Community Structural Change and Fear of Crime*

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This paper examines how unexpected neighborhood changes influence fear of crime. It focuses on the roles of population composition, signs of incivility, and unsupervised teen groups. Survey, physical assessment, and census data for 1,622 residents in 66 Baltimore city neighborhoods form the basis of contextual models of daytime and nighttime fear levels. Fear was high in neighborhoods experiencing unexpected increases in minority and youth populations. Unexpected ecological change does not by itself set in motion a broad array of consequences undermining neighborhood viability. Rather, ecological change influences racial composition; other structural dynamics, independent of these ecological changes, subsequently determine the specific consequences of neighborhood racial composition.

We develop and test a model containing two ideas. Residents in urban neighborhoods that have changed rapidly during the preceding decade will fear crime more than residents living in neighborhoods that have not experienced such changes. Further, community and individual characteristics—who lives in the neighborhood, and how they view the locale—channel the effects of unexpected change on fear. The model has its roots in two areas of research: fear of crime, and social disorganization. We review the most relevant work in each area.

Fear of Crime

Several theoretical models suggest that rapid neighborhood changes result in elevated community concern and a wider incidence of physical decay and unsupervised teen groups, which, in turn, lead to higher fear levels (Conklin 1975; Hunter 1978; Lewis and Maxfield 1980; Lewis and Salem 1986; Skogan 1986, 1990; Taub, Taylor and Dunham 1984; Wilson and Kelling 1982). How these consequences arise, and the local conditions starting such processes, vary across models. Most models represent group-level control theories, explaining heightened concern for personal safety as a reaction to waning formal and informal control. External ecological forces acting on a neighborhood, such as an expanding central business district, economic decline, or changes in racial settlement patterns, play significant roles in weakening controls. Models from Hunter (1978), and Wilson and Kelling (1982) describe these processes.

Hunter (1978) proposed that social disorganization stemming from community decline produces physical signs of incivility such as litter, graffiti, and abandoned houses and lots; and social signs of incivility such as groups of unsupervised and rowdy teens. Residents then conclude that formal and informal forces maintaining public order are increasingly powerless, and, therefore, that their risks of victimization are increasing.

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Wilson and Kelling (1982) described a more complex scenario, arguing that unrepaired signs of physical incivility provide "cues" to local youth that antisocial behavior will be tolerated. If these cues increase, local youths assume that residents can no longer supervise the public arena. Consequently, problems related to unsupervised teen groups increase. In response, residents become more concerned about their personal safety, progressively withdrawing from the public arena. As local control erodes further, offenders from outside the neighborhood, attracted by the lack of natural guardians such as vigilant residents and shopkeepers, move into the locale.

Empirical cross-sectional research has provided support for portions of models linking rapid community change with fear (Covington and Taylor 1991; Perkins, Meeks, and Taylor 1992; Taylor and Hale 1986; Taylor, Shumaker and Gottfredson 1985). No studies, however, have incorporated measures of actual neighborhood changes (see Greene and Taylor 1988; Taylor 1987; Taylor and Gottfredson 1986). Also, prior studies have not specified the extraneighborhood forces or changes that instigate the processes they describe (Gottdiener and Feagin 1988), and have not delineated the most relevant dimensions of internal community structure.

**Social Disorganization**

Social disorganization theory and research can fill these gaps. This theory posits effects of community structure on crime and delinquency, via effects of structure on community social organization (Bursik 1988; Kornhauser 1978; McKenzie 1921; Shaw 1929; Shaw and McKay 1972). In the social disorganization perspective, ethnic heterogeneity and rapid population turnover prevent urban communities from organizing collectively against groups migrating into neighborhoods, or from adequately controlling the antisocial behavior of area residents (Bursik 1988; Faris 1948; Homans 1950; Kornhauser 1978; McKenzie 1921; Shaw 1929; Shaw and McKay 1972). Heterogeneity and turnover also undermine ties between neighbors, limiting their ability to agree on a common set of values or to "solve commonly experienced problems" (Bursik 1988:521).

Unsupervised local teen groups also figure prominently in the social disorganization literature. The earliest statements of this theory emphasize the disorganizing effects of migration to cities in the United States—both the migration of European immigrants and rural U.S. citizens. The urban areas in which European immigrants and rural U.S. citizens settled were described as disorganized because of breakdowns in both community and familial controls (Faris 1948; Maccoby, Johnson and Church 1958; Shaw and McKay 1972). Theorists presumed that parents with values learned in Europe or the rural United States were ill-equipped to supervise children assimilating the values of the urban United States. The resulting value clash greatly weakened the control provided by parental supervision, a traditional means of informal control.

The problems attendant upon weakened familial controls were exacerbated by the weakening of informal community controls. The transience of communities made adults reluctant to intervene with youths involved in minor delinquency because the youths' parents were strangers with unknown values (Maccoby, Johnson, and Church 1958). Many adults also refused to become involved because they saw offending youths as the responsibility of their parents, or they feared being seen as nosy or interfering if they intruded. Some parents also expressed a reluctance to intervene due to fears of retaliation from bands of unsupervised youths or their parents. After all, residents of highly mobile and heterogeneous urban areas were uncertain if other local parents shared their values. Anticipating opposition or non-cooperation from neighborhood parents, concerned parents tended to withdraw from nonconforming families rather than attempting to reform and informally control them (Maccoby, Johnson, and Church 1958).
Unsupervised juveniles might "experiment" with one or two tentative acts of delinquency to discern community reaction. If adult onlookers exercised no informal controls—a likely response in heterogeneous and highly mobile urban areas—then youths might feel free to continue or escalate their delinquencies (Maccoby, Johnson, and Church 1958; Wilson and Kelling 1982).

From a community-level analysis of the 1982 and 1984 British Crime Surveys, Sampson and Grove (1989) concluded that community socioeconomic status (SES), ethnic heterogeneity, and residential instability were linked to victimization and offender rates through their influences on unsupervised local teen corner groups, number of local friends, and low levels of local organizational involvement. Of the intervening variables, unsupervised peer groups had the largest effects on victimization and offending rates. Of the dimensions of community structure examined, ethnic heterogeneity had some of the strongest impacts on the types of street crimes—mugging and street robbery—most closely associated with fear (Tables 3 and 6). Such results provide strong, direct, cross-sectional support for the ecological model of social disorganization. They suggest that ethnic variation may be the most relevant community dimension facilitating the processual dynamics linked to fear of crime by the models of Hunter (1978), and Wilson and Kelling (1982).

Longitudinal investigations link changes in delinquency with the same structural dimensions (Bursik 1986; Bursik and Webb 1982; Heitgard and Bursik 1987; Schuerman and Kobrin 1986; Shannon 1981). The Chicago longitudinal studies have found racial change to be the neighborhood structural change most closely linked with delinquency changes (e.g., Bursik and Webb 1982: Table 2). Other longitudinal studies connect community structural change with crime changes (Taylor and Covington 1988). When all of these longitudinal studies are considered alongside community-level cross-sectional work (Sampson and Grove 1989), they suggest that racial composition may be the dimension of ecological structure most relevant to disorder. Unfortunately, due to their reliance on census data, these longitudinal studies fail to measure the mediating variables posited by social disorganization theory (Sampson and Grove 1989:775). Therefore, they cannot provide a clean, longitudinal test of that theory. We require models incorporating both community change variables and individual-level variables (Baldwin 1979; Reiss 1986) to adequately test a social disorganization framework.

A Contextual Social Disorganization Model of Fear of Crime

Our model examines the effects of rapid neighborhood change on population composition, physical incivilities, troublesome teen groups, and fear of crime (see Figure 1). It builds on fear of crime and social disorganization literature in several ways.

First, it focuses on rapid or unexpected community change over time, concentrating on neighborhoods that change more dramatically than others in the same city (Bursik 1986, 1988; Skogan 1990). Residualized neighborhood change scores are used to reflect relative speed of change. Neighborhoods with high residual change scores are those changing more substantially during the study's time frame, controlling for both initial composition and overall changes across all neighborhoods.

Second, the model focuses on the ecological change dimensions of minority and youth populations, and incorporates racial composition.

Third, in the model the important intervening community and individual characteristics are troublesome teen groups (Sampson and Grove 1989; Warr 1984, 1990) and physical incivilities (Covington and Taylor 1991; Wilson and Kelling 1982).

Fourth, the model seeks to test a portion of the causal chain proposed by Wilson and Kelling (1982); specifically, that most effects of neighborhood change on fear will be indirect and mediated by community and individual characteristics.
The proposed model examines daytime and nighttime fear levels separately for two reasons. Models of the environmental psychology of disorder on urban street blocks point out that behavioral dynamics involving natural guardians, such as vigilant residents and shopkeepers, vary at different times of day (Taylor 1987, 1988: Chapter 8). In addition, work on fear of crime has demonstrated that women find nighttime (dark) urban scenes more fear inspiring than do men (Warr 1984, 1990).

**Exogenous Predictors**

Key exogenous, contextual predictors in the model are unexpected neighborhood changes. These are changes can be predicted neither from a neighborhood's characteristics ten years ago, nor from changes common to all neighborhoods in an urban area. They reflect shifts in a neighborhood's “role” in the larger urban mosaic (Bursik 1986). We use the terms expected and unexpected in ecological, not psychological terms. The residualized change scores capture change that is unexpected because it is rapid. Neighborhoods with high scores on a change pathway will be those that, controlling for their initial composition, changed more substantially relative to other neighborhoods in the same city during the same time frame.

Factorial ecology analyses of urban neighborhood changes in the 1960s and 1970s have identified three orthogonal pathways of neighborhood change: changes in economic status, changes in family status or stability, and changes in minority and youth composition (Hunter 1971, 1974a, 1974b; Taylor and Covington 1988). Social disorganization work points toward

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1. The residual approach to operationalizing change has been debated, and some have advocated rejecting it in favor of a difference score or growth curve approach (e.g., Rogosa 1988; Rogosa, Brandt, and Zimowski 1982). We based our choice of the residual scores on use of ecological theory. Human ecology addresses the relationship between communities of populations and how these change (Hawley 1950, 1984). These residualized change scores capture shifting ecological relationships in a better fashion than would difference scores. Also, with only two points in time, it is not possible to construct growth curves for different neighborhoods.
changes in minority and youth composition being most influential on our mediating constructs and outcomes. We explain below how these effects might operate. We provide a brief explanation of how rapid changes in economic status might influence fear, since status change exhibited a small impact in one model. We omit discussions of effects of changes in stability; neither previous longitudinal social disorganization work on delinquency, nor this study, reveal sizable impacts of changes in stability.

**Specific Key Pathways in the Model**

First, we expect that minority and youth population changes during a decade will shape neighborhood racial population composition at the end of the period. Thus the effects of this pathway of neighborhood change may be mediated by the racial composition of the population at the end of the period.

Second, we anticipate that neighborhood population composition will influence incivilities. That is, increasing minority and youth populations should be linked to a higher incidence of signs of incivility at the end of the period via the impact of neighborhood racial composition on incivilities.

Physical incivilities may be more extensive in predominantly African-American communities for several reasons. "Government officials have done a poor job in protecting some communities, especially low income, working class and black communities, against the ravages of . . . environmental degradation" (Bullard and Feagin 1991:69). Specifically, Logan and Molotch (1987) argue that blacks are more likely than whites to be paying rent to landlords living outside their neighborhood. "Property owners and management firms often see racial change as a signal to cut back property maintenance and reinvestment in structures. The most efficient route to maximize exchange value is, if not a 'milking' of the property for short term gain, at least a *decrease in maintenance*" (italics added, 1987:130).

Social incivilities, such as large numbers of people gathering on street corners, will be more prevalent in predominantly black neighborhoods due to the linkage between minority status and unemployment levels in urban neighborhoods (Sampson 1987).

Third, we predict that in neighborhoods with more widespread or intense signs of physical and social incivility, residents will perceive more widespread problems with local unsupervised teen peer groups. The signs of incivility may suggest to local youths that there are more opportunities for delinquent acts (Cloward and Ohlin 1960; Maccoby, Johnson and Church 1958) or that natural guardians are lacking (Cohen and Felson 1979; Taylor 1987), or both. Encouraged by these indicators, teens may be more likely to gather in unsupervised peer groups and to engage in rowdy or delinquent behavior. Residents thus will see teens hanging out as a greater problem in their neighborhood.

Finally, residents who perceive local teen groups as a greater problem will be more concerned for their personal safety. They will feel more vulnerable while walking during the day or at night in their neighborhood given the threat of possible victimization from, or discomfort caused by such teen groups.

**Other Pathways Investigated**

The pathways just specified represent the kernel of our contextual model. In addition, we tested for the following effects. (1) There may be a relationship between neighborhood racial composition and the delivery of criminal justice services. In predominantly African-American neighborhoods police may be less responsive (Smith 1986), and residents may perceive that they are treated inequitably by the criminal justice system (Hagan and Albonetti 1982). The connections between neighborhood composition and actual and perceived criminal justice operations may heighten urban unease (Garofalo and Laub 1978), the perceived
fragility of the public order, and feelings of relative powerlessness. These linkages may operate across locations at one point in time or in one location over time as that locale changes racially. The former represents a cross-sectional relationship, the latter a dynamic one. In the latter case, the relevant predictors would be neighborhood racial change; in the former, it would be end-of-the-decade racial composition.

(2) The above longitudinal dynamic suggests neighborhoods experiencing unexpected declines in status also may contain more fearful residents at the end of the period. On the other hand, depending on the particular decade, the opposite prediction may be made. Many urban neighborhoods in large cities experienced gentrification—rapid increases in house values, upgrading of housing stock, and in-migration of white collar and professional households—during the 1970s. In these gentrifying locales, upper-income, in-migrant households coexist with lower-income, longer term residents (DeGiovanni and Paulson 1984; Lee and Mergenhagen 1984). The locations experience increasing robbery and larceny rates (Covington and Taylor 1989). Residents in socioeconomically diverse gentrifying neighborhoods also may have higher fear of crime levels because they have dissimilar neighbors (Covington and Taylor 1991; Merry 1981). Therefore, a positive relationship may exist between unexpected status change and fear of crime.

(3) Numerous studies suggest women have higher fear levels than men (e.g., Taylor, Gottfredson, and Brower 1984). Skogan and Maxfield (1981) have suggested this reflects women’s greater physical vulnerability. Warr (1984, 1990) demonstrated that women perceive certain urban scenes as more dangerous than do men. Women also show more sensitivity to the fear inspiring qualities of darkness than men.

(4) Age also predicts fear: many studies find the elderly evincing higher levels of concern for their personal safety. Maxfield (1984) has shown that the effects of age on fear depend on the level of threat in the surrounding context. More recently, LaGrange and Ferraro (1989) have questioned whether the connections between age and fear are positive or negative. Nonetheless, we expect higher fear levels among older residents.

Sampling and Respondents

Site and Sampling Procedure

The site of this study was Baltimore, Maryland, a large mid-Atlantic port city with substantial manufacturing and service industries. Its population has declined from over a million shortly after the Second World War to less than 700,000 by 1980. The city has also changed racially during that period as the proportion of African-American households has increased, representing well over 50 percent of the city’s population by 1980. The urban population is relatively segregated along racial lines. By the end of the 1970s, only about two dozen stable, integrated neighborhoods were in evidence (Taylor and Talalay 1981). Significant racial change occurred in the city during the 1960s and 1970s. These changes notwithstanding, the city is relatively stable, with an average length of neighborhood residence in excess of 12 years (Verbrugge and Taylor 1980).

Sixty-six neighborhoods were randomly sampled from the population of 236 Baltimore city neighborhoods.2 Within each neighborhood, eight census blocks were randomly selected. A side of each chosen census block was then randomly selected if it included residential telephone listings, and was not exclusively made up of apartments (six or more phones at one

2. For details on neighborhood definition and data allocation see Taylor, Brower, and Drain (1979) and Goodman and Taylor (1983). In Baltimore at this time there were 11 public housing sites. These locations were excluded from the sampling frame since they made up a distinct housing and residential environment. We do not know to what extent our results will generalize to public housing sites.
address) or apartment complexes. If a side of a census block did not meet the criteria, another side was chosen randomly. If all four sides of a census block failed to meet the criteria, another census block was randomly sampled and the block face selection procedure repeated. In neighborhoods where blocks were depleted before completing the desired number of interviews, additional blocks were added using the same procedure. Sampling of both sides of a street block was not allowed. A total of 562 blocks were included in the final sample.

Merging all the blocks in a neighborhood into a sampling list, addresses were sampled using an interval or systematic sampling procedure. Within our sample, we treated each neighborhood as a stratum. We sought to obtain 25 interviews per neighborhood.

Completed interviews were obtained from 1622 heads of households or their spouses, randomly selected within dwelling units; 78 percent of these were completed by phone, 22 percent in the field. Seventy-three percent of the initial cases assigned resulted in completed interviews. The interviews lasted about a half-hour on average and included items on household history, attitudes toward the neighborhood, local social involvements, and neighborhood expectations. The surveys were conducted in the summer of 1982.

**Sample characteristics.** The respondent group had the following characteristics: 34 percent men and 66 percent women, median income in 1981 between $20,000 and $25,000, median education level of 12th grade. Thirty-seven percent of the sample was African-American, 46 percent was white, .5 percent was neither African-American nor white, and 17 percent of the sample refused to report racial identity. The correlation between the racial mix of the sample in each neighborhood, and the racial composition as determined by the 1980 Census was .95.

The 66 neighborhoods themselves included an extremely broad array of setting conditions. The 1980 Census provided the following information about the neighborhoods. They ranged from 100 percent African-American to 100 percent white, with an average of 44 percent black (median = 33 percent black). Poverty rates ranged from 1 percent to 59 percent (average = 16; median = 12) and unemployment rates ranged from 0 to 32 percent (average

3. Sides of census blocks with only apartment buildings were excluded because a major purpose of the initial study was to investigate how the person-environment transactions in the public arena immediately next to the home influenced responses to disorder. On street blocks with garden apartment complexes or large apartment buildings, these transactions will be qualitatively different from transactions on street blocks dominated by detached houses or row homes (Taylor 1988).

Nonetheless, since Baltimore is an older city, and the vast majority of its housing predates the Second World War, this exclusionary rule did not force us to resample many street blocks. Except for one neighborhood in the Northeast section of the city, there were no neighborhoods made up exclusively of apartment complexes. Of course, we do not know at this time to what extent the results revealed here will generalize to apartment-dominated residential environments.

4. The same contact procedure was used for all households. The initial screening contact was made by phone where possible; otherwise the initial screening contact was made in the field. Fifty-seven percent of the screeners were completed by phone; 43 percent were completed in the field. If it was not possible to complete the interview at the time the screener was completed, the interviewer later attempted to complete the interview by phone.

At the Bonferroni adjusted alpha level there were some differences between phone and field respondents. African-Americans were more likely than whites to be interviewed in the field, and lower-income respondents were more likely to be interviewed in the field. There were no differences in the proportion of men vs. women interviewed by phone or in the field. A probit analysis predicting type of final contact, and controlling for total number of contacts, showed no differences between the two groups on sex (t = 1.75) or education (t < 1), but did show differences on income (t = 4.6) and race (t = -3.1).

Yet, when we looked at the outcomes, at the Bonferroni adjusted alpha level (.025) there were no differences on the two outcome variables between the respondents who completed the interview by phone, and those who completed it in the field. (Chi square (3) = 8.01; p = .05 for day fear; chi square (3) = 1.16; p = .76 for night fear.) The chi square for day fear showed a nonmonotonic relationship between fear level and type of final contact. The percentage of respondents reporting "somewhat safe" and "very unsafe" was slightly higher among field as compared to phone respondents.

Given the similarity between phone and field respondents on the outcomes, and on the only individual-level demographic variable (gender) retained in the final models, we did not differentiate between field and phone respondents in the final models. This mixed phone/field method has been used in many studies (e.g., Crenson 1983; Taylor, Gottfredson and Brower 1984).
= 10; median = 9). The percentage of owner occupied housing units ranged from 6 percent to 89 percent (average and median = 55) and the percentage of adults having completed high school ranged from 13 percent to 41 percent (mean = 27; median = 26).

Physical assessments. In addition to the surveys, physical assessments of 20 percent of the street blocks in the 66 neighborhoods were conducted (n = 1182 blocks) by pairs of trained raters who completed their ratings independently. (For full details on this procedure, items assessed, and scale properties, see Taylor, Shumaker and Gottfredson 1985). The blocks were rated on many features including items traditionally associated with physical and social incivilities. Inter-rater reliability for individual items was excellent (all r_interclass > .85).

Measures

Outcomes

See Table one for a list of specific variables. To measure concern for personal safety in the neighborhood during the day and at night we used the National Crime Survey (NCS) format. Researchers have questioned whether the NCS items adequately represent the construct “fear of crime” (e.g., Ferraro and LaGrange 1987; LaGrange and Ferraro 1989). Although these fear of crime measures are sometimes criticized, several points can be made in defense of their use. First, the NCS nighttime item has drawn criticism because many residents are not abroad alone at night. We use day fear as well as night fear. Many residents are likely to be alone and abroad in their own neighborhoods during the day. Second, the item is specific to the neighborhood. Early in the protocol, interviewers identified and discussed the respondent’s neighborhood. Respondents answered this question in a specific, identified spatial context. Third, use of these items permits comparison of our results and those from a wide array of studies that used the measures. Finally, the convergent validity of these items may not be as poor as some authors have suggested. When examined in relation to a broader array of fear of crime items, these NCS items have a high loading on the resulting principal component, and do not contribute to related but distinct concepts such as avoidance or protection (Taylor et al. 1990; Taylor and Hale 1986).

Predictors

Unexpected neighborhood change. For 236 ecologically defined Baltimore city neighborhoods (Goodman and Taylor 1983), we defined vectors of change for the 1970s by regressing 1980 Census characteristics on 1970 characteristics, and conducting a principal components analysis of the residuals. These residuals reflect unexpected change. Principal components scores based on the residual variables yielded three independent vectors of neighborhood change: status, minority and youth composition, and stability. These three change dimensions for the 1970s in Baltimore are similar to the change vectors identified by Hunter (1971), using difference scores, for Chicago’s 75 natural areas in the 1960s.

These three change dimensions derive from theoretically selected variables reflecting a neighborhood’s shifting role in the urban mosaic over time. By including these contextual variables in the model and by expecting that change will affect mediating constructs as well as outcomes, we assert that changes in a neighborhood’s ecological positioning in relation to other neighborhoods will influence the makeup and perceptions of residents in the locale, as well as neighborhood conditions.
Table 1 • Measures

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>Outcomes</td>
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<tr>
<td>Fear during the day</td>
<td>How safe would you feel being out alone in your neighborhood during the day?</td>
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<tr>
<td>(DAYFEAR)</td>
<td>Would you feel:</td>
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<td></td>
<td>Very safe (1)</td>
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<td></td>
<td>Somewhat safe (2)</td>
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<td>Somewhat unsafe (3)</td>
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<td>Very unsafe (4)</td>
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<tr>
<td></td>
<td>(Don’t know)</td>
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<tr>
<td>Fear at night</td>
<td>How safe would you feel being out alone at night in your neighborhood.</td>
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<td>(NIGHTFEAR)</td>
<td>Would you feel:</td>
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<td></td>
<td>Very safe (1)</td>
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<td>Somewhat safe (2)</td>
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<td>Somewhat unsafe (3)</td>
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<td>Very unsafe (4)</td>
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<tr>
<td>Predictors</td>
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<tr>
<td>Unexpected changes in minority and</td>
<td>Principal component scores (Cronbach’s alpha = .67) constructed from residuals</td>
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<tr>
<td>youth composition*</td>
<td>after regressing the 1980 neighborhood census variable on the 1970 neighbor-</td>
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<td>(DLTMINYOUTH)</td>
<td>hood census variable. The following residual variables had the highest load-</td>
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<td>ings:</td>
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<td>% aged 65 or older</td>
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<td>% aged 60-64</td>
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<td>% Black population</td>
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<td>% aged 6-13</td>
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<td>% aged 0-5</td>
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<td>% aged 14-17</td>
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<td>% households below poverty</td>
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<td>Unexpected changes in status</td>
<td>Principal component scores (Cronbach’s alpha = .70) constructed from residuals</td>
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<td>(DLTSTATUS)</td>
<td>after regressing the 1980 neighborhood census variable on the 1970 neighbor-</td>
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<td>hood census variable. The following residual variables had the highest load-</td>
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<td>ings:</td>
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<td></td>
<td>Percentile for relative house value</td>
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<td></td>
<td>% over 25 with some college</td>
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<td></td>
<td>% managerial/professional occupation</td>
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<tr>
<td>Neighborhood racial composition</td>
<td>Neighborhood average on the race variable: white = 1; black = 2. 8 belonging</td>
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<tr>
<td>(NBHDRACE)</td>
<td>to other coded to missing. Total missing = 17%. Variable correlates .95 with</td>
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<tr>
<td></td>
<td>1980 Census-based measure of neighborhood racial makeup.</td>
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<td>Observed incivilities</td>
<td>Neighborhood principal component scores (Cronbach’s alpha = .87) based on ob-</td>
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<td>(INCIVILITIES)</td>
<td>servations made on 20% blocks in neighborhoods. Inter-rater reliabilities &gt;</td>
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<td>.85 for all individual items at the neighborhood level. Variables loading highest</td>
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<td>on the component:</td>
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<td>Small groups on street</td>
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<td>Graffiti</td>
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<td>Number of males on street</td>
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<td>Vacant houses</td>
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<td></td>
<td>Litter</td>
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<td></td>
<td>Housing density/block size</td>
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<td>Perception of unsupervised teen groups</td>
<td>I’m going to read a list of things that are problems for some people in the</td>
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<td>(TEENGROUPS)</td>
<td>neighborhoods. For each item tell me if it is a big problem, somewhat of a</td>
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<td></td>
<td>problem, or not a problem in your neighborhood. Groups of teenagers hanging</td>
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<td>out? (Frequency distribution)</td>
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<td></td>
<td>Big problem (2)</td>
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<td>Somewhat of a problem (1)</td>
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<td></td>
<td>Not a problem (0)</td>
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<td></td>
<td>(Don’t know)</td>
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Note:

a. We assumed that scores on the residual percent black change are correlated with changes in the absolute number of blacks living in a neighborhood, and not just with changes in the white population (i.e., whites leaving). We verified that this was the case. The simple correlation between residual percent black change and the change in the absolute number of blacks (1980 to 1970) was .56 (b = .008); between residual percent black change and change in the absolute number of whites the correlation was -.268 (b = -.004). If we use both the changes in absolute number of whites and absolute number of blacks to predict residual percent black change, the outcome is largely linked to changes in the absolute number of black residents (t = 4.49). The independent effect of changes in the number of whites is nonsignificant. Finally, we verified through examinations of scatterplots that the changes in the number of blacks over the period reflected increases in the number of blacks, not just differences in numbers of blacks being “lost” to different neighborhoods. Thus our assumption that changes in the residual percent black change reflect mainly influxes of black populations and not areas with decreasing white populations, is warranted.
Race. Neighborhood racial composition was the neighborhood average on the race survey variable.

Incivilities. Each neighborhood was assigned its incivilities score on the first principal component yielded by analysis of the on-site assessments.

Perception unsupervised teens. Respondents reported the extent to which unsupervised teens were a problem in the neighborhood.

Other. We examined several measures of local social ties and participation. Sampson and Grove (1989) suggest local social ties play key mediating roles in the extended Shaw and McKay (1972) model of social disorganization. These additional mediating constructs, however, did not add significant explained variance to the outcome after the other variables were included. Similarly, crime change measures, as a group, failed to add significant explained variance after other items had been entered. The exclusion of the crime change variables does not, therefore, indicate a misspecified model.

The means and standard deviations for the measures used in the final models appear in Table 2. We present characteristics for two random halves of the data. This strategy allows us to do model development on half of the data, and then to attempt replication of final models on the second half. See Appendix A for details on conceptual approach to modeling, estimation procedures used, and treatment of measurement errors.

Table 2 • Means and Standard Deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>First Random Half</th>
<th>Second Random Half</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexpected changes in minority and youth composition</td>
<td>M = -.07 SD = .96</td>
<td>M = -.11 SD = .97</td>
</tr>
<tr>
<td>Unexpected changes in status</td>
<td>M = .04 SD = .83</td>
<td>M = .10 SD = .92</td>
</tr>
<tr>
<td>Gender (1 = M; 2 = F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>M = 1.68 SD = .46</td>
<td>M = 1.66 SD = .47</td>
</tr>
<tr>
<td>Men</td>
<td>580 (68%)</td>
<td>512 (66%)</td>
</tr>
<tr>
<td>269 (32%)</td>
<td>261 (34%)</td>
<td></td>
</tr>
<tr>
<td>Incivilities</td>
<td>M = -.08 SD = .97</td>
<td>M = -.16 SD = .90</td>
</tr>
<tr>
<td>Neighborhood racial composition (1 = W; 2 = B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% in all white neighborhoods</td>
<td>M = 1.37 SD = .38</td>
<td>M = 1.34 SD = .38</td>
</tr>
<tr>
<td>278 (33%)</td>
<td>238 (31%)</td>
<td></td>
</tr>
<tr>
<td>% in all black neighborhoods</td>
<td>138 (16%)</td>
<td>129 (17%)</td>
</tr>
<tr>
<td>Perception of unsupervised teen groups</td>
<td>M = .60 SD = .76</td>
<td>M = .63 SD = .77</td>
</tr>
<tr>
<td>Fear during the day</td>
<td>M = 1.37 SD = .65</td>
<td>M = 1.43 SD = .69</td>
</tr>
<tr>
<td>Fear at night</td>
<td>M = 2.22 SD = 1.05</td>
<td>M = 2.38 SD = 1.08</td>
</tr>
</tbody>
</table>

Note: Based on weighted samples.

Results

Fear during the Day

The model for the first random sample appears in Figure 2; results for the second sample appear in Figure 3.
Figure 2 • Predicting Daytime Fear

Notes:

a. LISREL VII WLS Estimates from first random sample (weighted n = 848). Listwise covariance matrix used. Unstandardized coefficients: standard errors in parentheses. Effects shown are at least twice their standard error. Effects not shown set to 0. Chi square (df=12) = 13.95, p = .19; AGFI = .994. $R^2 = .205$ for Day Fear.

Figure 3 • Predicting Daytime Fear

Notes:

a. LISREL VII WLS Estimates from second random sample (weighted n = 773). Listwise covariance matrix used. Unstandardized coefficients: standard errors in parentheses. Effects shown are at least twice their standard error. Effects not shown set to 0. Chi square (df=12) = 26.96, p = .008; AGFI = .989. $R^2 = .139$ for Day Fear.
Ecological change in minority/youth population. Neighborhoods with a higher proportion of African-Americans at the end of the decade had experienced unexpected increases in African-American and youth populations, and unexpected declines in elderly populations during the decade (b = .223; t = 11.92; p < .001). These unexpected changes in age and racial composition, by means of their effect on racial composition at the end of the decade, have sizable and only indirect effects on fear levels (indirect effect = .131; se = .019). These impacts were channeled via the effects of: neighborhood racial composition on fear, racial composition on signs of incivility, signs of incivility on the presence of unsupervised peer teen groups, and troublesome teen groups on fear. We examine each of these in turn.

Neighborhood racial composition. Neighborhoods with a greater proportion of African-American respondents had substantially higher daytime fear levels (b = .515; t = 7.48, p < .001). This effect must be interpreted in light of no direct effects of ecological change on fear. After experiencing ecological change, predominantly African-American neighborhoods, because they are African-American and not simply because they have changed, experience urban dynamics, perhaps including decreased criminal justice services and increased released offender densities, that elevate residents' safety concerns. Stated differently, several urban structural dynamics which are probably interrelated, keyed to neighborhood racial composition, operate separately from the ecological change processes.

Incivilities. Neighborhoods with a higher proportion of African-American residents had more signs of incivility (b = 1.324; t = 16.48, p < .001). All African-American neighborhoods were almost one and one-half standard deviations above all-white neighborhoods on this principal component score. Since this effect controls for racial and youth change, the wider incidence of incivilities in African-American neighborhoods is not due directly to change. If we force in a direct effect of racial and youth change on incivilities, it is insignificant. This pattern suggests an important point.

Models of neighborhood change and disorder have either ignored structural dimensions (e.g., Wilson and Kelling 1982), or incorporated them. As an example of the latter, Taub, Taylor and Dunham (1984) discuss the connection between change and disorder as a multi-stranded process, shaped and influenced by structural concerns such as homeowners' perceptions of investment value. Models such as Taub, Taylor, and Dunham's recognize that structural effects and setting conditions, socioeconomic and otherwise, play key roles in influencing how a neighborhood will change when it is threatened with increased disorder.

Our results support the latter but not the former class of models linking change and disorder. Unexpected change influences incivilities only because it shapes neighborhood racial composition. Neighborhood racial composition, by itself, due to connections between race and the sociology of urban property relations, and race and employment patterns, shapes the extent of physical and social incivilities.

The incidence of incivilities, in turn, influences the presence of unsupervised teen groups (b = .17; t = 5.16, p < .001). Residents living in neighborhoods with more signs of physical decay and more groups of people hanging out were in fact more concerned about problems arising from teen groups. The connection may reflect a message conveyed by incivilities to miscreant teens: the opportunities for delinquency or rowdy behavior exist; disorderly behaviors will go unpunished (Cloward and Ohlin 1960).

Teen groups. Finally, awareness of problematic teen groups predicts daytime fear (b = .305; t = 6.48; p < .001). Residents perceiving more intense problems arising from local unsupervised peer teen groups expressed more concern for personal safety while walking neighborhood streets during the day. Given that the presence of these groups is linked to local
offending and victimization rates (Sampson and Grove 1989), it is not surprising that they should inspire concern among residents.

**Indirect effects of ecological change.** The indirect effects of minority and youth change on the mediating constructs were in both cases significant: \( t = 9.25 \) (\( p < .001 \)) for incivilities; \( t = 4.55 \) (\( p < .001 \)) for unsupervised teens. This latter indirect impact is crucial to the model we test. It shows that by means of its effect on racial composition, and by means of the effect of racial composition on incivilities, altered neighborhood population structures influence the incidence of peer teen groups perceived as troublesome.

**Other.** The expected direct effect of sex on fear during the day emerged (\( b = .113; t = 3.62; p < .001 \)). We observed no significant effects of changes in status on fear or the mediating variables.

**Replication.** We attempted to replicate the model on the second random half of the data (Figure 3). Although the model developed for the first random half of the data did not fit the second random half (\( p = .008 \)), all of the coefficients significant in the model of daytime fear for the first random half were also significant, and of closely comparable size, for the second random half (Figure 3). The poor fit of the model developed for the first random half to the second random half was due to an unmodeled direct effect of incivilities on fear (\( b = .127; t = 2.77; p < .001 \)). Adding in this path resulted in acceptable fit of the model to the covariance matrix (chi square (11) = 19.47; \( p > .05 \)). By applying the daytime fear model to a second random sample, we successfully replicated support for key hypotheses, generating coefficients of closely comparable size.

**Fear at Night**

We estimated a model of fear at night using the same variables and the same model structure used for fear in daytime. Again, the model was developed for the first random sample (Figure 4), and then replicated for the second (Figure 5). The final model differed from the fear in daytime model in the following way: it included a direct effect of increasing status on increasing fear at night. Naturally, the connections between the exogenous and mediating constructs were the same as in the model for daytime fear.

**Direct effect of economic status change.** Residents in neighborhoods that experienced an unexpected increase in status during the period felt less safe walking the streets of their neighborhood alone at night (\( b = .420; t = 3.69, p < .001 \)). This effect, as suggested earlier, may be due to higher fear levels of residents in gentrifying neighborhoods. This effect failed to replicate, however, when we applied the model to the second random half (\( t = 1.89, p > .05 \)).

**Direct effect of neighborhood racial composition.** Residents in neighborhoods with a higher proportion of African-American residents expressed more concern about their safety on the street at night (\( b = .265; t = 3.29, p < .001 \)). This coefficient was about half the size of the direct effect of race in the model for fear during the day. The direct effect of racial composition on fear at night may be smaller due to fewer residents in African-American neighborhoods going abroad during the evening.

**Direct effect of troublesome teen groups.** The presence of unsupervised teen groups spurred personal safety concerns at night (\( b = .267; t = 5.07, p < .001 \)). The coefficient was comparable in size to the effects observed in the daytime fear models. Troublesome teen groups elevate daytime and nighttime safety concerns equally.
Figure 4 • Predicting Nighttime Fear

Note:

a. LISREL VII WLS Estimates from first random sample (weighted n = 848). Listwise covariance matrix used. Unstandardized coefficients; standard errors in parentheses. Effects shown are at least twice their standard error. Effects not shown set to 0. Chi square (df=11) = 10.86, p = .46; AGFI = .996. R² = .200 for Night Fear.

Figure 5 • Predicting Nighttime Fear

Note:

a. LISREL VII WLS Estimates from second random sample (weighted n = 773). Listwise covariance matrix used. Unstandardized coefficients; standard errors in parentheses. Effects shown are at least twice their standard error, except for the effect of Status Change on Night Fear. Effects not shown set to 0. Chi square (df=11) = 18.75, p = .09; AGFI = .992. R² = .137 for Night Fear.
Sex. There was the expected direct effect of gender on nighttime fear (b = .320; t = 7.86; p < .001): the slope was about two to three times larger than the slope of daytime fear on gender.

Replication. The nighttime fear model developed for the first half provided acceptable fit for the second half of the data (p = .09). All coefficients in the nighttime fear model for the first random half remained significant in the model for the second random half, except the positive effect of economic status change on nighttime fear.

Discussion

Limitations and Strengths

There are some important limitations to the present study. (1) We examined only one city. (2) We investigated the effects of neighborhood changes for a particular decade, the 1970s. (3) We excluded public housing sites and blocks predominantly comprising large apartment buildings or apartment complexes. The applicability of results to other cities, other decades, or other types of residential contexts is not presently known. (4) We focused on multiattribute changes. The pathways of ecological change occurring in Baltimore in the 1970s are quite similar to those observed for Chicago's "natural areas" during the 1960s (Hunter 1974b). The pathways intertwine changes in youth and elderly population composition with changes in racial composition. Neighborhoods experiencing an unexpected influx of youth and exodus of the elderly were, for the most part, experiencing an influx of black youth. We do not know what the effects of increases in youth population would be if the incoming youth were predominantly white. (5) Finally, our assessment of the fear of crime construct was limited to two different items. We recognize that "fear of crime measurement procedures greatly shape fear of crime findings" (LaGrange and Ferraro 1989:715). We do not know to what extent our findings generalize to different fear of crime measures. Nevertheless, as always, the extent to which this restriction and others limit the external validity of our findings remains, as it must, an empirical question awaiting the attention of other investigators.

Offsetting possible limitations in external validity are several study strengths. (1) Even though the data are limited to one city, we assessed a broad array of neighborhood conditions, and a wide range of types and degrees of neighborhood change. (2) We operationalized neighborhood change in a fashion that was theoretically appropriate to the ecological framework. The measures capture the ecological role shift of neighborhoods in the urban mosaic over a decade. (3) The measures of change were gathered independently of our measures of mediating and outcome constructs, and were based on a different methodology. (4) We internally replicated both models for daytime fear and nighttime fear by randomly splitting the sample. We limited model development to one random half of the sample, and replicated the model on the second random half. (5) We observed the expected effects across two different outcomes. (6) We considered in our modeling measurement properties and the nonnormal distributions of some variables. Thus, our study is strong on internal validity and statistical conclusion validity.

Change and Other Structural Dynamics

We identified two central issues of interest for this study. First, we anticipated that neighborhoods experiencing unexpected change over a decade, reflecting shifts in their position in the urban mosaic, would contain residents at the end of the period with greater concern for
their personal safety. Second, we expected the causal impacts of unexpected neighborhood change would be channeled via community and individual characteristics. Results have supported both these propositions.

As expected, the specific pathway of neighborhood change relevant to fear consisted of changes in youth, elderly, and racial population composition. In the locale and time frame investigated, changes in stability and status did not affect the mediating variables in the model or the outcomes. Previous longitudinal work using a social disorganization perspective has linked neighborhood racial changes with changes in delinquency rates (Bursik 1986; Bursik and Webb 1982). Our work extends the net of consequences of neighborhood racial change to responses to disorder, such as concerns for personal safety.

Further, the effects of rapid neighborhood change do not operate directly on fear. Unexpected ecological change does not, as some have suggested (Skogan 1986, 1990), spawn a host of unrelated, detrimental consequences including increased fear. Instead, changes in a neighborhood's position in the urban ecology shape its structural characteristics such as racial composition; these structural characteristics then weave their own consequences, which arise from urban property relations and other structural dynamics.

For example, predominantly African-American neighborhoods had higher levels of physical incivilities, probably due to patterns of disinvestment and external ownership. They also exhibited higher levels of people "hanging out" during the day, probably due to links between neighborhood racial composition and joblessness. This suggests that the consequences of neighborhood change create setting conditions, such as racial composition. Other structural forces, in response to such setting conditions, weave specific consequences. In short, change itself is not the only problem; once change occurs, other structural forces, apparently independent of the change itself, come into play.

The other structural forces do not all mutually reinforce each other in inspiring fear. They do not "feed on themselves" as some have suggested (Skogan 1986:222). The web of consequences is less general, and in accord with specific hypothesized processual dynamics (Wilson and Kelling 1982).

In a practical vein, the observed chain of consequences of unexpected ecological change suggests several intervention points for fear of crime programs. Higher levels of fear do not inevitably result from neighborhood changes. Steps can be taken to curb physical and social incivilities, or to reduce troublesome teen groups. If such steps are successful, they might prevent increases in fear levels, even in neighborhoods that have experienced dramatic change.

**Roles of Specific Constructs**

**Neighborhood racial composition** at the end of the decade, caused in part by unexpected ecological changes in race, youth, and elderly populations during the preceding decade, indirectly shapes fear through its impact on physical and social incivilities. It also directly influences fear.

It is difficult to explain the direct link between race and fear. It is not due to local disorder. Incivilities are already in the model, and if we force in crime change variables, the direct effect of race remains significant. The direct race effect may be due to differential offender or delinquent densities across neighborhoods with different racial makeups. Gottfredson and Taylor (1988) have shown that released offender density influences informal social control and fear of crime. Alternatively, it may reflect differential effectiveness or responsiveness of the criminal justice system in different locales (Hagan and Albonetti 1982; Smith 1986). The dynamics invoked to explain this link also will need to explain why the direct effects of race are larger for daytime as compared to nighttime fear levels.

The results confirm the central role of observed *incivilities* postulated by several fear of
crime models (Hunter 1978; Lewis and Maxfield 1980; Lewis and Salem 1986; Maxfield 1987; Skogan 1986; Wilson and Kelling 1982). These models, however, have anticipated direct effects of incivilities on fear of crime. By contrast, incorporating insights from social disorganization models (Sampson and Grove 1989) we find indirect effects. We were unable to reliably model direct effects of incivilities on fear. It appears that incivilities are fear inspiring because they result in broader problems with unsupervised teen groups. Since these teen groups are linked to both offending and victimization rates (Sampson and Grove 1989), it is not surprising that they inspire residents' day and night fear.

Turning to sex effects: women reported higher fear levels than men. The noticeably larger coefficients in the nighttime fear models support Warr's (1984) notion of a sex-based differential sensitivity to risk, with darkness as a risk factor.

We comment briefly on effects we did not observe. We failed to find effects of income, education, crime change, and age, although they were all given a chance to enter the models. Even though it is always risky to infer from null results, our "nonfinding" on the age variable replicates LaGrange and Ferraro's (1989:708, 712) recent observance of nonsignificant or negative effects of age on fear with dissimilar fear measures.

Different reasons may explain the nonsignificant impacts of the two other ecological change dimensions: status and stability change. Our inability to observe and replicate significant effects of changes in status on fear may be due to the significant negative correlation between changes in economic status and changes in race/youth composition vectors for our sample of neighborhoods ($t = -3.11$ after taking measurement errors into account). Our failure to observe effects of stability change may be due to the particular stability changes occurring during the 1970s in Baltimore, such as gentrification and incumbent upgrading.

**Connections: Social Disorganization, Fear, and Current Urban Conditions**

Our findings extend the concept of social disorganization. They examine how core concepts in social disorganization theory extend to fear of crime. Further, they suggest how social disorganization dynamics may operate in light of some contemporary neighborhood changes in the urban United States.

At its inception in the 1920s, social disorganization theory focused on the erosion in urbanizing areas of the United States of the informal controls that had characterized traditional rural communities. Structural features of urban communities such as ethnic heterogeneity and residential mobility created problems. They weakened informal controls and prevented urban dwellers from maintaining order in their streets. Later in the century, social disorganization earned a reputation as a dated theory. Its critics argued that the central concept of social disorganization was poorly defined and even circular (Kornhauser 1978).

The recent revival of social disorganization theory may derive from two factors. First, as a result of fair housing laws enacted in the 1960s and gentrification in the 1970s, many urban neighborhoods have experienced significant population changes that did not necessarily culminate in homogeneous neighborhoods. Despite widespread racial changes, many neighborhoods in cities like Baltimore have remained racially integrated for more than a decade (Taylor and Talalay 1981). Gentrification has resulted in many neighborhoods where the invasion-succession cycle has stalled (Covington and Taylor 1989). Lower and upper income households have lived in close proximity for many years. Heterogeneous neighborhoods, in terms of class and racial makeup, were widespread by the end of the 1970s.

In addition, recent increased attention to the theory may also stem from the soundness of its core proposition: community structure affects the ability of residents to informally control their streets and to fend off crime and fear. Fear of crime models incorporating incivilities elaborate this core proposition by pointing to specific physical and social cues which inform
residents about safety and informal controls on the street. Residents infer attenuated informal controls from more extensive incivilities.

Unsupervised teen groups, a crucial concept in both social disorganization and fear of crime models, may make comparable inferences from extensive social and physical incivilities. Incivilities indicative of weak local controls suggest more opportunities for unpunished delinquent behaviors (Cloward and Ohlin 1960). Residents perceive local teen groups as more troublesome because incivilities are more widespread, not because of the influx of youth itself. Roaming in neighborhoods already plagued with incivilities and widespread resident perceptions of ineffective or indifferent formal (police) controls, these groups heighten urban unease. In our study, neighborhoods where daytime fear levels were highest were of three types: inner city, low-income neighborhoods that have been predominantly African-American for several decades; outer city neighborhoods that became predominantly African-American in the 1960s and were experiencing declining economic status in the 1970s; and neighborhoods partially integrated in 1970 and experiencing further racial change during the 1970s. Future work in this area could elaborate ecological, social disorganization, and fear of crime theories by carefully examining how relevant concepts from these models connect to broader sociocultural and structural processes.

Summary

Residents report higher fear if they live in neighborhoods whose role in the larger urban ecology has shifted during the prior decade because of rapid changes in racial, youth, and elderly composition. Rapid neighborhood change did not, however, as some have suggested (Skogan 1990), spawn a host of detrimental consequences such as increased physical deterioration and unsupervised teen groups. Fear is higher in these locales because social and physical problems have arisen not in response to the change itself, but in response to the postchange racial composition of the neighborhoods.

Looking forward to future investigations, two areas of inquiry may be particularly fruitful. Incorporating recursive and nonrecursive pathways, linking fear with direct and indirect victimization, and fear with lifestyles (Kennedy and Forde 1990), will provide insight into the longitudinal inter-relationships between urban change, individual lifestyles, victimization, and responses to disorder. Second, more structurally minded researchers may examine how political factors make a neighborhood or group of neighborhoods more or less vulnerable to rapid and unexpected neighborhood change. What are the sociopolitical processes that precede and influence shifts in a neighborhood's relative position in the urban mosaic? Human ecologists have been criticized for their failure to incorporate cultural and sociopolitical dynamics (Gottdiener and Feagin 1988). Such an incorporation can be pursued if we give careful attention to potentially incompatible assumptions.

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Appendix A  

Modeling and Measurement Error

Conceptual Approach

We test a conceptual model of the effects of neighborhood structural change on mediating and outcome constructs. Measures of neighborhood change, neighborhood racial composition, and objective incivilities in the neighborhood are all neighborhood-level measures. Sex, perception of problematic teen peer groups, and fear are all individual-based measures.

Throughout we used LISREL VII weighted least square (WLS) procedures, which do not require the assumption of multivariate normal distributions. All measures were treated as latent constructs to allow incorporation of measurement error variance and covariances into the models. We treated the measurement errors between the fear of crime outcomes and the perception of teen group item as independent. Allowing correlation between these two measurement errors revealed that the errors were not significantly correlated, and the resulting coefficients changed little.

History

Cases were reweighted, after controlling for the differing number of completed interviews in various neighborhoods, to reflect the occupied housing units in the neighborhood, based on the 1980 Census, as a proportion of all the occupied housing units in all 66 neighborhoods.

The weighted sample was split into two random halves. All model development was carried out on the first random half, and final models were replicated using the second random half. This sample splitting had a major benefit. With structural equation modeling, significant model refinement may be necessary. It is difficult to know which model refinements are "theory driven" and which are "data driven." By testing the final model on a separate sample and replicating the results, we can be assured that the final model was not largely "data driven." Hayduk strongly advocates this approach: "We develop the model using one half of the data and we reserve the untouched half for an uncompromised test of the ultimate model" (1987:177).

One potential drawback to sample splitting is a possible loss of statistical power. Given, however, Ns in the final split samples of 700 to 800, we still have ample power ( > .95 at p < .01) for detecting small size effects (R^2 = .05).

Measurement Errors

All constructs were modeled as latent variables with fixed measurement errors (Hayduk 1987:119-122). Error variances for the ecological change constructs entering the model (youth and minority changes; status changes) were based on the Cronbach’s alphas: 30 percent of the variance of economic status reflecting error; and 33 percent of the race/youth factor variance reflecting error. Errors for gender and neighborhood racial composition were both set at 1 percent in recognition of coding or data processing errors that may have been missed in quality checks. The 1 percent error level was chosen for gender and race given the care involved in the interviewing and data processing (Hayduk 1987:120). We also estimated models with 2 percent and 5 percent error terms for these constructs. They produced results closely comparable to those reported here.
Measurement error for the physical incivilities scale was set at 13 percent since Cronbach's alpha for the scale was .87.

We estimated an upper bound on the measurement error for the item perception of troublesome teen groups by examining how responses to this item correlated with a closely related problem: "How much of a problem is the amount of noise in this area?" It had the same 3 category response format as the teen item. If these two items had been combined into a scale they would have yielded a Cronbach's alpha of .65, so we estimated the proportion of measurement error for the troublesome teen group item at 35 percent.

We proceeded in a similar manner with the day and night fear items. Elsewhere in the interview, respondents were asked about fear levels during the day and at night when they were out on the block right in front of their house, as opposed to being abroad in the neighborhood. If we had combined the neighborhood and block day fear items, the Cronbach's alpha would have been .78. Consequently, we set the proportion of measurement error at .22, reflecting an upper bound for the measurement error for this item. For night fear, the Cronbach's alpha would have been .81, so we set the proportion of measurement error at .19, again reflecting an upper bound.

In short, we have estimated upper bounds of measurement error for the perception of teen groups item, and the outcomes, and used the corresponding values for the variances of theta delta and theta epsilon. Models with error variances set lower than these bounds yielded results that were substantively similar to those reported here.

The initial model for day and night fear included only theoretically specified paths. Non-significant paths (coefficients < 2 times their standard error) were trimmed out. Paths were added as indicated by the residuals. After identifying a model with acceptable fit, we attempted to reestimate the coefficients for the same model on the second random half.

This modeling procedure means that the effects we did not observe in our final models were allowed a chance to enter. For example, effects of ecological status and stability change, and individual-level education and age, did not enter the final models because they contributed no additional explanatory power after including the centrally relevant parameters.

## Alternate Causal Structures

In response to one reviewer's thoughtful clarification of differences between spurious causal structures (Z → X: Z → Y) and mediational causal structures (X → Z → Y), we investigated models with different causal structures.

One alternate structure tested a spuriousness model where the ecological change variable exhibited a direct effect on each mediating variable, and each mediating variable had a direct effect on the outcome. The model yielded significant impacts of change on each mediating variable, and significant impacts of neighborhood racial composition and unsupervised teen groups on fear. The model dramatically failed, however, to fit the data (chi square > 100).

We tested additional models with varying combinations of spurious and mediating effects. We were able to recover significant path coefficients but, again, the models clearly failed to fit the data.

In short, the only models that did successfully fit the covariance matrices were the models we report here, depicting purely mediated effects of ecological change.