when considered in the total model. The variation amounts to 1.7% of the total variance, and the explained portion of that variance amounts to 1.3% of the total variance.

Effect magnitudes aside, the results suggest an interesting "compounding effect" linking actual victimization, observed disorder, perceived incivilities and structural change. Local conditions suggesting neighborhood instability, whether that be actual observed physical deterioration, or actual instability, or recent, rapid structural change, amplify the impacts of victimization on perceived center problems. When the victimization occurs in a more unstable or deteriorated context, the victimization contributes more to negative assessments.

Perceived Risks of Crime in the Neighborhood

As noted earlier (Table 11), about 8% of the variation on the outcome was accounted for by differences in estimated neighborhood true scores. Looking at these true scores across centers showed some centers we would expect to score high on this outcome, given their scores on other outcomes we have examined, in fact doing so: 15th and Nicollet (#830) scored highest, Selby and Western (#200) scored second, and 3rd and Maria (#450) scored fourth. But 38th and 4th (#990) also scored high, coming in third. Lowest ranking on perceived risk was 29th and Johnson (#950).

Level I effects. Level I predictors were as seen with earlier outcomes, and performed as expected. Women, those older than their neighbors, those with less education than their neighbors, and those perceiving more problems in the center than their neighbors, perceived greater chances of victimization in the

neighborhood. An additional Level I variable was living alone; those more likely to live alone than their neighbors perceived more risk in the neighborhood. Level I predictors explained 12% of the pooled, within-neighborhood variation in perceived risk. (See Table 23.)

-- Insert Table 23 about here --

We explored possible variations in slope for gender, victimization, and living alone. Allowing each of them to vary did not significantly improve the fit of the model.

Level II. When we enter our three dimensions of neighborhood structure, they explain 95% of the between-neighborhood variation in estimated true scores, rendering the remaining ecological variation nonsignificant. Perceived risk was significantly lower in neighborhoods with more whites, and more stability.

If we add in measures of crime and disorder, they made nonsignificant contributions to our outcome variation.

Distance from the respective central business district, if entered by itself, explains about 18.5% of the between-neighborhood differences in risk. If crime and observed incivilities are added to distance, crime makes a significant, independent contribution to explaining risk (γ=.32, t=4.27, $p < .01$).

Informal Control on Respondent's Block

Level I effects. Three Level I predictors predicted differences in perceived informal control. Those more victimized than their neighbors perceived weaker informal control on their block (β=-.086, $p < .05$). Education showed a comparably sized effect (β=.104, $p < .01$), with more educated residents reporting more control on their blocks than less educated neighbors. Finally, the strongest Level I effect was due to living alone; those in single households perceived weaker control on their block. (β=-.287, $p < .01$). These results control for distance from the center, gender, group-centered age, and group-centered perceived incivilities in the center. See Table 24

-- Insert Table 24 about here --

Level II effects. Entering our three structural predictors explained 83.2% of the between-neighborhood variation in perceived informal control, rendering the remaining group-level outcome variation nonsignificant. Stability produced the only significant coefficient (γ=1.13, $p < .01$), with more control perceived in more stable neighborhoods.

By contrast, if we enter only observed incivilities and the personal crime rate as our Level II predictors, and do not allow structural variation to enter, they explain less than the three structural predictors mentioned above. Crime and graffiti in the center explain 75% of the between-group variation in perceived informal control. The impact of graffiti is nonsignificant, but increased personal crime rates significantly dampen perceived informal control (γ=-.188, $p < .01$).

Distance from the CBD, if entered as the sole Level II predictor, fails to have a significant impact on perceived informal control.

In sum, between-group variations in perceived informal control result largely from neighborhood stability. Controlling for stability, race, and status, crime and observed incivilities fail to have a significant impact on the outcome.

Attachment to Neighborhood

Table 25 shows the results of our analysis of attachment to the neighborhood. About 11% of the variance in this outcome occurred between neighborhoods. The three structural Level II predictors explained about two-thirds (68%) of that between neighborhood variation. Attachment was higher in neighborhoods that were more stable, and had a higher proportion of whites in 1980. Neighborhood income had no significant impact on attachment. After controlling for neighborhood structure, neither crime nor graffiti had a significant impact on the outcome.

-- Insert Table 25 about here --

Significant Level I impacts were observed for several variables. Those who were more attached: perceived fewer problems in the commercial center, were women, had more education, had more of their friends and relatives in the neighborhood, had lived in the neighborhood longer, and lived farther from the commercial center itself. These variables explained about 16% of the pooled, within-neighborhood variation of this outcome.

Summary Comparison Across Outcomes: Impacts of Structure vs. Crime and Observed Incivilities

Table 26 summarizes some features of the results for the resident surveys. After controlling for neighborhood structure, neither crime nor observed incivilities make a significant additional contribution to explaining between-neighborhood differences. Occasionally this occurs because the three aspects of neighborhood structure leave no significant differences to be explained. In other cases this occurs because crime or observed incivilities correlate so strongly with some features of neighborhood structure.

Of the structural variables, stability appears most important, showing a significant coefficient in five out of the six models. Racial composition also appears important, significant in four out of six models. Income is not significant in any models.

By contrast with the lackluster importance of observed incivilities, perceived incivilities generated significant coefficients in four out of five models entered. The absolute value of the coefficient ranged from around .2 to around .3. Observed incivilities in the center had a stronger impact on fear and worry in the center (.31) than fear and worry elsewhere in the neighborhood (.22)

-- Insert Table 26 about here --

Business Surveys

We analyze four outcomes from the surveys of business personnel: fear and worry while at work in the business, or in the center; perceived risk of victimization at the store or in the center; steps taken to protect the business; and perceived incivilities in the center. The items in these outcomes, and the internal consistency of the indices, appear in Table 9.

Distribution of Outcome Variance

Table 27 displays the distribution of outcome variance between and within centers. The four outcomes, on average, have about a quarter of their variance distributed between the centers, and about three quarters distributed within centers. Between-center variance is significant for three out of the four outcomes, and is only marginally significant for protection. The substantially larger amount of between- as opposed to within-group variance observed with the business personnel outcomes is in part due to fewer

respondents per group. For this survey there were about eight respondents per center, whereas the resident survey provided about 35 respondents per neighborhood. Given the smaller n/group in this survey, we will not allow any Level I slopes to vary, but will fix all of them.

-- Insert Table 27 about here --

Implications of Smaller Groups per Center

The smaller number of cases in each center created a problem with the Level I, individual-level predictors, in the following way. For some predictors, there was no variance in several centers. HLM excludes a group if there is no variance on a Level I variable for that group. The variables that did not vary, and the number of centers that would be lost for each, appear below:

Variable	N of Centers with no variation
Sex (FEMALE)	4
Live outside neighborhood (LOUTNBHD)	4
Proportion other owners/managers known (ZQ15)	3
Business organization present in center (Q16)	12
Proportion customers known	1
Burglarized in past year (Q72)	2
Robbed or held up in last year (Q73)	11
Vandalized in last year	2

Consequently, it was necessary to drop out these Level I predictors to insure inclusion of all centers in the analyses.

Dropping these variables, however, does not create a problem for Level II effects in HLM. In contextual analyses, where Level I and Level II outcome variances are not separated, exclusion of Level I variables can result in mis-estimation of Level II effects (Hauser, 1974). Our Level II results are not biased by dropping these predictors.

Business Fear and Worry

Table 28 rank orders the centers based on empirical Bayes estimates of "true" fear means reported by business personnel. The table also displays the OLS intercepts, which vary more than the EB intercepts. The ordering of the centers is somewhat different from what we saw with fear in the center as reported by residents, but there are also points of similarity.

-- Insert Table 28 about here --

Business personnel at Cleveland and Marshall (#140) in St. Paul report the highest fear. This center was host to a large liquor store. Marshall Ave. is known for being a rather "tough" location. Next in fear is a center where residents also reported extensive concern: Selby and Western (#200) in St. Paul, a location in proximity to low income minority neighborhoods that were gentrifying substantially at the time of the interviews. 38th and 23rd (#810) in Minneapolis ranks third, and 3rd and Maria in St. Paul (#450) ranks fourth. Randolph and Milton in St. Paul (#310) ranks fifth. Presently, despite the presence of a well-established music store, this center hosts a tough looking bar and a run down mower repair center.

At the low fear end, whereas residents felt safest in the center at 50th and Bryant (#640), this scored next to safest with the business personnel. This is a smallish center in an upscale area. 29th and Johnson, in northern Minneapolis, was the location where business personnel felt safest. Currently this latter center hosts several substantial businesses, including a funeral parlor, a music business, and a large, drive-in "Tom Thumb" convenience store.

But changes over the last decade include closing the movie theatre and a gas station, and several vacancies in small stores, arising in part from a large resurfacing effort in the past few years. Ranking third safest with business personnel was the small center at Como and 15th in Minneapolis (#910), adjacent to the east bank campus for University of Minnesota.

After entering the three structural dimensions of community, neither crime rates, nor any measures of assessed incivilities, made additional significant contributions. See Table 29. Although all the structural coefficients were nonsignificant, one was marginally significant. Personnel reported slightly ($p < .09$) lower fear in centers located in neighborhoods with more nonwhites. This is opposite the direction of this relationship for residents. The other two structural dimensions had coefficients in the expected directions. The Level II predictors explain 43% of the between group variance in business fear.

One landuse factor, however, did contribute to business fear: the average daily traffic volume on the main artery. On higher traffic streets, business personnel felt safer. Examinations of scatterplots showed this relationship was not due to unusual leverage by one or two outliers.

Several explanations may underlie this relationship. With more vehicles passing by business personnel may figure that someone is bound to see something if a crime is attempted. The viewer, presumably, might do something about it. Or business people may figure that offenders would be less likely to select a center where there is more activity and surveillance, instead seeking out quieter locations.

This relationship is opposite what has been observed in residential neighborhoods. In those locations, increased vehicular traffic is associated with more circumscribed territorial functioning, and weaker socializing with neighbors, each of which correlates of fear (Appleyard, 1981).

-- Insert Table 29 about here --

Level I predictors included, beyond age and education, a measure of exposure: the total number of hours the business is open per week. We would expect that people more exposed to the setting would have more concern, given routine activity theory. The resulting coefficient was in the expected direction, but not significant. The only significant Level I predictor was perceived problems in the center. Personnel rating problems as more serious were more concerned for their personal safety.

Perceived Risk of Victimization

One dimension of community structure significantly predicted perceived risk of victimization (see Table 30). Business people in higher income neighborhoods perceived lower chances of being victimized ($p < .05$). The marginally significant effect of stability observed here, opposite the predicted direction, arose from a partialling problem. Stability correlates .43 with observed teens. Excluding teens renders stability highly nonsignificant ($p > .30$).

One observed incivility available was the percentage of teens observed in the center. Recent extensions of human ecological theory (Sampson & Grove, 1989; Taylor & Covington, 1993) suggest that large numbers of unsupervised teens can hamper informal social control. But we find here that business people felt less risk of being victimized in centers where observers saw a higher proportion of teens ($p < .05$). This effect holds up after controlling for income, race, and stability. Figure 4 shows the bivariate, Level II relationship using observed data. The relationship is not due to any particular outliers exerting undue leverage. Again, as with traffic volume, this relationship is opposite what we would expect given a resident-centered theory.

-- Insert Table 30 about here --
-- Insert Figure 4 about here --

After controlling for structure, neither crime rate, nor any other observed incivilities besides the teen volume, made significant or marginally significant contributions to the outcome.

We observed three significant effects for Level I variables. Business perceived greater victimization risk if they: perceived more problems in the center than their fellow merchants, were older than their fellow merchants, and spent more hours at the store than their fellow merchants. Relative education had no impact on perceived risk.

Protection

The amount of variation in protection representing between-neighborhood differences was not significant ($.05 < p < .10$), so the results here should be viewed cautiously.

Table 31 shows the results. After controlling for community structure, average protection was greater in centers with more bars ($p < .05$). Controlling for the presence of bars, and community structure, the personal crime rate had no impact on the average number of protective steps taken in the different centers.

Two significant individual-level correlates of protection emerged. Those merchants perceiving more problems in the center than neighboring merchants took more steps to protect themselves. In addition, and in keeping with a routine activity perspective, those spending more hours at work than their fellow merchants were more likely to take more protective measures.

-- Insert Table 31 about here --

Perceived Incivilities

Centers are rank ordered on problems perceived by merchants in Table 32. Highest ranking are 15th and Nicollet (#830) in Minneapolis, and Selby and Western (#200) in St. Paul. Both scored noticeably higher than the other centers. Surprisingly, 50th and Xerxes in Minneapolis (#610), reported fewest problems. Again, we see orderings somewhat different from what we observed based on the residents' ratings of problems in the center.

When the three dimensions of neighborhood structure are entered alone they explain 65% of the between-neighborhood variation, and problems are significantly lower in the centers located in higher income neighborhoods ($p < .05$). But this impact is rendered nonsignificant after bars and the crime rate are added.

Neighborhood structure, the personal crime rate, and the number of bars in each center explained almost all (89.9%) of the between-neighborhood variation in perceived incivilities. Both bars, and the crime rate, had significant impacts on the outcome, in the expected direction, after controlling for community structure. See Table 33.

The only significant individual-level predictor of perceived problems was age; those younger than fellow merchants perceived more problems in the center ($p < .05$).

-- Insert Tables 32 and 33 about here --

Summary on Business Personnel Outcomes

We investigated four outcomes; of those four, three showed significant between-group variation. For these three outcomes, there was only one -- perceived incivilities -- where crime and assessed incivilities displayed a significant impact in the hypothesized direction after controlling for current

neighborhood structure. Residents perceived more problems in centers with more bars and a higher crime rate. For the other two outcomes, crime had no significant impact after imposing structural controls. And assessed features had significant impacts opposite the expected direction. Risk was lower in centers with more teens abroad; fear was lower in centers with more vehicular traffic. These results are exactly opposite what has been predicted from a resident-centered perspective.

DISCUSSION AND IMPLICATIONS

The present results have descriptive, theoretical, and policy-relevant implications for our understanding of reactions to disorder, and their relationship to psychological and ecological characteristics. We first consider the implications of our analytical approach: in what specific ways has the use of hierarchical linear models provided insight or assurances that would not have been obtained had we used contextual analysis? We then consider community structure, examining what features of neighborhood fabric appear most relevant to our outcomes. From there we focus on incivilities, and crime, and try to relate the pattern of effects observed here to what has been observed in other studies. We close with a comment on the implications of the unexpected results from the merchants' surveys. Before moving to these issues we briefly address the advantages and disadvantages of the current data sources.

Limitations and Advantages

The reader, of course, should bear in mind the many limitations of the current study. Data were gathered at one point in time, that collection coming at a time when several communities in the sample were experiencing marked transitions. In addition, the data come from one metropolitan area, and it is one with two downtowns. Although there are other instances of this occurring in the US and elsewhere, such as Kansas City, it is an unusual situation. Finally, the research design itself provided us with data limited to only 24 neighborhoods. Though these 24 represent an excellent sample, closely matching the larger subpopulation from which they were drawn, this is a relatively small number of Level II units. This small n contributed in part to some confounding we observed between community structure and assessed incivilities, and between structure and crime.

Several advantages of the data, nonetheless, deserve mention. First, the dataset contains many assessed conditions, including landuse, deterioration, and behavioral profiles. These are some of the most detailed assessment data for incivilities available at the current time. Although inter-rater reliability was not assessed, measures of test-retest reliability with a year between observations suggest more than acceptable data quality. Second, the sample characteristics match well with the subpopulation of centers from which they were drawn. The centers appear highly representative. Third, the sample of respondents themselves appears to reflect reasonably well the populations in the neighborhoods from which they were drawn. Finally, the resident and merchant surveys both provide items related to several outcome dimensions, allowing us to construct indices with acceptable consistency for a range of constructs.

Implications of HLM

We argued that HLM provided several advantages over contextual analysis via OLS multiple regression. Some of those benefits, however, are not immediately visible. Two deserve mention. First, we have made different assumptions about error structures in the data, presuming that errors from residents within the same neighborhood are correlated. In addition, when modeling neighborhoods means on an outcome, we have focused on estimates of "true" means, taking data quality into account, rather than observed group

means. These two features are built into the analysis, amounting in effect to quality assurances. Lacking a completely parallel analysis using contextual analysis, it is not immediately apparent what specific differences in findings this different data handling has caused.

The most useful and readily apparent advantage of HLM is that the outcome variance residing between neighborhoods, and the outcome variance residing between residents (or merchants) in the same neighborhoods, have been separated one from another. Although this can be recovered from contextual analysis with a sheaf coefficient, it is not routinely done.

Therefore our Level II findings describing between-group differences are not conditioned upon or related to the particular predictors used at Level I, describing differences between people. We can be confident that there is no specification error to cause us concern (cf. Hauser, 1974).

Splitting the variance shows that for most outcomes, about 10-15% or less of the variance resides between-places. This matches what we have seen with analyses of (e.g.,) fear of crime in other multi-neighborhood datasets (Kurtz & Taylor, 1995). The only exception to this is perceived incivilities, where about a third of the variance arises from differences between places. But for most of the outcomes, the differences across location amount to a small fraction of the variance. This fraction represents an upper bound. It is the most outcome variance that can be explained by different community conditions, whose remediation has been the focus of extensive community policing activity in recent years.

To explore the policy implications of this descriptive information let's use the example of fear and worry while in the commercial center. We see that about 8% of its variance arises from differences between neighborhoods (Table 11). This means that even if we could identify specific neighborhood conditions that perfectly explained those between-neighborhood differences, and even if we were, through community policing and other agency activity, to completely remove the responsible conditions, we would have shrunken fear only by 8%. This is the most we could ever hope to achieve, assuming perfect identification of responsible community conditions, and assuming completely successful efforts to remove those conditions. Is it appropriate to focus and commit resources when the outcomes can never exceed these limits?

Granted, other positive outcomes might follow, beyond shrinking fear, because of police-community efforts to improve local conditions. Neighborhood confidence and resident attachment to locale also might be boosted. Policy makers certainly want to weigh these additional possible positive side effects when deciding whether to initiate such a program. Nevertheless, the point here is that such a program, even under the best of circumstances, is distinctly limited in the amount of fear reduction it can hope to achieve, and this limitation also should be weighed in decisions about program implementation.

Another practical implication of the variance decomposition is underscoring the importance of joint approaches to responses to disorder, approaches that generate an integrated approach, and assess both the psychological and ecological sources. The large amount of between-person variance observed for outcomes like perceived risk and fear underscores that fear is a psychological, mental-health problem, as well as a community problem. We have made this point before (Taylor, Perkins, Shumaker, & Meeks, 1990; Taylor & Shumaker, 1990). It calls for an integrated approach where mental health and criminal justice practitioners work jointly on the causes that exist at different levels.

Turning to theory, we also see implications. In the late 1970s several authors proposed that fear was rampant because people were concerned about the disorderly and physically deteriorating conditions in which they were living. Garofalo and Laub proposed fear reflected "urban unease"(Garofalo & Laub, 1978). Wilson argued similarly (Wilson, 1975). Hunter (Hunter, 1978) suggested the cause was the viewed conditions and perceptions of agency unwillingness or

inability to improve matters. These interpretations of the fear construct have taken root in our theories and in our policies.

The results we see here suggest that these interpretations reflect only a small portion of the sources of fear. Despite their theoretical elegance and the clarion calls for community improvement they inspire, these interpretations reflect only about a tenth -- literally -- of what causes fear. We can state this although we are unable to identify the specific conditions that might completely explain differences in fear levels between neighborhoods, given the information provided us by the variance decomposition.

Consequently, in our theorizing about the fear construct, we need to step back from the popular focus just on ecological causes, and integrate that discussion with a closer examination of the differences between people in the same place, diffeences making one more fearful than another.

Impacts of Community Structure

We focused our community measures on the three dimensions of factorial ecology: status, stability, and racial and ethnic composition. We saw repeatedly that, of these three, stability had the largest and most consistent impact on the outcomes. For example, with the resident-based outcomes, of the structural measures it had the largest impact on fear and worry while in the center, on perceived incivilities in the center, on perceived risk in the center, and on informal social control and attachment. In five out of six resident-based outcomes, stability was important as a Level II predictor (Table 26).

The importance of stability has been stressed repeatedly by human ecological theorists as the setting condition central to the emergence of informal social control (Bursik, R. J., 1988; McKenzie, 1921). These results here suggest that it also may be the structural dimension most relevant to concerns for personal safety.

Stability also was highlighted as the most important structural dimension in a neighborhood-level analysis of several responses to disorder using 66 Baltimore neighborhoods (Taylor, in press). In that study several reactions to disorder were grouped into those reflecting accommodation to disorder, reflected in behavioral withdrawal and concerns for personal safety, and resistance to disorder, reflected in willingness to intervene in potentially troublesome situations. Stable neighborhoods, in part because residents there were more strongly attached to their locale, had residents who were more resistant to disorder and less accommodating to it. Other structural dimensions were markedly less important.

In short, results from these two markedly different sites both suggest that stability is the facet of community structure contributing most notably to residents' feelings of safety, and their willingness to deal directly with emerging local problems.

On a practical level, such findings underscore the importance of housing and housing enforcement policies that help stable neighborhoods stay that way, or that help less stable neighborhoods become more stable. This might mean targeting for special action locations where vacant properties are just beginning to be a problem. Housing policies in Baltimore city, for example, have shifted from citywide auctions of vacant properties to auctions focused on neighborhoods where stability appears to be eroding (Daemmrich, 1995).

Simultaneously, we do not want to lose sight of the importance of racial and ethnic composition, emerging as a significant predictor in four out of six resident-based outcomes (Table 26). Residents felt safer, and more strongly attached, in neighborhoods where the population was more predominantly white.

I think the impacts of race observed here are most appropriately considered in the specific historical context of the study. Several neighborhoods scoring highest on percent nonwhite population in 1980 were also

neighborhoods experiencing dramatic ecological changes at the time. Baker and Smith (#350) in St. Paul was becoming more heavily Hispanic, and declining; 3rd and Maria (#450) in St. Paul was changing racially and declining, its decline further speeded by a large factory closing nearby later in the decade. The center that has the most predominantly African-American population, 38th and 4th in Minneapolis (#990), at the edge of the Powderhorn district, has been African American for a long time. Thus the neighborhoods scoring high on this variable included neighborhoods changing racially and sometimes economically at the time, and at least one neighborhood that had been African American for a time. This makes it difficult to interpret the effects of the racial composition variable.

Impacts of Community Change

We were not able to complete a comprehensive analysis of effects of ecological change because measures of status change available were problematic, and falling back to census tract level data introduced dependencies between observations. Nevertheless, in the exploratory analyses we conducted, using a static status indicator, and change indicators for race and stability, we saw, again, that stability was strongly linked to responses to disorder, often yielding a coefficient much larger than the other Level II predictors (e.g., Table 19, Table 21).[1] Because instability correlated so strongly with crime (.36) and graffiti (.73), our main assessed incivilities indicator, its contribution was reduced markedly when either or both predictors were introduced.

Impacts of Assessed Incivilities

When analyzing resident-based outcomes, assessed incivilities did not emerge as significant predictors of between-neighborhood differences. This was due in large part to the strong correlations between assessed incivilities and neighborhood structure (see Table 12). We have previously observed comparably strong correlations with data from 66 Baltimore neighborhoods (Taylor, Shumaker, & Gottfredson, 1985). In other data sets with block level data in Atlanta (Taylor & Hale, 1986) and Brooklyn (Perkins, Wandersman, Rich, & Taylor, 1993) researchers have observed weak or nonexistent partial correlations between indicators of deterioration and responses to crime such as fear. Our results here further solidify Miethe's conclusion that influences of observed incivilities on fear of crime have not yet been shown (Miethe, 1995).

One might argue with our partialling logic here. One could make the case that prior levels of incivilities have influenced neighborhood structure, thereby conditioning the current aspects of neighborhood structure observed. This line of reasoning is plausible, but cannot be applied here since we have only contemporaneous measures of neighborhood structure and incivilities. Given contemporaneous measurement, and a structural perspective on the dynamics in question here, causal priority for the three dimensions of factorial ecology seems warranted.

Impacts of Perceived Incivilities

Perceived incivilities emerge as important at the individual level. People's perceptions of problems in the center color not only how they feel while in the center, but how they feel while abroad in the larger neighborhood, and on their own block. These impacts persist after controlling for victimization, and are sizable. Those who perceive more incivilities in

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[1] Since the Level II predictors had been z scored, we can compare the relative size of coefficients, even though they are unstandardized.

the center were younger than their neighbors, had more education than nearby residents, and had been victimized recently. The predictors of perceived incivilities suggest that these perceptions reflect a lack of adaptation, or a sensitivity to, to local crime related hazards.

We have argued elsewhere (Taylor & Shumaker, 1990) that over time some people may become increasingly desensitized to disorderly conditions around them. Victimization experiences, or participation in collective crime prevention efforts may resensitize people to those conditions. Similarly, those who have entered an area more recently, who are probably the younger residents, will be more sensitive to local conditions. Those with more education may have higher standards, leading them to be more sensitive to extant conditions. In short, because of limited exposure, recent experience, and higher expectations, the problems in the center stand out more for some residents. Perceptions of disorder do not reflect vulnerability.

An important task for future research is to more carefully delineate the construct represented by perceived incivilities. It is related to but distinct from the outcomes; across locations it is structurally driven by ecological race composition and stability.

Impacts of Crime and Victimization

The main impacts observed for crime were at the individual level. We consistently saw that those who had been more victimized than their neighbors; were more concerned for their personal safety when abroad in the neighborhood, or traversing the commercial center; perceived more disorder in the center; perceived themselves to be at greater risk of victimization; and perceived weaker territorial control on their block. Victimization did not influence residents' attachment to their neighborhood. For the outcomes where its impact was significant, the coefficient was around .1, suggesting, since the predictor was z scored, about a tenth of a standard deviation shift in the outcome for every standard deviation change in the predictor. This impact is relatively modest, compared to the impacts of some Level II predictors, but it is consistent. Having experienced one or more types of victimization reliably elevated personal concern and perceptions of problems.

For the resident survey outcomes we also saw that the effects of were comparable across different neighborhoods. We expected that victimization might have more of an impact on responses to disorder in locations where the experience combined with other indicators of disorder. We observed significant variation in the victimization impact only for one outcome: perceived incivilities. The impact of victimization on perceived problems was stronger in locations where more graffiti was evident. In the HLM model shown with the varying victimization slope (Table 22) we used graffiti to predict the variations in the slope. Other Level II predictors also would have worked as alternate predictors of the slope, including the amount of racial change in the neighborhood. Apparently, victimization arouses more concern when it befalls a resident living in a setting that is changing or appears to be declining.

In interpreting this intriguing result, however, we need to keep in mind that the amount of Level II variance accounted for by these variations in victimization slope, albeit statistically significant, is rather modest in total size.

In contrast to the victimization impacts seen at Level I, we saw no independent impacts of neighborhood crime rates. The failure to observe impacts derived largely from the close association between neighborhood structure and crime. Neighborhood personal crime rate and stability correlated -.93; in short, almost all of the variance in crime rates could be accounted for by stability, when we used parametric correlations. This correlation was substantially "driven" by two unstable, very high crime areas: 15th and Nicollet (#830) and Selby and Western (#200). For the merchant surveys,

neighborhood crime rates, however, did have a significant impact on perceived incivilities in the center.

Comment on Merchant Survey Results

Analyses of outcomes based on the merchant surveys provided some results agreeing closely with the resident results, and some results differing markedly.

As with the resident surveys, perceived incivilities significantly influenced merchants' feelings of vulnerability and personal concern, displaying a significant impact in all three models where it could enter as a predictor. In addition, the impacts of age in the merchant results were similar to what we saw for resident results, although it did not emerge as significant in as many outcomes. Those merchants older than fellow shopkeepers perceived fewer incivilities but perceived themselves to be at greater risk, for example. So the greater concern about local problems among those who have probably been there less long shows up across two different groups, residents and merchants.

Most strikingly different in the merchant results were the ameliorative impacts of assessed incivilities and certain landuse features. Theory suggests increased presence of teens may reflect weaker informal social control. But we saw that merchants felt at lower risk in centers where higher proportions of teens were observed. Scatterplot inspection suggested the effect was not just driven by a couple of outliers.

Higher proportions of teens did not consistently correlate with counts of nonpurposeful visitors in the centers. Although the center (#990) with the highest proportion of teens also scored high on nonpurposeful visitors, the relationship was not consistent. It did appear, however, that teens were more predominant in centers that did not have undesirable amenities, like bars, which would draw adults who would hang around. Teens were more predominant, in general, in areas that were better off; in centers that were stabler and safer, with lower crime rates. In short, the percent teens observed appears to link to stability and safety in the surrounding neighborhood, and not to suggest a lack of informal control on the street. This is counter to much of the theorizing we have in this area (Sampson & Grove, 1989; Wilson & Kelling, 1982) suggesting that as teens take over in an area, resident-based control is weakening. Perhaps this argument does not apply equally to small commercial centers where local proprietors keep order on the street.

Another finding contrary to expectations was that merchants were less fearful in centers with more vehicular traffic. Again, resident-based theory suggests that greater vehicular traffic weaken ties between residents, because they sit out less and know one another less well. Don Appleyard has stated this model most clearly, and provided the clearest evidence. But here we see merchants in higher volume centers feel safer. Perhaps they feel that if there is more vehicular traffic the chances of someone stopping to intervene if a crime or a mugging were taking place, would be higher.

The assessed incivilities did show expected impacts, however, for two outcomes: perceived incivilities and protection. In both cases centers with more bars had merchants who perceived more problems and took more steps to protect themselves. This is in keeping with a long line of research linking bars to trouble on the street (Frisbie & et al., 1978; Roncek & Bell, 1981; Roncek & Pravatiner, 1989).

In short, what we see with the merchant results impacts of assessed incivilities much more differentiated than suggested by the overarching theory. Some impacts are consistent with the theory, like the negative influence of bars, but other impacts suggest the theory, which has derived from a resident-based perspective so far, may need further elaboration to allow for merchant-based dynamics.

References

Appleyard, D. (1981). Livable streets. Berkeley: University of California Press.

Bryk, A. S., & Raudenbush, S. W. (1987). Application of hierarchical linear models to assessing change. Psychological Bulletin, 101, 147-158.

Bryk, A. S., & Raudenbush, S. W. (1992). Hierarchical linear models: Applications and data analysis methods. Newbury Park: Sage.

Bryk, A. S., & Thum, Y. M. (1989). The Effects of high school on dropping out: An exploratory investigation. American Educational Research Journal, 26, 353-384.

Bursik, R. J. (1986). Ecological stability and the dynamics of delinquency. In A. J. Reiss & M. Tonry (Eds.), Communities and crime (pp. 35-66). Chicago: University of Chicago Press.

Bursik, R. J. (1988). Social disorganization and theories of crime and delinquency. Criminology, 26, 519-551.

Bursik, R. J., & Webb, J. (1982). Community change and patterns of delinquency. American Journal of Sociology, 88, 24-42.

Bursik, R. J., Jr., & Grasmick, H. G. (1993). Neighborhoods and crime. New York: Lexington Books.

Campbell, D., & Fiske, D. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81-105.

Covington, J. C., & Taylor, R. B. (1989). Gentrification and crime: Robbbery and larceny changes in appreciating Baltimore neighborhoods in the 1970's. Urban Affairs Quarterly, 25, 142-172.

Covington, J., & Taylor, R. B. (1991). Fear of crime in urban residential neighborhoods: Implications of between and within-neighborhood sources for current models. The Sociological Quarterly, 32, 231-249.

Crenson, M. (1983). Neighborhood politics. Cambridge: Harvard University Press.

Daemmrich, J. (1995). Baltimore again backs house sales: In Third auction try, city will help buyers in six neighborhoods. The Baltimore Sun, April 15, 1995, 1A, 8A.

Dubow, F., McCabe, F., & Kaplan, G. (1979). Reactions to crime: A critical review of the literature. Washington, DC: U.S. Government Printing Office.

Ferraro, K. F. (1994). Fear of crime: Interpreting victimization risk. Albany: SUNY Press.

Frisbie, D. et al. (1978). Crime in Minneapolis. Minneapolis, MN: Minnesota Crime Prevention Center.

Garofalo, J., & Laub, J. (1978). The fear of crime: Broadening our perspective. Victimology, 3, 242-253.

Harries, K. D. (1980). Crime and the environment. Springfield: Charles C. Thomas.

Hauser, P. M. (1974). Contextual analysis revisited. Sociological Methods and Research, 2, 365-375.

Hunter, A. (1971). The ecology of Chicago: Persistence and change, 1930 - 1960. American Journal of Sociology, 77, 425-443.

Hunter, A. (1974a). Community change: A stochastic analysis of Chicago's local communities, 1930 - 1960. American Journal of Sociology, 79, 923-947.

Hunter, A. (1974b). Symbolic communities. Chicago: University of Chicago Press.

Hunter, A. (1978). Symbols of incivility. Paper presented at the Annual Meeting of the American Society of Criminology. Dallas, Texas. (1978)

Hunter, A. (1985). Private, parochial and public school orders: The Problem of crime and incivility in urban communities. In G. D. Suttles & M. N. Zald (Eds.), The Challenge of social control, citizenship and institution building in modern society (pp. 230-242). Norwood, NJ: Ablex.

Jacobs, J. (1961). The death and life of the American city. New York: Vintage.

Kurtz, E., Koons, B., & Taylor, R. B. (1995). Nonresidential landuse, informal resident-based control, physical deterioration, and calls for police service. (Paper presented at the annual meetings of the Academy for Criminal Justice Sciences, Boston (Mass.), March)

Kurtz, E., & Taylor, R. B. (1995). Fear of crime: Testing Interactions between individual and context. (Unpublished manuscript. Department of Criminal Justice, Temple University)

Lewis, D. A., & Salem, G. (1986). New Observations. Fear of crime. New Brunswick: Transaction Books.

Maxfield, M. G. (1984). The limits of vulnerability in explaining fear of crime: A comparative neighborhood analysis. Journal of Research in Crime and Delinquency, 21, 233-250.

Maxfield, M. G. (1987). Incivilities and fear of crime in England and Wales, and the United States: A comparative analysis. Paper presented at the Annual Meeting of the American Society of Criminology. Montreal, Canada. (1987)

McKenzie, R. D. (1921). The neighborhood. In A. H. Hawley & R. D. McKenzie (Eds.), On human ecology (pp. 51-93). Chicago: University of Chicago Press.

McPherson, M., & Silloway, G. (1984). The Role of the small commercial center in the urban neighborhood. In R. B. Taylor (Ed.), Urban neighborhoods: Research and policy (pp. 144-180). New York: Praeger.

McPherson, M., Silloway, G., & Frey, D. L. (1983). Crime, fear, and control in neighborhood commercial centers. Minneapolis: Minnesota Crime Prevention Center.

Merry, S. E. (1981). Urban danger: Life in a neighborhood of strangers. Philadelphia: Temple University Press.

Miethe, T. (1995). Fear and withdrawal from urban life. Annals of the American Academy of Political and Social Science, 539, 14-27.

Perkins, D. D., Meeks, J. W., & Taylor, R. B. (1992). The Physical environment of street blocks and resident perceptions of crime and disorder: Implications for theory and measurement. Journal of Environmental Psychology, 12, 21-34.

Perkins, D. D., Wandersman, A., Rich, R., & Taylor, R. B. (1993). Physical environment of street crime: Defensible space, territoriality and incivilities. Journal of Environmental Psychology, 13, 29-49.

Raudenbush, S. W., & Chan, W. (1992). Growth Curve Analysis in Accelerate Longitudinal Designs. Journal of Research in Crime and Delinquency, 29, 387-411.

Raudenbush, S. W., & Chan, W. (1993). Application of a Hierarchical Lineral Model to the Study of Adolescent Deviance in an Overlapping Cohort Design. Jouranl of Consulting and Clinical Psychology, 61, 941-951.

Roncek, D. W., & Bell, R. (1981). Bars, blocks and crime. Journal of Environmental Systems, 11, 35-47.

Roncek, D. W., & Pravatiner, M. A. (1989). Additional evidence that taverns enhance nearby crime. Sociology and Social Research, 73, 185-188.

Rosenbaum, D. P. (1987). The theory and research behind neighborhood watch: Is it a sound fear and crime reduction strategy? Crime & Delinquency, 33, 103-134.

Sampson, R. J., & Grove, W. B. (1989). Community structure and crime: Testing social disorganization theory. American Journal of Sociology, 94, 774-802.

Sampson, R. J., & Lauritsen, J. L. (1994). Violent victimization and offending: individual, situational- and communit-level risk factors. In A. J. J. Reiss & J. A. Roth (Eds.), Understanding and preventing violence (Vol. 3: Social influences, pp. 1-114). Washington, DC: National Academy Press.

Shaw, C. R., & McKay, H. D. (1942). Juvenile delinquency and urban areas. Chicago: University of Chicago Press.

Skogan, W. (1986). Fear of crime and neighborhood change. In A. J. Reiss Jr. & M. Tonry (Eds.), Crime and justice: A Review of research. Communities and crime (Vol. 8, p. 203). Chicago: University of Chicago Press. (230)

Skogan, W. (1990). Disorder and decline: Crime and the spiral of decay in American cities. New York: Free Press.

Skogan, W. G., & Maxfield, M. G. (1981). Coping with crime. Beverly Hills: Sage.

Stanko, E. A. (1995). Women, crime, and fear. Annals of the American Academy of Political and Social Science, 539, 46-58.

Taylor, R. B. (1991). Urban communities and crime. In M. Gottdiener & E. Pickvance (Eds.), Urban life in transition (pp. 106-134). Newbury Park, CA: Sage Publications.

Taylor, R. B. (in press). The systemic model of attachment, neighborhood use value, and responses to disorder. Sociological Forum.

Taylor, R. B., & Covington, J. (1988). Neighborhood changes in ecology and violence. Criminology, 26, 553-589.

Taylor, R. B., & Covington, J. (1993). Community structural change and fear of crime. Social Problems, 40, 374-397.

Taylor, R. B., Gottfredson, S. D., & Brower, S. (1981). Territorial cognitions and social climate in urban neighborhoods. Basic and Applied Social Psychology, 2, 289-303.

Taylor, R. B., Gottfredson, S. D., & Brower, S. (1984). Block crime and fear: Local social ties and territorial functioning. Journal of Research in Crime and Delinquency, 21, 303-331.

Taylor, R. B., Gottfredson, S. D., & Brower, S. (1985). Attachment to place: Discriminant validity, and impacts of disorder and diversity. American Journal of Community Psychology, 13, 525-542.

Taylor, R. B., & Hale, M. (1986). Testing alternative models of fear of crime. Journal of Criminal Law and Criminology, 77, 151-189.

Taylor, R. B., Perkins, D. D., Shumaker, S. A., & Meeks, J. (1990). (1990). Effects of fear of crime on mental health. Paper presented at the annual meetings of the American Society of Criminology, Baltimore, MD, November.

Taylor, R. B., & Shumaker, S. A. (1990). Local crime as a natural hazard: Implications for understanding the relationship between disorder and fear of crime. American Journal of Community Psychology, 18, 619-642.

Taylor, R. B., Shumaker, S. A., & Gottfredson, S. D. (1985). Neighborhood-level links between physical features and local sentiments: Deterioration, fear of crime, and confidence. Journal of Architectural Planning and Research, 2, 261-275.

Warr, M. (1984). Fear of victimization: Why are women and the elderly more afraid? Social Science Quarterly, 65, 681-702.

Warr, M. (1985). Fear of rape among urban women. Social Problems, 32, 238-250.

Warr, M. (1990). Dangerous situaitons: Social context and fear of victimization. Social Forces, 68, 891-907.

Warr, M., & Stafford, M. (1983). Fear of victimization: A Look at proximate causes. Social Forces, 61, 1033-1043.

Wilson, J. Q. (1975). Thinking about crime. New York: Basic.

Wilson, J. Q., & Kelling, G. (1982). Broken windows. Atlantic Monthly, 211, 29-38.

Table 2

Characteristics of sub-population and sampled centers

VARIABLE	LABEL	93 SCCs mean	93 SCCs sd	24 SCCs mean	Z test	p<.05
Crime						
ASSAULTT	TOTAL REPORTED ASSAULTS	25.82	32.77	23.42	-0.36	No
COMBURGT	TOTAL REPORTED BURGLARY	10.81	9.10	10.33	-0.26	No
COMROBBT	TOTAL REPORTED ROBBERY	2.11	2.41	1.79	-0.65	No
CSROBBT	TOTAL REPORTED CONVENIENCE STORE ROBBERY	0.66	1.17	0.33	-1.38	No
PERSROBT	TOTAL REPORTED PERSONAL ROBBERIES	4.87	9.40	4.83	-0.02	No
PRTHEFTT	TOTAL REPORTED PERSONAL THEFT	1.90	3.87	1.71	-0.24	No
RAPET	TOTAL REPORTED RAPES	1.38	2.62	1.42	0.07	No
SHPLFTT	TOTAL REPORTED SHOPLIFTING	10.12	33.85	18.38	1.20	No
SSROBBT	TOTAL REPORTED SERVICE STATION ROBBERY	0.82	1.84	0.67	-0.40	No
Ecological characteristics						
Status						
HMSUNITS	TOTAL SINGLE FAM, OWNER OCCUPIED HOUSING UNITS	475.89	233.77	543.74	1.42	No
HVALUE	MEAN HOUSING VALUE, 1970	$30,013	$9,903	$32,408	1.18	No
Stability						
SFDWELL	CNT OF SINGLE FAMILY DWELLINGS	3.27	5.40	2.38	-0.81	No
TRNOVER	NET CHANGE IN BUS. 1977-79	5.96	6.23	4.33	-1.28	No
OWNPRCNT	EST PERCENT OF DWELLINGS OWNER OCCUPIED	60.69	21.61	65.46	1.08	No
RETIRED	EST PERCENT RETIRED HEADS OF HOUSEHOLDS	26.32	7.25	25.87	-0.30	No
Race and ethnicity						
ASIAN80	TOTAL ASIAN POPULATION, 1980	20.67	20.84	22.33	0.39	No
BLACK70	TOTAL BLACK POPULATION, 1970	105.98	345.57	145.21	0.56	No
BLACK80	TOTAL BLACK POPULATION, 1980	125.73	294.21	146.29	0.34	No
HHINCOME	EST AVE. HSEHOLD INCOME, 1970	16235.23	2341.11	16798.29	1.18	No
INDIAN80	TOTAL AMERICAN INDIAN POPULATION, 1980	35.57	69.15	19.92	-1.11	No
OTHER70	TOTAL ALL OTHER GROUPS IN EACH AREA, 1970	39.59	64.13	38.75	-0.06	No
OTHER80	TOTAL ALL OTHER GROUPS IN EACH AREA, 1980	44.85	77.65	51.54	0.42	No
SPANSH80	TOTAL SPANISH POPULATION IN EACH AREA, 1980	35.49	41.43	37.54	0.24	No
WHITE70	TOTAL WHITE POPULATION IN EACH AREA, 1970	2538.40	1132.50	2636.96	0.43	No
WHITE80	TOTAL WHITE POPULATION IN AREA, 1980	1954.71	862.52	2092.79	0.78	No
Physical Incivilities						
GRAFFITI	N BUSINESSES WITH GRAFFITI, 1981	0.84	1.74	0.54	-0.84	No
LITTER	N BUSINESSES SIGNIFICANT LITTER, 1982	5.75	4.90	4.83	-0.92	No
BARS	BARS, NIGHTCLUBS	0.82	1.04	0.54	-1.32	No
BOARDUP	VACANT, BOARDED UP	0.30	0.73	0.25	-0.34	No
Other						
ALAMSTYM	N BUSINESSES WITH VISIBLE BURGLAR ALARMS	8.55	7.25	6.04	-1.70	No
BARRIER	N BUSINESSES WITH VISIBLE BARRIERS	3.00	3.15	2.08	-1.43	No
TRAFVOL	AVERAGE DAILY VEH. COUNT, 2 WAYS, MAJOR ARTERY	11428.11	5601.27	8814.17	-2.29	Yes
TRAFVOL	(AS ABOVE, BUT ECLUDING STRIP SEGMENTS IN POP.)	9913.79	4917.14	8814.17	-1.10	No
DISTCBD	AIRLINE DISTANCE (mi) TO CBD FROM CENTER	3.33	1.30	3.42	0.34	No
DISTFRWY	ROAD LEVEL DISTANCE FROM CENTER TO NEAREST FREEWAY	1.12	0.63	1.02	-0.78	No
RESUNITS	TOTAL RESIDENTIAL UNITS IN AREA	816.14	483.16	906.65	0.92	No
HHSIZE	EST AVE. SIZE OF HSEHOLDS IN EACH AREA,	2.48	0.31	2.5	0.32	No
TOTPOP70	TOTAL POPULATION, 1970	2684.01	1167.18	2820.92	0.57	No
TOTPOP80	TOTAL POPULATION 1980	2241.45	921.57	2378.67	0.73	No
ECONRATE	ECONOMIC VITALITY RATING: SUMMARY INDEX	2.97	1.00	2.83	-0.69	No

Table 3

Variables Describing Neighborhood and SCC Structure and Change

Neighborhood: Static

Ecological Dimension	Variable Name	
RACE:	ZTNONWP8	.3 root % nonwhite 1980
SES:	ZAGE	Average age of housing
	ZHESVAL8	1980 average owner-occupied house price (Census)
	ZHHINCOM	1978 est. average household income (Polk)
STABILITY:	ARRESTYP	> 75% units in area single family units
	ZHMSPROP	% single family, owner occupied units, 1980 (Census)
	ZMARRIED	% persons married, 1980 (Census)

Neighborhood: Change

RACE:	STRATMIN	Stratification variable, minority change 1970 - 1980
	ZMINCHG	% minority change, 1970 - 1980
SES:		
STABILITY:	ZCHANGE	% occupied housing units with turnover, 1976 - 1978
	ZROWN80	Unexpected change, % owner occupied, 1970 - 1980

SCC: Static

ZFUNCTIO	N of distinct business functions
ZJACOBSR	100 * % businesses with apartments over
ZTRAFVOL	Daily count vehicles on major artery
ZDISTCBD	Distance from central business district (straight line)
ZDISTFRW	Euclidean distance from nearest freeway

SCC: Change

ZRBZ7782	Unexpected change, number of businesses, 77 - 82
ZSQTURNP	Raw change, square rooted, number of businesses, 77 - 82
ZINSTABP	100 * % business changes 81 - 82
ECONUP	On-site raters judge center economy is improving
ECONDOWN	On-site raters judge center economy is declining

Note. All variables beginning with Z have been z scored. Variables from Polk are small area estimates.

Note. Unexpected changes are residuals from regressions where y = later score and x = earlier score

Table 4

1970 and 1980 House Values in Neighborhoods around SCCs

1970 Avg. House Value	1980 Avg. House Value, Single Family, Owner-Occupied	1980 Avg. House Value	SCC ID
(HVALUE)	(AGVVAL80)	(HESVAL82)	(AREA)
9,938	42,621	123,433	830
11,416	49,429	64,412	200
19,713	40,099	44,302	450
25,199	42,002	57,462	670
25,210	61,390	61,634	140
25,886	39,637	48,978	910
28,865	73,339	67,796	160
32,140	60,229	59,658	170
32,408	30,102	42,342	990
33,964	62,366	71,049	750
34,505	40,247	45,281	310
35,693	41,979	70,152	590
36,291	45,342	46,518	60
36,969	42,017	52,228	950
37,186	37,599	46,756	810
37,210	45,741	47,413	350
37,329	48,627	53,558	40
37,625	55,268	70,948	610
38,893	49,260	62,401	260
38,922	54,182	66,399	740
39,697	47,018	60,036	730
39,992	54,108	66,114	770
40,838	38,899	47,924	970
41,894	65,542	79,071	640

Note. HVALUE represents average house value interpolated for each defined study area using 1970 block group or tract level data. HESVAL82 provides a comparable, interpolated estimate for 1980 house values. By contrast, AGVVAL80 represents actual figures obtained from city assessors' offices for 1980 (McPherson et al. 1983, pp. 48-49)

Table 5

Neighborhood Ranks Based on Average House Value

1970 Rank based on Census estimate 1970	1980 Rank Based on: Assessor Files	1980 Rank Based on: Census Estimate	Case ID
24	15	1	830
23	9	9	200
22	20	23	450
21	17	14	670
20	4	11	140
19	21	17	910
18	1	6	160
17	5	13	170
16	24	24	990
15	3	3	750
14	19	22	310
13	18	5	590
12	14	21	60
11	16	16	950
10	23	20	810
9	13	19	350
8	11	15	40
7	6	4	610
6	10	10	260
5	7	7	740
4	12	12	730
3	8	8	770
2	22	18	970
1	2	2	640

Table 6

Indicators of Physical Deterioration and Landuse in Commercial Centers

Physical Deterioration

Static

ZALVAC82	Count vacant for rent OR vacant boarded up, 1982
ZLITT82P	100 * % businesses with litter, 1982
ZGRAF82P	100 * % businesses with graffiti, 1982
ZBDBLD81	100 * % buildings in below average condition, 1981

Dynamic

ZRVAC82	Unexpected change in vacancies (all types summed): 81 - 82
ZRLITT82	Unexpected change in litter: 81 - 82

Social Incivilities: Static

ZLTEEN	LN (1+ Percent teens observed), on-site observations
ZLNONPUR	LN (1 + % nonpurposeful persons observed), on-site observations
ZSINGLEW	Civility: % single women observed, on-site observations

Table 7
Dependent Variables for Resident Survey

Outcome	Cronbach's alpha / standardized alpha	Items
Attachment to neighborhood	639 / 685	(Q5) Some people feel their neighborhood is a real home to them, a place where they have roots. Other people think of their neighborhood as just a place where they happen to be living. Which one of these comes closest to the way you consider your neighborhood? (2) A real home (1) Just a place to live (Q6) Some people are strongly committed to their neighborhood and others are not. When you think of your commitment to this neighborhood, are you (3) Strongly committed (2) Un-decided (1) Not committed (Q9) For someone considering buying a home in this neighborhood, would you recommend it as a good investment, or would they be beter off investing in another neighborhood? (2) Good investment (1) Better off other neighborhood (Q10) Taking everything together, how would you rate this neighborhood as a place to live (4) Excellent (3) Good (2) Fair (1) Poor
Fear and worry while in the neighborhood	661 / 661	Mostly true vs Mostly false, coded 1/0, where 1 always = fearful response (Q16) I'm often a little worried that I will be the victim of a crime in my neighborhood (Q17) I would not be afraid if a stranger stopped me at night in my neighborhood to ask for directions (Q18) I worry about the safety of people close to me while they are in the neighborhood (Q19) When I have to be away from home for a long time, I worry that someone might try to break in (Q20) When I hear footsteps behind me at night in my neighborhood, it makes me feel uneasy

Fear and worry while in the small commercial center	633 / 662	Mostly true vs Mostly false, coded 1/0, where 1 always = fearful response (Q42) I'm often a little worried that I will be the victim of a crime in that shopping area (Q43) I would not be afraid if a stranger stopped me at night in the shopping area to ask for directions (Q44) I worry about the safety of people close to me while they are in the shopping area (Q45) Sometimes I worry that my property will be damaged or broken into by people coming from that shopping area (Q46) When I hear footsteps behind me in the shopping area at night, it makes me feel uneasy
Perceived risk (PERCRISK)	562 / 566	(Q21) What would you say is the likelihood that you will be held up on your street, threatened, beaten up, or anything of that sort in your neighborhood? Would you say there's (1) A slight chance (2) A fair chance (3) A good chance (Q22) About how often are people in your neighborhood threatened, beaten up, or anything of that sort? Would you say (0) Almost never (1) Once in a while (2) Often (3) Very often
Informal control on the residents' block	720 / 721	[Considering the rest of the block where you live, tell me whether you agree or disagree with each statement] (Q63a) I have a lot of say about what goes on (4) Agree strongly (3) Agree slightly (2) Disagree slightly (1) Disagree strongly (Q63b) I feel personally responsible for what goes on (same as above)

Perceived invicilities in the center	875 / 882	For each item, tell me if it's a big problem, somewhat of a problem or not a problem at all in the shopping area located at _____ where 2 = big, 1 = somewhat, 0 = not a problem (Q50a) Vacant buildings or lots (Q50b) Litter, trash or junk on sidewalk, alleys, or lots (Q50c) Upkeep and appearance of businesses (Q50d) Vandalism like graffiti or broken windows (Q50e) People loitering or hanging out (Q50f) Noisy or unruly teengers (Q50g) Strangers and outsiders present (Q50h) People harassing or bothering others (Q50i) People drunk in public places (Q50j) Purse snatching or street crime (Q50K) Drug use or dealing (Q50l) Prostitution

Table 8

Correlations Among Dependent Variables: Resident Surveys

	ATTACHED	TCBLORSP	FEARWORY	SCCFRWRY	PERCRISK	SCCPROBS
ATTACHED	1.000					
TCBLORSP	0.292	1.000				
FEARWORY	-0.175	-0.126	1.000			
SCCFRWRY	-0.189	-0.113	0.546	1.000		
PERCRISK	-0.215	-0.137	0.484	0.392	1.000	
SCCPROBS	-0.300	-0.058	0.267	0.382	0.341	1.000

ATTACHED	Attachment to neighborhood
TCBLORSP	Perceived informal control on resident's home block
FEARWORY	Fear and worry about personal safety while in neighborhood
SCCFRWRY	Fear and worry while in the commercial center
PERCRISK	Perceived risk of being victimized by street crime
SCCPROBS	Perceived incivilities in the center

Table 9
Dependent Variables for Business Personnel Survey

Outcome	Cronbach's alpha / standardized alpha	Items
Fear and worry while in the small commercial center	66 / 67	Mostly true vs Mostly false; coded 1/0, where 1 always = fearful response (Q28) I'm often a little worried that I will be the victim of a crime in this shopping area (Q29) I would not be afraid if a stranger stopped me at night in the shopping area to ask for directions (Q30) While I'm at work, I'm afraid someone's going to rob the place. (Q31) When I'm away from my establishment, I worry that someone will vandalize or try to break in (Q32) If I heard footsteps behind me at night in the shopping area, it would make me feel uneasy
Perceived risk (PERCRISK)	68 / 68	(Q35) What would you say is the likelihood that your customers will be held up on your street, threatened, beaten shopping area? Would you say there's (0) No chance at all (1) A slight chance (2) A fair chance (3) A good chance (Q36) About how often are businesses in this shopping area held up or broken into? Would you say (0) Almost never (1) Once in a while (2) Often (3) Very often (Q37) What would you say is the likelihood that this establishment will be robbed, that is, held up in the next year (0) No chance at all (1) A slight chance (2) A fair chance (3) A good chance (Q38) What would you say is the likelihood that this establishment will be burglarized or broken into in the next ye (0) No chance at all (1) A slight chance (2) A fair chance (3) A good chance

Protection	73 / 73	In order to avoid crime or to protect yourself and your business, have you done any of the following (1=yes, 0=no) (Q39A) Changed the layout of your store? (Q39B) Arranged to have a premise security check by the police or other experts? (Q39C) Restricted the amount of cash on hand? (Q39D) Adopted management procedures intended to control internal theft? (Q39F) Installed a burglar alarm in your business? (Q39G) Installed a camera system? (Q39H) Put bars on windows or doors, or installed other physical barriers? (Q39I) Kept a watch dog? (Q39J) Kept a gun or other weapon at your business? (Q39K) Displayed crime prevention or other warning stickers on the doors, windows or elsewhere at your business? (Q39L) Contacted the police to keep an eye on your business? (Q39M) Regularly turned on lights in your business at night? (Q39O) Refused entrance or service to a customer who seemed a threat to order or security? (Q39P) Terminated an employee who created problems for security or order?
Problems in center	85 / 85	For each item, tell me if it's a big problem, somewhat of a problem or not a problem at all in the business area wh 2 = big 1 = somewhat 0 = not a problem (Q80a) Vacant buildings or lots (Q80b) Litter, trash or junk on sidewalk, alleys, or lots (Q80c) Upkeep and appearance of businesses (Q80d) Vandalism like graffiti or broken windows (Q80e) People loitering or hanging out (Q80f) Noisy or unruly teengers (Q80g) Strangers and outsiders present (Q80h) People harassing or bothering others (Q80i) People drunk in public places (Q80j) Purse snatching or street crime (Q80K) Drug use or dealing (Q80l) Prostitution

Table 10

Correlations between Dependent Variables in Business Person Survey

	FEARWORY	PERCRISK	PROTECT	SCCPROBS
FEARWORY	1.0000			
PERCRISK	.5209	1.0000		
PROTECT	.3538	.3856	1.0000	
SCCPROBS	.3157	.4278	.2979	1.0000

FEARWORY	Fear and worry while in center
PERCRISK	Perceived risk of business and customer victimization
PROTECT	Steps taken to protect the business
SCCPROBS	Perceived incivilities in the center

Table 11

Resident Survey: Percent Variance Between-Groups, and Reliability of Group Means

Outcome	Results	
	Total Variance	Reliability
	Between Variance	
	% Between Variance	
	Chi squared	
Attachment	.466	.818
	.056	
	11.5%	
	126.75 (df=23); p < .001	
Fear and worry	.422	.542
	.015	
	3.5%	
	50.18 (df=23); p < .01	
Fear and worry while in the neighborhood center	.416	.742
	.032	
	7.71%	
	90.28 (df=23); p < .001	

Perceived risk	.682 .058 8.5% 84.45 (df=23) p < .001	.730
Informal control	.787 .021 2.6% 45.28 (df=23) p < .01	.512
Problems in center	.486 .161 33% 427.44 (df=23); p < .001	.945

Note. Listwise n = 826

Table 12

Correlations Among Level II Predictors for Neighborhood Fear

Pearson correlation matrix

	ZDISTCBD	ZHHINCOM	ZTNONWP8	ZHMSPROP	ZPRSCRMR	ZGRAF82P	ZALVAC82
ZDISTCBD	1 000						
ZHHINCOM	0 374	1 000					
ZTNONWP8	-0 371	-0 224	1 000				
ZHMSPROP	0 274	0 463	-0 195	1 000			
ZPRSCRMR	-0 108	-0 420	0 205	-0 930	1 000		
ZGRAF82P	-0 535	-0 170	0 875	-0 159	0 058	1 000	
ZALVAC82	-0 314	-0 357	0 210	-0 619	0 697	090	1 000

Gamma correlation matrix

	ZDISTCBD	ZHHINCOM	ZTNONWP8	ZHMSPROP	ZPRSCRMR	ZGRAF82P	ZALVAC82	ZDISTCBD	1 000
ZHHINCOM	0 413	1 000							
ZTNONWP8	-0 370	-0 333	1 000						
ZHMSPROP	0 261	0 268	-0 225	1 000					
ZPRSCRMR	-0 341	-0 304	0 391	-0 225	1 000				
ZGRAF82P	-0 394	-0 313	0 485	-0 121	0 586	1 000			
ZALVAC82	-0 417	-0 276	0 327	-0 066	0 266	087	1 000		

Note. n = 24 groups. All variables beginning with Z have been z scored

ZDISTCBD = distance from respective CBD

ZHHINCOM = average household income, 1980
ZTNONWPJ = percent nonwhite, 1980
ZHMSPROP = percent owner occupied, 1980
ZPRSCRMR = personal crime rate
ZGRAF82P = percent buildings with graffiti, 1982
ZALVAC82 = number vacant buildings in center, 1982

Table 13
Predicting Fear and Worry in Neighborhood: Fixed Slopes, Distance from CBD Excluded (FEARWORY)

	Level I only		Level I and Structural Ecology		Level I, Crime, and Graffiti		Level I, Structure, and Crime		Level I, Structure, and Graffiti	
Variable	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Level I										
Perceived Incivilities (SCCPROBS)	218	5 76***								
Age (ZLAGE)	082	3 66**								
Sex (FEMALE)	257	6 15***								
Victimization (ZVICTIM)	104	4 81***								
Education (ZQ75)	- 082	-3 54**								
Distance from center (ZONENUM)	- 021	<-1								
Level II										
Mean household income, 1980 (ZHHINCOM)			- 186	-1 31			- 218	-1 54	- 182	-1 42
Percent nonwhite, 1980 (ZTNONWP8)			210	1 58			213	1 55		
Proportion homeowned (ZHMSPROP)			- 357	-1 40					- 343	-1 49
Personal crime rate (ZPRSCRMR)					084	2 17*	046	<1		
Graffiti (ZGRAF82P)					364	3 04**			316	2 07*
Explained within-group variance	34%									
Explained between-group variance			35%		50%		38%		58%	

Table 14
Predicting Fear and Worry in Neighborhood Fixed Slopes, Using Distance from CBDs

	Level I and Distance from CBDs		Level I, Distance from CBDs, Crime, and Graffiti		Level I, Distance from CBDs, and Crime		Level I, Distance from CBDs, and Graffiti	
Variable	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Level II								
Distance from CBDs (ZDISTCBD)	-.460	-4.24**	-.348	-3.02**	-.436	-4.33**	-.372	-2.96*
Personal Crime Rate (ZPRSCRMR)			.075	2.27*	.074	2.20*	---	
Percent buildings with Graffiti in Center (ZGRAF82P)			.173	1.47	---		.173	1.32
Explained between-group variance	62%		82%		77%		66%	
Significance of remaining between-group variance	χ^2 (23)=34.30 p=.046		χ^2 (20)=25.04 p=.20		χ^2 (21)=27.80 p=.146		χ^2 (21)=31.61 p=.064	

Note. Level 1 coefficients not shown. Same Level I predictors used here as were used in preceding table.

Table 15

Correlations among Level II Predictors with Change Indicators

Pearson correlation matrix

	ZHHINCOM	ZMINCHG	ZCHANGE	ZPRSCRMR	ZGRAF82P
ZHHINCOM	1.000				
ZMINCHG	-0.164	1.000			
ZCHANGE	-0.244	0.467	1.000		
ZPRSCRMR	-0.420	0.011	0.359	1.000	
ZGRAF82P	-0.170	0.488	0.727	0.058	1.000

Gamma coefficients

	ZHHINCOM	ZMINCHG	ZCHANGE	ZPRSCRMR	ZGRAF82P
ZHHINCOM	1.000				
ZMINCHG	-0.036	1.000			
ZCHANGE	-0.217	0.095	1.000		
ZPRSCRMR	-0.304	0.153	0.101	1.000	
ZGRAF82P	-0.313	0.531	0.061	0.586	1.000

ZHHINCOM Mean household income, 1980
ZMINCHG Change in percent nonwhite (minority), 1970 - 1980
ZCHANGE Percent occupied housing units turning over, 1976 - 1978
ZPRSCRMR Personal crime rate
ZGRAF82P Proportions buildings in center with graffiti, 1982

Table 16
Predicting Fear and Worry in Neighborhood: Fixed Slopes, Change Measures

Variable	Equation 1: Level I and Structure		Equation 2: Level I, Structure, Crime	
	Coeff.	t	Coeff.	t
Level I				
Perceived Incivilities (SCCPROBS)	.218	5.751***		
Age (ZLAGE)	.082	3.65**		
Sex (FEMALE)	.259	6.20***		
Victimization (ZVICTIM)	.104	4.81***		
Education (ZQ75)	-.082	-3.53***		
Distance from center (ZONENUM)	-.023	< -1		
Level II				
Mean hhold income 1980 (ZHHINCOM)	-.225	-1.99*	-.191	-1.54
Minority change, 70-80 (ZMINCHG)	.154	1.12	.178	1.24
Turnover, 76 - 78 (ZCHANGE)	.866	2.51*	.772	2.06*
Personal crime rate (ZPRSCRMR)	---	---	.03	< 1
Variance				
Explained between group variance	65%		67%	
Significance of remaining between-group variance	$\chi^2(20)=30.08$ p = .068		$\chi^2(19)=29.34$ p = .061	

Note. Predictors beginning with z have been z scored. Level I effects not shown for second equation; same as in first

Note. * = p < .05; ** = p < .01; *** = p < .001

Table 17
Predicting Fear and Worry in Commercial Center: Three Structural Dimensions

	Level I and Three Dimensions of Neighborhood Structure	
Variable	Coeff.	t
Level I		
Perceived Incivilities (SCCPROBS)	.312	8.63***
Age (ZLAGE)	.077	3.58**
Sex (FEMALE)	.216	5.45***
Victimization (ZVICTIM)	.078	3.80**
Education (ZQ75)	-.093	-4.18**
Distance from center (ZONENUM)	-.048	-1.97*
Level II		
Mean household income, 1980 (ZHHINCOM)	-.138	-1.28
Percent nonwhite, 1980 (ZTNONWP8)	.385	3.83**
Proportion homeowned (ZHMSPROP)	-.961	-5.01***
Explained within-group variance	17.5%	
Explained between-group variance	93.2%	
Significance of remaining between-group variance	$\chi^2(20) = 22.45$ $p = .22$	

Note. * = $p < .05$; ** = $p < .01$; *** = $p < .001$

Table 18
Predicting Fear and Worry in Commercial Center, Level II Effects:
Using Distance from CBD as Proxy for Neighborhood Structure

	Distance Only		Distance, Crime, and Incivilities	
Variable	Coeff.	t	Coeff.	t
Level II				
Distance from CBD (ZDISTCBD)	-.466	-2.99**	-.211	-2.03*
Personal Crime Rate (ZPRSCRMR)	---		.179	6.07***
Graffiti in Center (ZGRAF82P)	---		.389	3.62**
Explained between-group variance	27.2%		96.3%	
Significance of remaining between-group variance	$\chi^2(22)=78.74$; $p < .001$		$\chi^2(20)=22.27$; $p=.325$	

Note. Level I predictors also included in this model, but are not shown. They are: victimization, age, education, gender, perception of problems in the center, and distance from the center. All of the Level I predictors were group mean centered except for gender and distance from the center.

Table 19

Predicting Fear and Worry in Commercial Center, Level II Effects: Using Neighborhood Structural Change

Variable	Current Income, and Changes in Ethnicity and Stability		Current Income, and Changes in Ethnicity and Stability, and Crime,	
	Coeff.	t	Coeff.	t
Level II				
Mean household income, 1980 (ZHHINCOM)	-.360	-2.53*	-.197	-1.54
Minority Change, 1970 - 1980 (ZMINCHG)	.198	1.14	.308	2.09*
Turnover, 1976-1978 (ZCHANGE)	.899	2.05*	.448	1.16
Personal crime rate (ZPRSCRMR)	---		.147	3.30**
Explained between-group variance	52%		76.8%	
Significance of remaining between-group variance	$\chi^2(20)=53.76$; $p < .001$		$\chi^2(19)=34.02$; $p=.018$	

Note. Level I predictors also included in this model, but are not shown. They are: victimization, age, education, gender, perception of problems in the center, and distance from the center. All of the Level I predictors were group mean centered except for gender and distance from the center.

Table 20

Predicting Perceived Incivilities in the Commercial Center Using Neighborhood Structure

Variable	Equation 1		Equation 2	
	Level II			
	Current Structure		Current Structure and Crime	
	Coeff.	t	Coeff.	t
Level I				
Sex (FEMALE)	.067	1.72·		
Age (ZLAGE)	-.055	-2.61·		
Victim (ZVICTIM)	.102	5.16···		
Education (ZQ75)	.067	3.16··		
Distance from center (ZONENUM)	-.039	-1.65		
Level II				
Income (ZHHINCOM)	-.066	< -1	-.062	-1.09
Percent non-white (ZTNONWP8)	.649	3.95··	.655	3.90··
Percent owned (ZHMSPROP)	-2.42	-7.74···	-2.77	-3.54··
Crime (ZPRSCRMR)	---	---	-.069	< -1
Variance				
Percent between group variance explained	87%		86%	
Significance remaining between-group variance	p < .001		p < .001	

Note. Same Level 1 predictors included in Equation 2 as appeared in Equation 1; results identical and are not shown.
Note. · = p < .10; * = p < .05; ** = p < .01; *** = p < .001
Note. If we allow current graffiti to enter instead of the personal crime rate, it yields a non-significant coefficient (.45, p > .10).

Table 21

Predicting Perceived Incivilities, Level II effects only: Neighborhood Change, and Disorder

	Structural Change		Structural Change, Crime and Observed Incivilities	
Variable	Coeff.	t	Coeff.	t
Level II				
Mean household income, 1980 (ZHHINCOM)	-.614	-2.03*	-.132	< 1
Change in nonwhite, 1970 - 1980 (ZMINCHG)	.141	< 1	.302	1.41
Turnover (ZCHANGE)	2.10	2.23*	-.82	-1.09
Personal crime rate (ZPRSCRMR)	---		.453	6.85***
Graffiti (ZGRAF82P)	---		.877	3.38**
Explained between-group variance	33%		84.5%	
Significance of remaining between-group variance	$\chi^2(20)=259.28$ p<.001		$\chi^2(18)=67.83$ p<.001	

Note. Level I predictors not shown; same as in previous table. All predictors z-scored.

Table 22
Predicting Perceived Incivilities in Commercial Center: Three Structural Dimensions, Allowing Victimization Slope to Vary

	Level I and Three Dimensions of Neighborhood Structure	
Variable	Coeff.	t
Level I		
Sex (FEMALE)	.048	1.24
Age (ZLAGE)	-.061	-2.94*
Victimization (ZVICTIM)	.067	2.84*
Predicting Victimization slope: Observed Graffiti (ZGRAF82P)	.308	3.70*
Education (ZQ75)	.065	3.09**
Distance from center (ZONENUM)	-.034	-1.43
Level II		
Mean household income, 1980 (ZHHINCOM)	-.067	< -1
Percent nonwhite, 1980 (ZTNONWP8)	.644	3.92**
Proportion homeowned (ZHMSPROP)	-2.435	-7.83**
Explained within-group variance	8.8%	
Explained between-group variance of intercept	85.6%	
Significance of remaining between-group variance:		
Intercept	$\chi^2(20)=68.95$; p<.001	
Victimization Slope	$\chi^2(22)=25.04$; p=.294	

Table 23

Impacts of Level I predictors and Neighborhood Structure on Perceived Risk

	Level I and Three Dimensions of Neighborhood Structure	
Variable	Coeff.	t
Level I		
Sex (FEMALE)	.200	3.74**
Age (ZLAGE)	.809	2.69*
Victimization (ZVICTIM)	.081	2.94*
Live alone (ALONE)	.188	2.39*
Education (ZQ75)	-.092	-3.09**
Perceived Incivilities (SCCPROBS)	.341	7.03***
Distance from center (ZONENUM)	-.040	-1.20
Level II		
Mean household income, 1980 (ZHHINCOM)	-.081	< -1
Percent nonwhite, 1980 (ZTNONWP8)	.568	3.97**
Proportion homeowned (ZHMSPROP)	-1.39	-5.05***
Variance		
Explained within-group variance	12%	
Explained between-group variance of intercept	95%	
Significance of remaining between-group variance:	χ^2(df=20)=27.84; p=.113	

Table 24

Informal Social Control as Reflected in Perceived Territorial Responsibility

Variable	Coeff.	t
Level I		
Sex (FEMALE)	.017	< 1
Age (ZLAGE)	-.009	< -1
Victimization (ZVICTIM)	-.087	-2.76*
Live alone (ALONE)	-.287	-3.18**
Education (ZQ75)	.104	3.06**
Perceived Incivilities (SCCPROBS)	.024	< 1
Distance from center (ZONENUM)	.036	< 1
Level II		
Mean household income, 1980 (ZHHINCOM)	-.022	< -1
Percent nonwhite, 1980 (ZTNONWPS)	-.044	< -1
Proportion homeowned (ZHMSPROP)	1.13	3.94**
Variance		
Explained within-group variance	3%	
Explained between-group variance of intercept	83%	
Significance of remaining between-group variance:	χ^2 (df=20)=23.21 p=.278	

Table 25

Impacts of Structure and Level I Predictors on Attachment to Neighborhood

Variable	Coeff.	t
Level I		
Sex (FEMALE)	.135	3.12**
Years in neighborhood (ZLLENGTH)	.145	6.03***
Victimization (ZVICTIM)	-.013	< -1
Education (ZQ75)	.076	3.14**
Perceived Incivilities (SCCPROBS)	-.172	-4.31**
Proportion of friends and relatives in neighborhood (ZQ2)	.150	6.79***
Distance from center (ZONENUM)	.084	3.16**
Level II		
Mean household income, 1980 (ZHHINCOM)	.198	1.17
Percent nonwhite, 1980 (ZTNONWP8)	-.564	-3.48**
Proportion homeowned (ZHMSPROP)	.834	2.71*
Variance		
Explained within-group variance	16%	
Explained between-group variance	68%	
Significance of remaining between-group variance:	χ^2(df=20)=52.11 p < .001	

Table 27

Outcomes from Business Personnel Survey: Description of Variance

Outcome	Reliability	Variance			Percent Variance		Significance
		Total	Between	Within	Between	Within	Between Variance
Fear and Worry	0.675	0.441	0.100	0.341	22.6%	77.4%	Chi squared (df=23)=74.01, p < .001
Perceived Risk	0.697	0.518	0.127	0.391	24.5%	75.5%	Chi squared (df=23)=78.50, p < .001
Protection	0.337	0.204	0.013	0.191	6.4%	93.6%	Chi squared (df=23)=34.72, p < .06
Perceived Incivilities	0.822	0.362	0.137	0.225	37.9%	62.1%	Chi squared (df=23)=159.41, p < .001

Table 28
Centers Rank Ordered (High to Low) on Business Fear:
Empirical Bayes and OLS Intercepts

Rank on Business Fear	ID	Intercept	
		Empirical Bayes	OLS
1	140	0.623	0.927
2	200	0.408	0.563
3	810	0.341	0.471
4	450	0.253	0.377
5	310	0.243	0.451
6	170	0.147	0.231
7	830	0.136	0.175
8	670	0.133	0.190
9	970	0.091	0.117
10	740	0.081	0.135
11	610	0.025	0.034
12	260	0.012	0.018
13	770	0.007	0.011
14	590	-0.028	-0.047
15	40	-0.128	-0.216
16	990	-0.130	-0.186
17	160	-0.156	-0.232
18	60	-0.200	-0.370
19	730	-0.253	-0.320
20	350	-0.280	-0.416
21	750	-0.289	-0.371
22	910	-0.329	-0.517
23	640	-0.331	-0.556
24	950	-0.378	-0.507

Table 29
Predicting Business Personnel Fear and Worry in the Center

Variable	Coefficient	t
Level I		
Perceived incivilities (SCCPROBS)	.292	3.07**
Age (ZAGE)	.059	1.24
Total business hours open per week (ZQ7TL)	.080	1.63
Education (ZQ106)	-.030	< -1
Level II		
Mean household income, 1980 (ZHHINCOM)	-.098	< -1
Percent nonwhite, 1980 (ZTNONWP8)	-.148	-1.77~
Proportion homeowned, 1980 (ZHMSPROP)	-.099	< -1
Vehicular traffic volume (ZTRAFVOL)	-.206	-2.54*
Variance		
Percent between-group variance explained: 43%		
Significance of remaining between-group variance: χ^2(df=19) = 43.98, p < .01		

Note: ~ = p < .10; * = p < .05; ** = p < .01

Table 30
Predicting Business Personnel Perceived Risk in the Center

Variable	Coefficient	t
Level I		
Perceived incivilities (SCCPROBS)	.464	4.85***
Age (ZAGE)	.154	3.20**
Total business hours open per week (ZQ7TL)	.121	2.45*
Education (ZQ106)	-.038	< -1
Level II		
Mean household income, 1980 (ZHHINCOM)	-.308	-2.51*
Percent nonwhite, 1980 (ZTNONWP8)	.096	1.14
Proportion homeowned, 1980 (ZHMSPROP)	.213	1.72+
Proportion teens observed (ZLTEENS)	-.224	-2.84*
Variance		
Percent between-group variance explained: 65%		
Significance of remaining between-group variance: χ^2(df=19)=43.78, p < .01		

Note: + = p < .10; * = p < .05; ** = p < .01; *** = p < .001

Table 31
Predicting Business Personnel Protection

Variable	Coefficient	t
Level I		
Perceived incivilities (SCCPROBS)	.273	4.42***
Age (ZAGE)	-.027	< -1
N full time employees (ZLOGEMPF)	.037	1.23
Total business hours open per week (ZQ7TL)	.185	5.72***
Education (ZQ106)	-.049	-1.74+
Level II		
Mean household income, 1980 (ZHHINCOM)	-.099	-1.36
Percent nonwhite, 1980 (ZTNONWP8)	.007	< 1
Proportion homeowned, 1980 (ZHMSPROP)	.019	< 1
Number of bars present (ZBARS)	.099	2.38*
Personal crime rate (ZPRSCRMR)	-.092	-1.44

Note: + = p < .10; * = p < .05; ** = p < .01; *** = p < .001

Table 32
Centers Rank Ordered (High to Low) on Incivilities Perceived by Business Personnel:
Empirical Bayes and OLS Intercepts

Rank	ID	Intercept on Perceived Incivilities	
		Empirical Bayes	OLS
1	830	0.944	1.073
2	200	0.935	1.106
3	450	0.356	0.428
4	260	0.168	0.207
5	310	0.166	0.233
6	140	0.054	0.067
7	740	0.052	0.069
8	970	0.027	0.031
9	590	-0.012	-0.014
10	810	-0.016	-0.019
11	60	-0.070	-0.093
12	770	-0.098	-0.118
13	170	-0.100	-0.128
14	990	-0.110	-0.133
15	910	-0.131	-0.162
16	730	-0.147	-0.165
17	640	-0.167	-0.221
18	350	-0.189	-0.233
19	40	-0.197	-0.250
20	670	-0.200	-0.241
21	950	-0.200	-0.223
22	160	-0.314	-0.387
23	750	-0.373	-0.424
24	610	-0.379	-0.421

Table 33
Business Personnel Perceived Incivilities in the Center

Variable	Coefficient	t
Level I		
Age (ZAGE)	-.087	-2.38*
Total business hours open per week (ZQ7TL)	.025	< 1
Education (ZQ106)	.030	< 1
Level II		
Mean household income, 1980 (ZHHINCOM)	-.112	-1.28
Percent nonwhite, 1980 (ZTNONWP8)	-.028	< -1
Proportion homeowned, 1980 (ZHMSPROP)	.007	< 1
N of bars (ZBARS)	.125	2.48*
Personal crime rate (ZPRSCRMR)	.234	3.01**
Variance		
Percent between-group variance explained: 89.9		
Significance of remaining between-group variance: χ^2(df=18)= 27.09, p=.077		

Note: * = p < .05; ** = p < .01; *** = p < .001