We expect gentrification to be associated with increasing larceny and robbery rates based on human ecological theory and gentrification research. In Baltimore, gentrifying neighborhoods, as compared to other appreciating neighborhoods, experienced significant unexpected increases in robbery and did not decline as much in larceny. The ecological characteristics of gentrifying neighborhoods partially explain this linkage. Results confirm but also question human ecological theory, underscoring the detrimental effects of rapid neighborhood change but also indicating, contrary to expectations, that human ecological processes of invasion-succession have not, and may not, reach completion in gentrifying neighborhoods. If the invasion-succession cycle remains "stalled," the locations may remain vulnerable to continuing high levels of disorder.

We investigate links between gentrification and changes in "rational crimes"—crimes for gain—specifically, robbery and larceny. That is, we consider how as a neighborhood changes, its crime rates also change. Our perspective is ecological; therefore, we focus on change and on neighbor-
hoods in the context of the surrounding urban structure. Elsewhere (Taylor and Covington, 1988), we have examined links between gentrification and changes in crimes of violence.

Gentrification refers to the migration of younger, middle-, and perhaps upper-income households into centrally located urban neighborhoods and the accompanying upgrading of the worn-out housing stock that previously had “filtered down” to lower-income occupants. Although the process may appear straightforward, particularly in the public’s eye, the study of this phenomenon is difficult theoretically, analytically, and from a policy perspective.

Theoretically, there have been competing explanations of the phenomenon—demographic, ecological, sociocultural, and political-economic—although each of the various models brought to bear on the process appears to have a kernel of truth (London et al., 1986). Empirically, a variety of measures have been used to identify gentrifying neighborhoods. In general, measures based on housing changes (DeGiovanni and Paulson, 1984; Hamnett and Williams, 1980) and population changes (Spain, 1980) have been used, although less systematic definitions or identification procedures also have been applied.

In an analysis of a sample of Philadelphia census tracts, Galster and Peacock (1986) examined differences between beginning of the decade (1970) and end of the decade (1980) scores on percentage of blacks, median income, percentage with some college, and median house value. They found that agreement about which tracts gentrified improved if more than one indicator was used. Further, the criteria used influenced which tracts were labeled as gentrified.

Impacts of gentrification on city-level policies, or the tailoring of policies to encourage gentrification, are complicated by several features of the phenomenon. Gentrifiers are not suburbanites moving back from the suburbs; rather, they are young urbanites moving in from a different part of the city. Gentrification has been characterized as a largely private-sector development, although this has been disputed. Also, gentrification is associated with displacement of prior residents, although the volume of displacement may be highly variable and difficult to ascertain (see, especially, Palen and London, 1984). There are other costs of gentrification as well (Henig, 1982).

*In Baltimore when it was under the directorship of Mary Ann Willin. Interesting comments on preliminary analyses were offered by Dr. William Yancey. Authors are listed in alphabetical order to reflect their coequal contributions. Request reprints from Ralph B. Taylor, Department of Criminal Justice, Temple University, Philadelphia, PA 19122.*
These complexities and vagaries notwithstanding, recent research has revealed several striking and unanticipated features of the gentrification process.

**CHARACTERISTICS OF GENTRIFYING NEIGHBORHOODS**

Gentrification is uneven—temporally and spatially. Clay (1979) hypothesized that gentrification proceeded through a series of stages. But DeGiovanni (1983), using indices of housing market activity, found that gentrification in a multicility sample of neighborhoods proceeded in fits and starts through the 1970s, and found no evidence of a progression through stages. Lee and Mergenhagen (1984) examined information for five gentrifying Nashville neighborhoods on a block-by-block basis and found a variegated pattern: “Revitalization may take place in small, scattered pockets, rather than encompassing an entire neighborhood” (p. 524). Disinvestment and reinvestment can occur simultaneously in a gentrifying neighborhood. Gentrified neighborhoods are not completely “made over” as part of a steadily progressing replacement of older residents by newer ones.

Even after a neighborhood has been gentrifying for a time, the population moving into the locale remains diverse. DeGiovanni and Paulson (1984) found that in two neighborhoods that had been gentrifying for a few years, renters and owners moving into the areas were distinct from one another. Given such evidence, we probably should not assert generally that residents of a gentrifying area, even though they may value cultural diversity (Allen, 1980), will engage in extensive neighboring, as some have proposed (Hudson, 1980). Not only are longer-term residents different from more recent in-migrants, but the in-migrants are composed of at least two distinct groups—lower- to middle-income renters, and middle- to upper-income owners.

In short, empirical research has revealed some unexpected features of the gentrification process. The gentrification process is “spotty” in terms of where it happens in the neighborhood and how it progresses over time; diversity persists in these neighborhoods; and in-migrants are diverse, and not a uniform cohort of “yuppies” or “dinks.” In this article we propose to expand the empirical research on gentrification to a little-explored facet. We examine the links between gentrifying and changes in crime.
Some expect that gentrification will be linked to decreasing crime rates (Reiss, 1986: 19; Bottoms and Wiles, 1986: 150; McDonald, 1986: 166). Others expect the opposite (McDonald, 1986: 166-167).

**GENTRIFICATION AND CRIME**

Before the gentrification process begins, soon-to-upgrade communities may have some of the highest crime rates in the city because of their central city location and the population characteristics of those who reside in filtered-down housing stock. Some expect that revitalization will undermine, if not erase, these criminal traditions causing offense levels to drop (see Reiss, 1986; Bottoms and Wiles, 1986). The reasons underlying this expectation are several. One reason is that middle-income areas generally have lower crime rates (Harries, 1980). So, as these previously lower-class areas are populated by a larger proportion of middle-income residents, their crime rates can be expected to decline. Another reason is that displacement of households with incomes below the poverty line — generally seen as a cost of gentrification — also means dislocation of those low-income populations that, in theory, include many persons under pressure to commit crime (Baldwin and Bottoms, 1976). Finally, the more affluent newcomers have more political clout than the former residents (Henig, 1982) and may be able to lobby effectively for increased police protection, elimination of rooming houses, improved street lighting, and other city services that may help to reduce crime (London and Palen, 1984; Palen and Nachmias, 1984; McDonald, 1986).

Published studies of gentrification and crime are contradictory. McDonald (1986) investigated 14 gentrifying neighborhoods in five cities. He observed that “personal crime rates dropped in almost all gentrified neighborhoods” (p. 193). “Personal crimes” included homicide, rape, robbery, and assault. Property crime remained largely unchanged. His study, however, is troublesome in several respects. Most important are: (1) There are no criteria for selecting gentrifying neighborhoods; (2) gentrifying neighborhoods were not compared to nongentrifying neighborhoods; and (3) he was not able to control for possible regression to the mean. In an earlier study (Taylor and Covington, 1988), we investigated changes in homicide and aggravated assault in gentrifying and entrenching underclass neighborhoods over a decade. In gentrifying neighborhoods unexpected positive increases in status were associated with unexpected increases in aggravated assaults. Given the
contradictory findings of these two studies, and the limitations of McDonald's study, we believe that the gentrification-crime linkage remains an open question.

Further, countering the lines of argument linking gentrification with decreasing crime are alternate expectations based on already-known features of the gentrification process. The increasing diversity, tension between different groups of residents, and "spotty" nature of gentrification all suggest increasing crime in gentrifying neighborhoods. These facets of gentrification can be considered in the larger framework provided by human ecology. With such a lens, gentrification is characterized as an invasion-succession process (Hudson, 1980). The population composition in a particular niche is changing. We would expect increased conflict to accompany these dynamics. Several instances of conflict and hostility in gentrifying neighborhoods have been reported (for examples see Levy and Cybriwsky, 1980; Barry and Derevlany, 1988; Bottoms and Wiles, 1986).

Further, investigations of gentrification and crime can be focused more closely by considering carefully two classes of factors that have been largely ignored to date: the ecological context of gentrifying neighborhoods and the perspective of potential offenders.

**HUMAN ECOLOGY THEORY AND CONTEXT**

Human ecology theory explains the characteristics of communities in an urban area as a function of large-scale forces; as a result of these forces neighborhoods are differentiated or sorted and have higher or lower status, stability, and minority population (Hunter, 1978; Park, 1936). As a result of — and reflecting — that differentiation, neighborhoods have higher or lower rates of delinquency, offenders, offenses, mental illness, and so on (Michelson, 1970). Ecological researchers clearly have indicated that high-delinquency, high-offender, and high-crime neighborhoods (a) cluster toward the center of the city around the central business district and (b) persist as high-disorder areas over a long period, such as several decades (Harries, 1980; Shaw and McKay, 1972; Murray, 1982). Although new high-crime or high-delinquency areas may emerge as time passes (Schuerman and Kobrin, 1986; Murray, 1982), the persistence of high-disorder levels is an indication that these areas experience a hardening of criminal traditions, and these are hard to reverse (Shannon, 1981). Presumably, those areas in which crime flourishes year after year are those that are plagued by conditions that prevent them from controlling crime (but see Damer, 1974). The term *social disorganization* is often applied to areas where controls have been weakened.
Given these human ecological considerations, gentrifying neighborhoods are in an unenviable position. For gentrification to occur, a pool of low-priced housing stock, with investment potential, must be available. Much of the stock may be abandoned or "worn out." The distribution of urban house prices is such (Goodman, 1986) that candidate areas for gentrification are the same centrally located areas where delinquency or offender rates and offense rates are high (Shaw, 1929). Thus, initially, gentrifying neighborhoods, as compared to other types of appreciating neighborhoods—for example, those where incumbent upgrading is going on—have higher offense levels and more entrenched criminal traditions.

Human ecology theorists also consider change and its impacts. The researchers also clearly have indicated that change processes, particularly if rapid, are linked to increases in disorder such as delinquency (Bursik and Webb, 1982; Bursik, 1986, 1988). Therefore, rapid turnovers of population in gentrifying neighborhoods and the higher level of heterogeneity in the neighborhood until gentrification is "complete" portend higher crime rates during the change process. If gentrification is not "completed" in an area—and observations of diverse gentrified neighborhoods reveal that completion cannot be assumed—then high levels of heterogeneity will persist over time.

Human ecologists predict, then, two possible outcomes for gentrifying neighborhoods. The invasion-succession cycle is completed and the in-migrants predominate; or, after a period of competition, the in-migrants migrate back out and the area is regained by persons similar to the original population. A third possible outcome, not explicitly predicted by human ecologists, is neither completion (succession) nor reversion, but a long period of continuing conflict and mixed populations in the niche.

Presumably, population turnover and heterogeneity encourage crime in part because people are prevented from getting to know their neighbors. Because of population turnover, people cannot develop anything more than the most casual of acquaintanceships with their coresidents. And, as a result of heterogeneity, close ties to coresidents are prevented because people are fearful they will not share the same norms with seemingly "alien" nearby neighbors. The anonymity fueled by population turnover also makes it difficult for residents to identify coresidents and distinguish them from potential offenders; hence, criminal cultures more readily form and flourish under these conditions.

When considered during one time frame, the human ecological theorists suggest, and evidence such as Bursik's (1986) substantiate the claim, that it is the rapidity of the change itself that is destabilizing, not simply the type of change. Therefore, in an empirical investigation of gentrification and crime
changes, the key comparison is between neighborhoods appreciating quickly during the time frame and those appreciating less speedily. Over a period of time, a more marked increase in house values will occur in the more quickly appreciating neighborhoods, relative to other neighborhoods and relative to other appreciating neighborhoods.

In addition to ecological considerations, researchers using recent models of offender dynamics predict increasing crime rates in the case of crimes for gain.

"RATIONAL" OFFENDER PERSPECTIVE

From the rational offender perspective, as articulated by Cornish and Clarke (1986) and others, potential offenders are thought to be sensitive to the proximal array of potential targets and to choose targets and target situations based in part on a rough cost/benefit calculus.

As areas gentrify, they become increasingly attractive to local and nearby rational offenders. Gentrifying areas in center-city locations are likely, in early stages, to have high offender rates or be near neighborhoods that do (Baldwin and Bottoms, 1976; Harries, 1980). The process of gentrifying will probably be noticed by many proximate potential offenders. They may interpret the in-migration of more affluent residents as a de facto increase in the relative density of potential targets or the relative attractiveness of targets. Up-scale persons are more attractive street-crime victims, presenting a potentially larger "take" for the robber. The area in and around the household itself also represents a more attractive target for the potential larcenist. Thus, for offenses in which the rewards will bear a rough relationship to the social class of the victimized person or household — more specifically, in the cases of robbery, larceny, and burglary — as neighborhoods gentrify they should become increasingly attractive for offenders.

Thus the rational offender perspective focuses attention on crimes of gain, and in general terms, predicts a link between gentrification and increasing robbery, burglary, and larceny.

In the case of burglary, however, some variants of this model would argue for no change or a decrease. Cohen and Felson (1979) highlight the role of guardianship in explaining crime patterns. Offenders will be deterred by protectors or proxies for protectors. A sizable fraction of in-migrants in gentrifying neighborhoods may be more capable guardians of their households than previous residents, assuming they can afford and do use more protection devices. In short, protection behaviors constitute a crucial intervening variable in the case of burglary.
In the cases of larceny and robbery, from the rational offender perspective, crime increases in gentrifying neighborhoods because (1) there is an increase in attractive targets, (2) the targets are located close to potential offenders, and (3) there is no increase in guardianship. Recent in-migrants may be more attractive targets because potential offenders might see them as carrying more cash, having more expensive possessions, and being less “street-wise.” The offenders may reside in the gentrifying neighborhood or in adjoining areas.

WILL ROBBERY AND LARCENY INCREASE IN GENTRIFYING NEIGHBORHOODS?

In an earlier study (Taylor and Covington, 1988), we linked degree of gentrification to unexpected relative increases in aggravated assault. The results of McDonald’s (1986) study support the notion that gentrification will be accompanied by decreasing violent crime rates and unchanging property crime rates. The design and analysis of the second study is problematic in several respects, and thus we believe that the link between gentrification and crime rates is still an open question. The present study improves upon work in this area by (1) providing a clear-cut method of identifying gentrifying neighborhoods, (2) examining gentrifying neighborhoods in relation to other appreciating but nongentrifying neighborhoods, and (3) investigating changes in a way that minimizes analytical problems.

Given the work to date on the nature of the gentrification process and populations in gentrifying neighborhoods, the ecological context of most gentrifying neighborhoods, and offender-based dynamics, we expect gentrification to be linked with increasing larceny and robbery rates.

Neighborhoods that gentrify over the decade, as compared to those that appreciate less dramatically, will have higher-than-expected robbery and larceny levels at the end of the decade.

METHODS

DATA SETS AND MEASURES

The data set we used includes 1970 and 1980 census measures for all of 277 Baltimore City neighborhoods, and 1970-1971 and 1979-1980 Part I crime data for all of these same neighborhoods. For our analysis, we
eliminated from consideration 16 public-housing projects and 26 small, unorganized areas. The neighborhood units used are ecologically valid ones and the mapping is complete; almost all of the city, except for the downtown, industrial areas and a few isolated pockets, are included in a neighborhood. The mapping was used as the basis for the 1980 Neighborhood Statistics Program for Baltimore City carried out by the Bureau of the Census; their adoption underscores the validity of the procedure. The neighborhoods delineated are nonoverlapping. Thus each neighborhood represents a separate, independent entity.

DEVELOPING CRIME MEASURES

Creation of Crime Rates

Two-year crime averages were used to create beginning of the decade (1970 and 1971) and end of the decade (1979 and 1980) crime counts for each offense. Crime counts were converted to crime rates per 100,000 persons by dividing the counts by total neighborhood population, except in the case of burglary, which we divided by number of households.

Conversion to Percentile Scores

Our ecological framework mandates a contextual focus; neighborhood dynamics must be considered in the context of what is happening in other neighborhoods. Therefore, we made both our predictor and outcome scales relative. These transforms are desirable theoretically, although they do have statistical benefits. Beginning of the decade and end of the decade crime rates for each crime were converted to weighted percentile scores. With these percentile crime measures, based on the neighborhood crime rates, we ranked each neighborhood, relative to all other neighborhoods in the city, and took each neighborhood’s population size into account.6

Scores are computed by putting into order the neighborhoods on the crime rate of interest, and then determining where in that ordering each particular neighborhood is positioned. These percentile measures capture all of the ordinal information in the crime measures ($r_{\text{Spearman}} = 1.00$ for both larceny and robbery at the beginning of the decade and the end of the decade). Further, the relative crime scores are superior to logged and raw crime rates in terms of normality; their skewness is lower. Thus the crime percentile scores have superior measurement properties as compared to raw or logged crime rates, capture the same information at the ordinal level, and, most
important, capture the relativistic orientation desirable given our human ecology framework.

Changes in crime. In order to capture crime change, difference scores (1980 scores – 1970 scores) are inadequate because they are related to initial levels of a variable (Bohrnstedt, 1969). Less problematic and more generally accepted are residualized change scores (Bohrnstedt, 1969). That is, parameter $P$ at time 1 is broken down into two portions:

$$P_t = A + BP_{t-1} + e$$

There are the portions of $P_t$ predictable from the score $P_{t-1}$ and the residual or error ($e$), that is, the portion of $P$ not predictable from $P_{t-1}$. Of course, following the assumptions of regression (if they are not violated) $e$ is uncorrelated with predicted scores and with $P_{t-1}$ scores. This residual represents, conceptually, unexpected change over the time period; that is, redefinition of a neighborhood's role on that parameter vis-à-vis other neighborhoods. It is “unexpected” in two ways. It was not predictable given a neighborhood’s initial level, nor was it predictable given the overall changes occurring in all the neighborhoods during the time frame. (These overall changes determine the slope $B$.) The “unexpected” change reflects the redefinition of the neighborhood’s role in the larger citywide fabric (Bursik, 1986: 42-43).

This approach is routinely accepted as one of the best methods to estimate change (Bohrnstedt, 1969; Elliott and Voss, 1974; Bursik 1984, 1986; Bursik and Webb, 1982; Heitgard and Bursik, 1987). Consequently, in our analyses of change, ecological variables and crime variables build on these residuals. The method is appropriate analytically and conceptually, given our purposes.

For each crime and ecological parameter of interest, its 1980 (or end of the decade) score was regressed on its 1970 (or beginning of the decade) score, and the resulting residual was used as the change measure. As mentioned before, these change measures control for initial levels of each parameter and for overall neighborhood-level changes occurring in the city during the decade.

GENTRIFICATION MEASURE

Definition and Measurement Problems

A variety of measures of gentrification have been used in different studies on the topic. Spain (1980) looked at changes in the racial composition,
income levels, and educational levels as indicators of gentrifiers moving into an area. Hamnett and Williams (1980) also used population characteristics and focused on proportion of residents in professional and managerial occupations. Numerous scholars have used indices reflecting changes in house prices. DeGiovanni (1983), for example, looked at several indices of housing market trends, such as volume of sold, rehabilitated, and speculative sales, as well as rent-to-own conversions and increases in house prices. Several scholars (for example, DeGiovanni and Paulson, 1984; Lee and Mergenhagen, 1984) have used both population-based and housing-based measures. Some researchers have even used informant reports to indicate volume of gentrification at the city level (London et al., 1986). Clearly gentrification is an extremely complex process, with physical (housing), social, and cultural components (Hamnett and Williams, 1980).

In our research we used a simple, as opposed to multiple, indicator of gentrification. By doing so we avoid questions about the level of measurement obtained (Blalock, 1972), unknown qualities of the resulting construct, potentially low internal consistencies, and potential failures to replicate. Our single indicator has the advantage that others can use it easily in other locations and other studies.

Our measure of gentrification begins with the census-based item in which homeowners are asked to indicate the current market value of their home, were they to sell it. Previous research using this item has indicated that homeowners are accurate appraisers of the market values of their homes (Follain and Malpezzi, 1981). From this we constructed a dynamic index of appreciation in neighborhood house values. We describe our measure and then discuss its construct validity in the following discussion.

House-value percentile scores. Neighborhoods were sorted on 1970 owner-occupied house values and then on 1980 owner-occupied house values, and a weighted house-value percentile score was then developed for each time point, using a formula similar to the one used to generate crime percentile scores. But rather than using cumulative population counts, cumulative housing unit counts were used.7 Thus we have a weighted 1970 house-value index (VALRANK7) and a weighted 1980 house-value index (VALRANK8), which in each case ranges from 0 to 100.

Changes in house-value percentile scores. As stated, the primary index of gentrification we use relies on the house-value percentile scores. One of the hallmarks of the gentrification process is an upgrading and improvement of the housing stock in the gentrifying neighborhood and a subsequent skyrocketing of house values.
A measure that focuses explicitly on this key element of gentrification is changes in relative house value. That is, if we regress 1980 percentile house-value scores on 1970 scores, the residuals represent those increases or decreases that were not predictable, given the general citywide processes occurring during the decade and the neighborhood’s initial house-value percentile score. Neighborhoods that have gentrified over the decade will have large and positive residuals. That is, their 1980 house-value percentile scores will be much higher than the predicted scores based on 1970 values.

Our residualized house-value percentile measure takes care of the regression to the mean problem by controlling for initial levels, and it takes care of inflation because at each point in time, all that is of interest is the ordering of the neighborhoods vis-à-vis one another.

Some other researchers (for example, Galster and Peacock, 1986) have used differences between beginning of the decade and end of the decade scores to determine gentrification. The approach used here is superior for the reasons discussed in explaining the crime change scores. Note that there is no necessary dependence between the residuals because the percentile scores at the beginning and end of the decade were based on weighted housing totals in each neighborhood.

**Neighborhoods with extremely high scores on the residualized 1980 relative house-value measure are, we propose, neighborhoods that have gentrified.** Controlling for their initial characteristics, and the citywide changes influencing neighborhoods during the decade, these neighborhoods have a much more commanding position in the city housing market at the end of the decade as compared to the beginning. They have “moved up” considerably, relative to other neighborhoods.

In looking at the ordering of neighborhoods based on unexpected relative house-value change, the neighborhoods at the top of the grouping are unquestionably gentrifying neighborhoods. They include the neighborhoods where the city of Baltimore sold “dollar houses” during the 1970s in efforts to encourage revitalization and “showpiece” neighborhoods near the Inner Harbor. But looking down the ordering, it is a little more difficult to determine where the gentrifying neighborhoods leave off and other types of neighborhoods, such as incumbent upgrading neighborhoods, which have also increased in relative house-value score, begin. In short, there is a question of a cutoff point. Careful inspection of the top neighborhoods in the ordering and the examination of the characteristics of each indicated that the top 20 neighborhoods easily could be labeled as gentrifying. So, in our analyses we classified these 20 as gentrifying neighborhoods. To determine if our results
were sensitive to the cutoff point used, we also repeated our analyses, using a more "conservative" definition of gentrifying neighborhoods, and classified only the top 15 neighborhoods as gentrifying neighborhoods.

*Construct validity of the relative house-value change measure as an index of gentrification.* If unexpected changes in relative house price (changes in percentile scores) are an accurate indicator of the degree of gentrification occurring in a neighborhood, then they should be associated with the other kinds of changes one would expect in a gentrifying neighborhood.

The kinds of changes one would expect to see accompany rapidly appreciating house values in a gentrifying neighborhood include unexpected increases in the education level of the population (Spain, 1980), the proportion of the labor force in managerial or professional occupations (Hamnett and Williams, 1980), and, perhaps, in owner occupancy (DeGiovanni, 1983; but compare Lee and Mergenhagen, 1984). Other changes that also may or may not occur include unexpected increases in married couple households and unexpected decreases in the elderly and soon-to-be-elderly population.

We assessed construct validity in four ways. First, we considered zero-order correlations between changes in relative house value and other changes. Second, we observed how well these other changes "explained" changes in relative house value. Third, we constructed a multiple indicator of gentrification and saw how much relative house-value change contributed to that multiple indicator. Finally, we observed how much overlap there was between the 20 top neighborhoods using our single indicator and the 20 top neighborhoods using a multiple indicator.

The zero-order correlations between unexpected changes in relative house value and other gentrification-linked changes were substantial. House-value change correlated .52 with changes in proportion with some college, .45 with proportion professionally employed, .13 with changes in owner-occupancy levels, and -.25 with proportion soon-to-be-elderly. In a multiple regression, only changes in educational level entered; it explained a highly significant (p < .001) and substantial 27% of the house-value change measure.

Principal components analysis of the ecological change parameters indicating gentrification yielded one sizable component (lambda = 2.51, explaining 42% of the variance), and the major loadings on it were as follows: changes in those with more than high school education = .75; changes in proportion with professional employment = .75; changes in relative house value = .67; changes in relative rank based on household income = .63; changes in proportion married couple households = .58; changes in percentage of owner-occupied units = .47.
The very substantial loading of .67 of the house-value change measure indicates that it is well integrated into the multiple indicator of gentrification. The correlation between a dummy variable indicating the 20 gentrifying neighborhoods based on the single measure and principal component scores on the multiple indicator is .56. Further, the top 20 neighborhoods, based on this principal components score, included 60% of the 20 neighborhoods labeled as gentrifying based on the house-value change measure.

In sum, our gentrification measure based on changes in relative house value is strongly linked to the other ecological changes indicative of gentrification and to a multiple indicator measure based on the latter. Further, the labeling of "gentrified neighborhoods" based on a multiple indicator measure overlaps very substantially with the labeling based on our single indicator.

FOCUS ON APPRECIATING NEIGHBORHOODS

In the broadest terms, neighborhoods, over time, can be separated into three groups: declining, stable, and appreciating. Furthermore, as we argued earlier, changes in relative house value can be used to classify a neighborhood into one of these three groups. A neighborhood that is declining will experience decreasing demand for its housing stock and thus will show an unexpected drop in relative house value. In a stable neighborhood the level of demand for housing in the area will remain relatively constant, as will relative house value. In an appreciating area, demand increases, as will relative house value.

Analyses of house-value change and crime change indicated that the nature of the correlation was different, in slope and sometimes sign, in declining versus appreciating Baltimore neighborhoods and in stable versus appreciating Baltimore neighborhoods. These differences were not a function of the "cutoff points" used to define the three groups. (For more details see Taylor and Covington, 1987: Table 8.) Inasmuch as our main focus here is on gentrifying neighborhoods, it is important to investigate the crime change/house-value change relationship solely in appreciating or revitalizing neighborhoods. Otherwise, the varying functional forms of the crime/house-value change relationship will obscure the dynamics of central interest. Consequently, it is important to differentiate appreciating neighborhoods from stable ones. The line separating the two, however, may not be clear-cut. Thus analyses were repeated using different cutoff points to distinguish stable versus appreciating neighborhoods.
Therefore, in order not to confound within-group effects of house-value change on crime change with between-group effects (appreciating versus stable versus declining) of house-value change on crime change, we concentrate in our analyses on appreciating neighborhoods.

Further, as we pointed out earlier, this comparison is *theoretically* driven. It keys us in to one of the theoretically central ecological questions concerning effects of *rapid* versus *slower* rates of change.

**RESULTS**

**TWENTY HIGHEST NEIGHBORHOODS ON CHANGES IN RELATIVE HOUSE VALUE**

The 20 neighborhoods in this first grouping clearly fit the classic definition of gentrification. Many of these areas are especially attractive because of their proximity to downtown or various cultural and education institutions (such as Johns Hopkins University and the Maryland Institute of Art). Further, in some areas, the city offered "dollar" houses, which certainly made some of these neighborhoods desirable. On average, house values increased in these neighborhoods by about $36,000 from 1970 to 1980, controlling for inflation. Looking at individual neighborhoods in this set, part of this increase clearly can be understood in terms of the efforts of young, energetic householders. Local speculators and those from out of town also helped spur these increases. Most of the neighborhoods in this grouping are predominantly white, although a few are mostly black communities.

**Population and Housing Characteristics**

The neighborhoods that were highest on HRANKRES (indicating the greatest unexpected change in house values over the decade) were, at the beginning of the decade, places in which the housing stock was worn out or undesirable, and the population was transient and low-income. Low percentile house-value scores and high vacancy rates suggest dilapidated housing stock (see Table 1). (The census vacancy measure includes vacant for sale or rent, as well as abandoned units.) Low owner-occupancy rates and high poverty and unemployment rates indicate a lack of stability in these neighborhoods, with disadvantaged populations having little clout to make needed changes.\(^9\)
<table>
<thead>
<tr>
<th>Population and Housing</th>
<th>Gentrifying Neighborhoods (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970 Mean House Value Rank</td>
<td>18.0</td>
</tr>
<tr>
<td>1980 Mean House Value Rank</td>
<td>78.3</td>
</tr>
<tr>
<td>Unexpected change in house value rank (HRANKRES)</td>
<td>50.2</td>
</tr>
<tr>
<td>1970 % greater than high school</td>
<td>16.6</td>
</tr>
<tr>
<td>1980 % greater than high school</td>
<td>33.3</td>
</tr>
<tr>
<td>1970 % managerial/professional</td>
<td>21.1</td>
</tr>
<tr>
<td>1980 % managerial/professional</td>
<td>31.4</td>
</tr>
<tr>
<td>1970 % owner occupied housing</td>
<td>26.0</td>
</tr>
<tr>
<td>1980 % owner occupied housing</td>
<td>36.6</td>
</tr>
<tr>
<td>1970 % living in poverty</td>
<td>16.6</td>
</tr>
<tr>
<td>1980 % living in poverty</td>
<td>19.6</td>
</tr>
<tr>
<td>1970 % unemployed</td>
<td>5.5</td>
</tr>
<tr>
<td>1980 % unemployed</td>
<td>9.5</td>
</tr>
<tr>
<td>1970 % vacant housing</td>
<td>13.7</td>
</tr>
<tr>
<td>1980 % vacant housing</td>
<td>12.2</td>
</tr>
</tbody>
</table>

| Crime<sup>a</sup>                          |                                  |
| 1970 median robbery percentile             | 83.0                             |
| 1980 median robbery percentile             | 88.8                             |
| 1970 median larceny percentile             | 88.2                             |
| 1980 median larceny percentile             | 90.9                             |

<sup>a</sup> Medians are shown for the crime figures given skewness of the crime score distributions.
Crime

Not surprisingly, areas that were to appreciate most dramatically over the decade were also very high crime locations at the beginning of the decade (see Table 1). In fact, for each offense, more than half a dozen neighborhoods in the gentrifying cluster had crime scores above the 90th percentile.

Changes

How did this gentrifying group of neighborhoods change over the decade? Owner-occupancy levels increased on average 10%, the percentage with some college increased by 16%, and there was a 10% increase in the portion of the labor force with a managerial or professional occupation. All of these changes are consistent with the idea that up-scale in-movers upgraded the housing stock in these locations.10

Nonetheless, despite these changes, the gentrifying neighborhoods, compared to the other appreciating neighborhoods, were still the least stable by the end of the decade. They continued to have the lowest percentage of owner-occupied housing and the highest vacancy rates in the city. Thus, despite dramatic changes in house values and notable changes in occupational and educational levels that caused them to resemble other appreciating areas, they still had many of the features associated with deteriorating neighborhoods. The lack of sweeping change in these areas suggests that gentrification has been limited to certain “pockets” in the changing neighborhoods. This continued diversity and the intermingled patterns of deterioration and improvement seen in these gentrifying neighborhoods parallel the characteristics observed in gentrifying neighborhoods in other cities (Lee and Mergenhagen, 1984; DeGiovanni, 1983: Table 2; DeGiovanni and Paulson, 1984).

ANALYSIS STRATEGY

Comparison of the 20 gentrifying neighborhoods with other groups of appreciating neighborhoods (for details see Taylor and Covington, 1987) clearly indicated that these neighborhoods are qualitatively different from other appreciating neighborhoods.

We will use a dummy variable to capture gentrifying neighborhoods, and will regress changes in larceny and robbery on this dummy. The unstandardized slope indicates, on average, how far above the mean of the other
neighborhoods the gentrified neighborhoods score. It is not sensitive to the marginal distribution on the dummy variable (Cohen and Cohen, 1983).

We will consider how our results might be sensitive to the particular cutoff points we are using in two ways. First, we will use different cutoff points for stable versus appreciating neighborhoods: unexpected increase in relative house value > 0; > 2.5; > 5; and > 10. As mentioned earlier, it is necessary to focus solely on appreciating neighborhoods because the slope of crime change on house-value change is dramatically different in appreciating versus stable neighborhoods. Second, we will repeat analyses using a more "conservative" definition of gentrifying neighborhoods, concentrating solely on the top 15 in unexpected appreciation.

Power analysis suggested that, given the number of cases and an expected relationship of small-to-moderate size (r = approximately .2), an alpha level of .10 was needed for a respectable level of statistical power.

Finally, controlling for gentrification, we will see what other ecological parameters contribute to changes in relative crime rates.

REGRESSION ANALYSES

Robbery

Gentrifying neighborhoods, as compared to other appreciating neighborhoods, scored significantly higher on unexpected changes in robbery. The amount of the difference varies depending upon the stable versus appreciating cutoff point used but is in the range of a 3-percentile increase (see Table 2). Whereas other appreciating neighborhoods experienced slight drops of 1 to 2 points in relative robbery levels, gentrifying neighborhoods experienced contrasting gains of 4 to almost 6 points. The average slope was 5.1. Given how crime percentiles map onto real crime rates (see Taylor and Covington, 1987: Table 2), and the already high relative crime position of these neighborhoods before gentrification flourished, these differences are not trivial.

In other words, the process of gentrification was accompanied by unexpected increases in relative robbery levels. As gentrifying neighborhoods shifted their position in the larger socioeconomic ecological structure, their position in the larger ecological fabric of crime also shifted.

The significant coefficient associated with the gentrification dummy variable is not attenuated or rendered nonsignificant by the use of different cutoff points. Nor is the coefficient weakened if we adopt a more "conserva-
TABLE 2
Crime in Gentrifying Neighborhoods
Versus Other Appreciating Neighborhoods

<table>
<thead>
<tr>
<th>Top 20 Labeled as Gentrifying</th>
<th>Robbery</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutoff point</td>
<td>A</td>
<td>B</td>
<td>p</td>
<td>R²</td>
</tr>
<tr>
<td>(Unexpected change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in relative house value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>must be greater</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>than this score)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 0.0</td>
<td>-0.93</td>
<td>4.46</td>
<td>.08</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 2.50</td>
<td>-1.34</td>
<td>4.85</td>
<td>.07</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 5.0</td>
<td>-2.41</td>
<td>5.92</td>
<td>.04</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 10.0</td>
<td>-1.75</td>
<td>5.26</td>
<td>.06</td>
<td>.06</td>
</tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Top 15 Labeled as Gentrifying</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 0.0</td>
<td>-1.01</td>
<td>6.42</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 2.50</td>
<td>-1.40</td>
<td>6.81</td>
<td>.03</td>
<td>.04</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 5.0</td>
<td>-2.39</td>
<td>7.80</td>
<td>.02</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 10.0</td>
<td>-1.82</td>
<td>7.24</td>
<td>.02</td>
<td>.11</td>
</tr>
<tr>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Larceny</th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutoff point</td>
<td>A</td>
<td>B</td>
<td>p</td>
<td>R²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 0.0</td>
<td>-5.25</td>
<td>3.65</td>
<td>NS</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 2.50</td>
<td>-6.78</td>
<td>5.18</td>
<td>.10</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### TABLE 2 Continued

#### Larceny

**Top 20 Labeled as Gentrifying**

<table>
<thead>
<tr>
<th>Cutoff point</th>
<th>A</th>
<th>B</th>
<th>p</th>
<th>R² (n = )</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 5.0</td>
<td>-7.13</td>
<td>5.52</td>
<td>.09</td>
<td>.03 (72)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4.0)</td>
</tr>
<tr>
<td>&gt; 10.0</td>
<td>-1.53</td>
<td>-.07</td>
<td>NS</td>
<td>.00 (43)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(3.9)</td>
</tr>
</tbody>
</table>

#### Top 15 Labeled as Gentrifying

<table>
<thead>
<tr>
<th>Cutoff point</th>
<th>A</th>
<th>B</th>
<th>p</th>
<th>R² (n = )</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 0.0</td>
<td>-5.40</td>
<td>6.05</td>
<td>.09</td>
<td>.02 (95)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4.5)</td>
</tr>
<tr>
<td>&gt; 2.50</td>
<td>-6.89</td>
<td>7.51</td>
<td>.05</td>
<td>.04 (84)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4.4)</td>
</tr>
<tr>
<td>&gt; 5.0</td>
<td>-7.23</td>
<td>7.84</td>
<td>.04</td>
<td>.04 (72)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4.4)</td>
</tr>
<tr>
<td>&gt; 10.0</td>
<td>-2.74</td>
<td>3.35</td>
<td>NS</td>
<td>.02 (43)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4.1)</td>
</tr>
</tbody>
</table>

**Note:** A, the constant in the regression, represents the mean for appreciating neighborhoods that were not labeled as gentrifying. B, the unstandardized slope, represents how much, on average, the gentrifying neighborhoods scored above the other appreciating neighborhoods. All tests are one-tailed. Standard errors in parentheses.

In the **relative” definition of gentrifying neighborhoods and focus on just the top 15 on the relative house-value change dimension. In that case the crime differential between gentrifying neighborhoods and other appreciating neighborhoods is somewhat larger. The average slope was 7.1.

**Larceny**

Gentrifying neighborhoods, as compared to other appreciating neighborhoods, scored higher on changes in larceny. Whereas other appreciating neighborhoods experienced a drop of 5 to 7 percentile points, the gentrifying neighborhoods, by contrast, scored 3 to 6 points higher. The average slope
was 3.6. In other words, gentrifying neighborhoods did not experience the drop in relative larceny levels experienced by other appreciating neighborhoods (see Table 2).

In contrast to the results with robbery, the larceny results are somewhat influenced by the cutoff point used. With the broadest and narrowest definitions of appreciating (as compared to stable) neighborhoods, the differential is not significant at the set alpha level. But when the two more moderate cutoff points are used, the differential is significant.

Using a more conservative definition of gentrifying neighborhoods and including only the top 15 neighborhoods on appreciation resulted in a slightly more sizable differential between gentrifying and other appreciating neighborhoods; the average slope was 6.2.

Other Variables Associated with Unexpected Crime Change

Controlling for gentrification, we also explored what other ecological change parameters were associated with changes in crime levels in appreciating neighborhoods. In the case of robbery, increasing unemployment was significantly and negatively associated with the crime change (all p’s < .06, two-tailed) regardless of which cutoff point was used for appreciating neighborhoods. The standardized coefficient ranged from −.34 to −.37. In gentrifying neighborhoods only, this relationship was slightly stronger: r = −.45.

We examined the scatterplots of unemployment change by robbery change using all four different cutoff points and verified that the correlations were not due to outliers. As unemployment dropped unexpectedly in appreciating neighborhoods, robbery increased unexpectedly.

Controlling for gentrification, there were no ecological covariates of changes in larceny that remained significant across all the different cutoff points used.

Burglary

Even though we did not anticipate theoretically that burglary rates would increase in rapidly gentrifying neighborhoods, many consider burglary to be a “rational” offense (Cornish and Clarke, 1986), and so we report briefly on it here. We repeated the same analyses reported in Table 2 but used residualized burglary as an outcome. Results indicated that gentrifying, as compared to other appreciating, neighborhoods experienced lower scores on
burglary of anywhere from 1 to 6 points. But these results only approached significance when the most stringent definition of appreciating neighborhoods was used (only those with HRANKRES > 10) and only when the stricter definition of gentrifying neighborhoods was used (15 instead of 20). In this case $B = -6.2$, SE of $B = 4.96$; $p < .12$, one-tailed. None of the other seven analyses approached our set alpha level. As stated earlier, given the significance of the intervening construct of protection behaviors in understanding burglary changes, it is hard to interpret these results.

GENTRIFYING NEIGHBORHOODS HAVE INCREASED ROBBERY LEVELS AND REMAIN HIGH ON LARCENY

SUMMARY OF MAJOR FINDINGS

We expected that in gentrifying neighborhoods, as compared to other unexpectedly appreciating neighborhoods, there would be unexpected increases in the crimes-for-gain of robbery and larceny. Results indicated the following:

(1) The gentrification process was linked with unexpected increases in robbery. Gentrifying neighborhoods as compared to other appreciating neighborhoods experienced unexpected increases in robbery.

(2) Gentrification was linked with higher than expected larceny rates at the end of the decade. Gentrifying neighborhoods did not enjoy the decrease in larceny experienced by other appreciating neighborhoods.

The results for both robbery and larceny are not influenced by the number of neighborhoods labeled as gentrifying. The results for robbery hold up regardless of which cutoff point we use to separate appreciating versus stable neighborhoods.

Some have suggested (Reiss, 1986; Bottoms and Wiles, 1986; McDonald, 1986) that the gentrification process may be associated with decreasing crime rates. There may be two causes for such a decrease. Because gentrification is associated with the influx of middle-income populations into previously deteriorated areas, gentrifying areas may, in ecological terms, come to approximate middle-income, stable areas that have lower crime rates. Or, alternatively, crime may decrease if the new residents demand and receive more attention from police or other agencies. Bottoms and Wiles’s (1986)
description of resident pressure in the Havelock section of Sheffield is an excellent exemplar of the latter.

We did not examine policing patterns, but the ecological characteristics of gentrifying neighborhoods suggest that they are not similar to stable lower-middle- or middle-income neighborhoods. Prior to gentrification they are "socially disorganized": There is a large volume of worn-out or undesirable housing stock, a high proportion of renters, and significant proportions of the population that are severely disadvantaged.

After gentrification has occurred these areas are still socially disorganized. Although house prices have escalated dramatically and there has been an influx of managerial/professional households, these changes have not made over the neighborhood completely. This pattern of "patchwork" revitalization and disinvestment and continuing population and housing diversity that we have observed in gentrifying Baltimore neighborhoods is in line with characteristics of gentrifying neighborhoods noted in other cities such as Nashville, Atlanta, and Philadelphia. Our results go beyond prior work in which researchers have noted these characteristics by suggesting that the continued diversity and partially abraded social fabric may be linked with high offense levels.

In fact, our outcome measure tells us the relative magnitude of the crime increase experienced in gentrifying neighborhoods. On robbery, gentrifying neighborhoods were 5 percentile points higher than the comparison neighborhoods, and on larceny they were about 4 percentile points higher. These figures, albeit small, need to be considered in the context that (a) the gentrifying neighborhoods were already high on these crimes, and (b) small changes in percentile scores are associated with large changes in crime rates at the positive end of the percentile distributions (see Taylor and Covington, 1987: Table 2). Consequently, the impact of a 5 or 10 percentile point shift on the residents and the community may be more serious than would have been the case if these areas had been relatively safe prior to the change. The unexpected crime increases and failures to decrease are by no means trivial given the initially high crime levels.

DISCUSSION

There are several reasons why gentrification may be linked with relative crime rates stabilizing at very high levels and/or actual relative increases. As stated previously, change has been incremental in gentrifying neighborhoods. Despite some influx of more affluent populations, these areas have not been transformed. Low-income populations have not been displaced
completely or even largely as evidenced by continued high unemployment and poverty levels in these locales. In part, this may be because gentrification has proceeded in fits and starts, resulting in gentrified pockets rather than completely revitalized neighborhoods. In part, it appears to be a characteristic of gentrifying neighborhoods. Despite the turnaround they have experienced, they are still “inner-city” neighborhoods in several key respects. Further, gentrification has not encouraged stable neighborhood populations. Hence, despite housing priced for the affluent, these areas continue to house a large number of households—low-income and rental—that may contain potential offenders.

In fact, to ask that gentrification be linked with significant reductions in crime may be asking too much. After all, it is no mean feat to reverse crime levels that in the early part of the decade were some of the highest in the city. The notion that criminal traditions are difficult to reverse is hardly a new one and is based on the assumption that these traditions develop and become “hardened” in “disorganized” areas that are unable to control crime. (Bottoms and Wiles’s 1986 discussion of the Havelock section of Sheffield illustrates admirably the entrenched nature of these traditions.) Many of the areas that experienced gentrification were “disorganized” in 1970; they were characterized by large proportions of vacant or undesirable housing, low owner-occupancy rates, and high poverty and unemployment levels. Further, outright hostility between newcomers and long-term residents occurred occasionally (for an example from New Jersey, see Barry and Derevlany, 1988) which might have prevented them from uniting in formal or informal efforts to combat crime.

Because revitalization is accompanied by turnover and heterogeneity in gentrifying neighborhoods, the revitalization process may create conditions that are ideal for increases in crime.

It could be the case, therefore, that gentrifying areas do not fit as cleanly into a human ecology framework as some have suggested (Hudson, 1980). In the future the invasion-succession cycle may not be completed; instead, diversity within the niche may continue for an extended period of time. The invasion-succession cycle may “stall.” If this happens, then gentrifying areas may be plagued by high levels of disorder for a considerable period of time.

Since gentrifying areas and those experiencing modest appreciation have relatively high percentages of unemployed persons and those living in poverty, pools of potential offenders probably have not been largely displaced. As these conditions frequently have been associated with pressures to commit crime, it is likely that these areas continue to have a sizable—but-reduced pool of motivated potential offenders. Also, offenders remain in
nearby neighborhoods. The linkage between decreasing unemployment and increasing robbery in the appreciating neighborhoods suggests that offenders in and near these sites are indeed sensitive to the increasing availability of lucrative targets.

Clearly, our study is limited in several respects. First, we depended on reported crime and did not have victimization data. Therefore, we do not know if the targets of the offenders are people passing through these areas, longer-term residents, or the newer, more up-scale in-migrants. But, given the large numbers of interviews needed to create stable victimization rates for small areas of only a few hundred or a couple of thousand households, a victim survey approach to this issue is not cost-effective. Investigations of incident reports may lead to a better understanding of the victim-location-offender dynamics.

Nonetheless, analyses of the reporting decision (Skogan, 1972) make it quite clear that our pattern of findings cannot be explained away by a higher proclivity of in-migrants, as compared to longer-term residents, to report crime. Analyses of National Crime Survey data indicate that reporting is a function largely of incident characteristics. People report crimes that are more serious or result in more harm. Reporting is only minimally reflective of reporter characteristics. Thus to say crime went up in gentrifying neighborhoods because the reporting rate went up would be to make assumptions about the reporting process that are at variance with the evidence.

Second, our study is limited to two points in time: the beginning of the 1970s and the end of the 1970s. Although our results suggest gentrification may lead to some increases in crime, crime may be high in these revitalizing areas merely because they are in a period of transition. Hence crime rates might be expected to decline over time if, and/or as, revitalization progresses and is completed or targets increase the "costs" of offending. For this reason, we hesitate to argue that the results we obtained for this 1980 sample might be duplicated in a 1987 sample because revitalization may have progressed in the face of several years of low interest rates and an active housing market. Yet, on the other hand, the population turnover that has been occurring in these neighborhoods during the early years of revitalization may be continuing.

In other words, the young, two-career couples who migrate to these areas are likely to be highly mobile because of their age, high divorce rates, and tendency to move when their children reach school age. Increasingly, one reason for their moving may come to be the frustration they experience in attempting to grapple with hardened criminal traditions. If so, a vicious cycle
may emerge in which high crime fuels higher mobility and then ultimately more crime.

Finally, our study is limited to one city, and its generalizability to other cities is unknown at this time. Nonetheless, the restriction to one city, we feel, increases the internal validity of the study. Police reporting practices are "held constant," and we do not have cross-department variation with which to contend. The cross-city differences observed in McDonald's 1986 study of gentrification may be partially explained in terms of such differences. Also, by dealing with one city, we are limited to one housing market. In such a context, our relative measures of house value and crime are sensible; they would not be sensible were we dealing with more than one city.

Counterbalancing these limitations are several strengths of our investigation. First, we have taken an extremely "conservative" approach in our analyses. Our residualized predictors and outcomes control for initial levels at the beginning of the decade and overall citywide changes influencing neighborhoods. In addition, we have utilized a gentrification measure that is empirically derived and does not depend on clinical judgments. The measure—sizable unexpected increases in relative house value—therefore can be applied in other locations. In addition, the measure appears to have very good construct validity, being linked in the expected way with population changes. Our labeling of neighborhoods as gentrifying, based on this measure, overlaps substantially with the grouping based on a multiple indicator. Of course, construct validation is an ongoing process, and other measures of gentrification may emerge that are more suitable for some purposes. Nonetheless, in the interim, the measure used here can be applied easily elsewhere.

Therefore, from a policy perspective, the heterogeneity of residents in gentrifying areas and persistent subgroups of disadvantaged residents in these locations indicate that policymakers should not assume that gentrifying areas have less need of city services, such as assistance in local leadership development or in community organizing, than was previously the case. Gentrified areas are not as problem-free as stable, middle-income city neighborhoods. To the extent that gentrifying or gentrified neighborhoods are an important component of a city's tax base, they may deserve careful monitoring so that the delivery of services is appropriate to need and can help to "strengthen" the neighborhood.

The fine-tuning of service delivery to important gentrifying neighborhoods will be more effectively implemented if we have a clearer understanding of resident-offender-location dynamics. In the language of Cohen and Felson's (1979) guardianship model, we need to know what kinds of guard-
ianship are effective in reducing what kinds of victimizations. This mandates research specifying the deterrent impact of various guardian-relevant activity patterns, physical parameters, and practices, and how they are viewed by potential offenders. Initial models for such explorations have been developed (Taylor, 1988; Taylor and Gottfredson, 1986) and can be further elaborated.

NOTES

1. The offender rate clearly will decline. The offense rate will decline to the extent that local offenders are responsible for a large portion of local offenses. Given the information on offender travel patterns (see, for example, Taylor, 1987) this is not an unreasonable assumption.

2. This problem is particularly hard to rule out since some of the “worst” neighborhoods “improved” the most.

3. The term social disorganization is unfortunate because (1) it overlooks the degree of organization that often does exist in high crime areas, and (2) it ignores outside conditions—disinvestment, poor policing, indifferent city administrations—that may encourage criminal traditions independent of community conditions (Savelberg, 1984). These deficits notwithstanding, social disorganization is a concept that captures the devastating effects that population turnover and heterogeneity are assumed to have upon neighborhood crime levels. Because it does capture these dynamics, it is useful.

4. Full details on the development of the neighborhood-based data file, the allocation of census and crime information to extant neighborhoods, and the mapping procedure used can be found in Taylor et al. (1979) and Goodman and Taylor (1983). Full details on the construction of all measures used in this study can be found in Taylor and Covington (1987).

We are of course committing the oft-decried sin of “reification of neighborhood entities” by creating and using such a neighborhood data set. Urban sociologists (Hunter, 1978; Suttles, 1972) point out that neighborhood definition is a fluid process and that neighborhoods have varying and overlapping boundaries, the definitions of which may be more closely in accordance with the political aims of outside entities than with any ecological realities. Nevertheless, we are willing to commit this sin in order to carry out the desired empirical investigation.

5. One reviewer has pointed out, correctly, that “using these data it is unknown at what point gentrification . . . is in time. . . . [W]e don’t and can’t really know exactly where they [the neighborhoods] are in the ‘process.’” Therefore, this places limits on our study and conclusion. If all the neighborhoods examined were just beginning to gentrify during the period, the relationships we observe may not hold for more “mature” neighborhoods that had begun gentrification some time ago. Or, if all the neighborhoods were “mature” gentrified neighborhoods, the relationships may not hold in the early stages of gentrification. But, based on our knowledge of these neighborhoods, those we subsequently label as gentrifying are, for the most part, neighborhoods where gentrification has been going on for less than a decade, although some neighborhoods were already noticeably gentrified, at least in part, by 1970. The question of where a neighborhood is in the process of gentrification cannot be clearly answered, however, until we know what the overall life cycle of a gentrifying neighborhood is, or until we know how long it takes for a neighborhood to gentrify completely, or at least become as gentrified as it is going to be. These issues have not yet been adequately addressed by researchers.
6. To be more specific, the crime percentile score is computed as follows:

\[
\text{Percentile}_M = 100 \times \frac{\sum (i = i - M) \text{Population}_i \text{ Crime}}{\sum (j = j - n) \text{Population}_j}
\]

Population$_i$ is the population in the ith lowest neighborhood, Population$_j$ is the total population in all neighborhoods in the city (exclusive of public housing areas), M = the neighborhood of interest, and n = the total number of neighborhoods examined.

Thus a neighborhood with the lowest (for example) aggravated assault rate in the city would have a crime percentile score of 0; the neighborhood with the highest rate would have a score approaching 100. Also, a neighborhood with a crime score of 50 is a neighborhood in which the crime rate is equal to or greater than the neighborhood crime rate experienced by 50% of the population in the city’s neighborhoods. Stated differently, 50% of the population lives in neighborhoods where the rate of aggravated assault is equal to or less than the rate experienced by the neighborhood with a crime score of 50.

This type of measure has recently been used, for example, by Choldin et al. (1980) in their assessment of suburban status instability. See Taylor and Covington (1987, Table 2), for a table cross-referencing percentile crime scores and actual crime rates at the beginning and end of the decade.

7. Scores on the relative house price index were computed as follows:

\[
\text{Percentile}_M = 100 \times \frac{\sum (i = i - M) \text{Housing Units}_i}{\sum (j = j - n) \text{Housing Units}_j}
\]

where Housing Units$_i$ is the total number of housing units in the ith lowest neighborhood, Housing Units$_j$ is the total number of housing units in all neighborhoods in the city (exclusive of public housing areas), M = the neighborhood of interest, and n = the total number of neighborhoods examined. To see the relationship between house-value percentile scores and actual house value see Taylor and Covington (1987, Table 3).

8. All ecological change parameters are residuals, not difference scores. Analysis was done for all neighborhoods, and for only those with a positive score on house-value change. Results from the two sets of analyses were virtually identical. We report the latter here for the zero-order correlations and regressions.

9. The nature of the residential fabric in these gentrifying areas was, in some ways perhaps, a prerequisite for the significant appreciation that occurred there later. Low house prices were necessary to attract potential home buyers and investors to the area. A transient, lower-social-class population was “required” because such a population, with low advocacy power, was easily displaced and presented relatively little resistance to in-migrants and others who wished to purchase properties. Indeed real questions have been raised about the equity of the revitalization movement because low-income, senior, and minority populations are displaced by gentrification (Henig, 1982).

To underscore the deteriorated state of these neighborhoods, it is instructive to compare these areas that would gentrify over the decade with areas that would experience the sharpest decline in relative house value over the decade. Gentrifying neighborhoods had unemployment rates and levels of poverty that were similar to neighborhoods that would experience significant unexpected decline in relative house values. In some respects, in 1970, the areas that would
gentrify were actually more unstable than areas that would decline over the decade; they had lower percentages of owner-occupied units and more unoccupied housing.

10. These changes, of course, need to be considered in the context of overall changes that were occurring in the city over the decade, such as increases in the overall education level.

REFERENCES


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