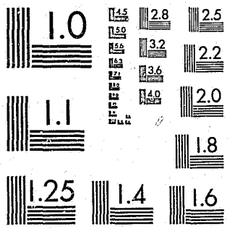


social science
research institute

CRIME AND CHANGING NEIGHBORHOODS

FINAL REPORT

Submitted to

United States Department of Justice
National Institute of Justice
633 Indiana Avenue, N.W.
Washington, D.C. 20531

by

Social Science Research Institute
University of Southern California
University Park
Los Angeles, California 90007

Co-Principal Investigators:

Solomon Kobrin
Leo A. Schuerman

Prepared under Grant Number 79-NI-AX-0127.

April 1984

ABSTRACT

CRIME AND CHANGING NEIGHBORHOODS

This study examined Los Angeles County's highest crime neighborhoods over the twenty-six year period 1950-1976. This period witnessed unparalled growth, into a metropolis of the first rank in the United States. To ascertain the developmental dynamics involved in the transformation of urban subareas, from a crime-free to a crime-impacted state, twenty-six year crime trends were related to trends in their land use, demographic, socioeconomic, and subcultural characteristics. Analysis of these features identified and differentiated the changes in neighborhood land use and social structure that initially induce rising crime rates, foster their continued rise, and ultimately establish a city neighborhood as an entrenched locale of crime. The development of these crime impacted areas in the contemporary metropolis is interpreted as a consequence of basic shifts in urban growth patterns since World War II. The change is seen as increasing the vulnerability of a growing number of urban subareas to transformation as high crime neighborhoods.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

An extensive body of theory and research exists respecting the processes of neighborhood deterioration and decline in the urban metropolis. Its origins in the United States date from the early work of the "Chicago School" of social ecologists, principally that of Burgess (1926, 1927), and extends to the more recent studies of Hoover and Vernon (1962), Schnore (1962), and Bogue (1959). In general, this body of theory has represented the decline of neighborhoods as a function of change in urban land use. The early concentric zone theory presented an ideal-typical process of expansion outward from its initial area of settlement in the course of the city's growth, with older areas of residence successively subject to invasion by expanding industry and commerce. The physical deterioration of neighborhoods is then initiated with the decline in the residential desirability of the older inner city zone, the evacuation of its residents to zones farther removed from the city center, a drop in the cost of housing, and its invasion by low income groups.

While it was essentially retained, this characterization of the process of neighborhood deterioration was later modified, refined, and given greater generality. Currently, the established theory accounting for the physical deterioration of neighborhoods is based on a generalized paradigm of urban land use development. This is best exemplified by the Hoover and Vernon (1962) well documented description of the cycle of land use. They assert that urban regions develop from multiple centers of initial residential settlement. Typically, each moves through a cycle of five stages: (1) start of residential settlement by single dwelling units; (2) shift to multiple dwelling units; (3) conversion and downgrading of original structures for commercial and industrial activity; (4) thinning out through vacancy, abandonment, and demolition; and (5) renewal.

Concentric zone theory was thus modified to take account of the founding of areas of initial residential settlement at many sites in an urban region at various time periods. These may be widely separated in space, and each is seen as undergoing an essentially similar cycle of change. Schuerman et al. (1974) also observed that " . . . urban development is not necessarily consistent in time, nor does it occur by contiguous neighborhoods." Thus, neighborhood deterioration is not necessarily confined to the city's central zone, but can occur in multiple locations scattered throughout a metropolitan region. At each such location, the cycle of land use tends to conform to the pattern described.

The theory invites particular attention to the downgrading and abandonment stages in the cycle of land use change. In American cities, it has been observed historically that

neighborhoods in these stages of transformation experience the highest rates of crime and delinquency. Nonetheless, the precise relationship of crime and delinquency to the process of neighborhood deterioration has received relatively little systematic study. For example, whether and to what extent an increase in crime precedes or follows neighborhood decline remains essentially unknown, and whether increases in particular types of offenses occur only at some stages of decline and not at others. Even the speculative theorizing on these questions is sparse, and largely confined to the earliest work in studies of delinquency. Thus, Burgess (1926:509) provided the following suggestive scenario:

> In the decline of a neighborhood the following stages have been worked out: first, a stage of residential home ownership, with a high degree of community spirit; second, the stage of tenancy, with a decline of neighborhood loyalty; third, the invasion of business; fourth, roominghouse stage; fifth, entrance of a racial or nationality group of imputed inferior cultural status; sixth, the intrusion of vice and crime; seventh, the stage of social chaos; and eighth, the final stage, when business or industry takes full possession of the neighborhood. This is the general cycle of the life-history of the neighborhood.

The land use cycle proposed by Burgess and that specified by Hoover and Vernon are separated by almost forty years, but their similarity is striking. Observations of patterns of transformation in urban land use seem highly reliable. However, the stages in the cycle of neighborhood change during which crime becomes endemic, and the process by which this occurs, have remained essentially unexamined since the Burgess commentary. The work of Shaw and McKay (1969) focused exclusively on the distribution of rates of delinquents in Chicago over four decades. They offered some elaboration of the Burgess fifth and sixth stages of the cycle, namely, "entrance of a racial or nationality group of imputed inferior cultural status" and "the intrusion of vice and crime." The Shaw-McKay research demonstrated, for example, that high rates of crime and delinquency in the city's deteriorated neighborhoods were an attribute of the neighborhood rather than of any of the racial or nationality groups that had successively occupied them, and that the persistence of the attribute represented an adaptation of each successive population to their acutely disadvantaged position in the economic and social structure of the city.

They also provided a detailed description of what later came to be termed the delinquent subculture of these neighborhoods and the normal learning process by which children were inducted into the subculture. However, they did not attempt to differentiate their "delinquency areas" with reference to the various points in the process of neighborhood deterioration with a view to

distinguishing among the various types of crime and patterns of delinquency associated with each. Concerned with ideal typifications respecting the persistence of delinquency in the high rate neighborhoods, they focused attention on those that had long since declined and were, in Chicago, historically established areas of first immigrant settlement. They acknowledged the existence of a delinquency problem in areas other than those with the highest rates by emphasizing the fact of a declining gradient in rates as a function of distance from the city center. But they did not attempt to characterize patterns of crime and delinquency in areas adjacent to those with highest offender rates which, in terms of their own ecological theory, were in the incipient stages of deterioration.

The question of the relationship between criminogenic processes and processes of neighborhood deterioration has thus remained largely unexplored. On a cross-sectional view, it is well established that crime and neighborhood deterioration are highly associated. But single time measures of the relationship offer no clues regarding the important issue of causal direction. In the present state of knowledge it can be asserted only that the two are mutually reinforcing. Various levels of neighborhood decline reflect similar levels of crime. The scanty early literature suggests that neighborhood decline precedes the increase in crime. While this is more likely than the converse, it remains unsupported by systematic investigation. Moreover, to treat the relationship in static terms provides no information relating the development and course of neighborhood deterioration to the varieties and incidence of offense behavior as these emerge over time.

Presented in this volume is a report of an investigation of these issues conducted in Los Angeles County. They may be advantageously examined in this metropolitan community in large part because of certain features of its recent history. Like many other major metropolitan communities, it embraces great diversity in economic substructure and in the composition of its population. Los Angeles County is unique, however, in having undergone very rapid population growth and economic diversification during the very recent past (Tomlinson, 1969). Its population size increased from 4.1 to 7.0 million between 1950 and 1976, with dramatically visible changes in its social ecology. Its rapid pace of change has thrown into sharp relief precisely the kinds of neighborhood transformations with which this study is concerned. Despite the recent explosive growth in Los Angeles County, as a settled area it includes communities established two centuries ago and cities incorporated less then five years ago. The associated diversity in types of neighborhood change is reinforced by an unusually high level of intra-metropolitan mobility (Van Arsdol et al., 1968), in turn facilitated by its transportation network. Los Angeles County emerged as a major metropolitan area concurrently with the development of the automobile as a primary mode of travel,

generating an arterial network of high speed freeways that permit easy residential relocation for large numbers (Grey, 1959). The general facilitation of intra-metropolitan mobility is particularly relevant to the changing character of neighborhoods in conjunction with the growth of the County's two major minority groups. While Blacks currently comprise about 12 percent of the County population, during the past decade it has undergone a 65 percent increase, or over four times that of the total population. The much larger Spanish heritage, or Hispanic, group numbering one million and comprising about 18 percent of the population also increased by approximately 62 percent during the past decade.

A final and very important feature of Los Angeles County as the study site is the availability of relevant data sources over long periods and at many time points, which are essential for the construction of measures capable of capturing trends in neighborhood change as they relate to trends in criminal activity patterns.

Specifically reported here are the changes in crime measures and associated changes in neighborhood characteristics over the 26-year period, 1950-1976. Measures of both types of variables were obtained for the decennial time points of 1950, 1960, and 1970, and the interdecennial date of 1976. Because crime report data consistently geocoded to the census tracts of for the Los Angeles Metropolitan Area were unavailable for 1950 and 1960, surrogate geocoded measures by residence of juveniles adjudicated on misdemeanor and felony complaints at each of these two time points was substituted. The substitution was justified by reliable evidence of high and consistent associations between juvenile and adult offenses for urban subareas. The basic unit for analysis of urban subareas in this study is the census tract area established by the U.S. Bureau of Census.

Data used in the measurement of neighborhood social structure, obtained from the U.S. Census Reports and from local administrative data sources, were treated as indicators variously of four dimensions or categories of structure. The dimensions of social structure were defined as constituted by variables measuring the land use, demographic, socioeconomic, and subcultural characteristics of urban neighborhoods.

Because there occurred a large increase in its population during the 1950-1970 period, census tract boundaries in Los Angeles County underwent many changes between decennial periods. Extensive effort was devoted to the adjustment of boundaries defining 1142 comparable census tract areas embracing identical units of territory at each of the four time points. With use of statistical procedures designed for the purpose, census tracts were then grouped to yield 192 clusters each relatively homogeneous with respect to its 1970 crime measure.

Considered in the second chapter are problems of defining the concept, "neighborhood"; issues in the measurement of crime that required resolution for purposes of this research; and the development of a typology of offenses meaningful in relation to patterns of neighborhood deterioration. The intuitive and commonsense notion of neighborhood as defined by the common value orientations of residents and identification with and sentimental attachment to the area was redefined to refer to empirically ascertained homogeneity in the level of the crime problem and in associated features of neighborhood social structure. As noted, crime levels were assessed by use of the surrogate measure of juvenile offenses. In addition to the usual Part I offenses of the Uniform Crime Reports, a typology based on the distinction between instrumental and expressive offenses was used. A final section of Chapter II then follows in which are presented the statistical problems faced in the development of census tract clusters homogeneous with respect to their crime status.

Chapter III provides an extensive and detailed discussion of the variables of neighborhood social structure. These are treated provisionally as the independent variables in a model that assumes them to be causal factors in changes in neighborhood crime levels. Social change and social control theory are utilized to derive the central hypothesis of the study, namely, that it is specifically the velocity of change in structural factors that is initially responsible for the decisive rise in crime heralding the impending transformation that creates high crime neighborhoods. Of the structural variables, a number of those commonly regarded as "demographic" are treated as indicators of neighborhood subculture, representing an independent dimension of neighborhood structure. Attention is devoted to the analytic use of "subcultural" variables, many of which are customarily included in lists of demographic factors.

The fourth chapter is taken up with measures of crime and its changes between 1950 and 1970 in the ten clusters identified as those with the highest crime measures in 1970. Presented is a relatively straightforward description of crime trends in the ten clusters over a 20-year period. Distinctions among trend patterns indicated that clusters were classifiable with respect to the recency of their status as high crime areas. Suggested, therefore, was a developmental cycle in which neighborhoods evolved over time to become stabilized as enduring or persisting high crime areas.

Chapter V then approaches the question of changes in community conditions in the ten 1970 high crime clusters that reflect processes of neighborhood deterioration as these have moved through time with changes in their crime levels. Trends in both are presented in the form of percentage increases or decreases across the time points of 1950, 1960, and 1970. Three descriptive measures were used with respect to crime and neighborhood structural variables: (1) concentration or number

per square mile; (2) rate per appropriate unit of population; and (3) the unit share, or proportion, of the total volume of crime, or of a given neighborhood characteristic of the County in a particular cluster or group of clusters. Concentration, rate, and unit share measures were derived for each of the time points.

These descriptive measures are presented for each of the ten 1970 high crime clusters, and for all ten as a unit. As shown in Chapter IV, the three distinct patterns of crime increase over the 20-year period indicate that the ten clusters fall into three distinguishable stages of development as high crime areas: emerging, transitional, and enduring. The descriptive measures were consequently used to define trends in each of the three developmental stage clusters. The unit share measure was regarded as yielding the clearest profiles of 20-year change in crime and in neighborhood conditions, since this measure is the most objective reflection of shifts in the ecological function of urban subareas. Separate profiles of 20-year trends were derived for each cluster and for the cluster groups at the several stages of development in 1970. Their use is strictly descriptive and simply documents the land use, demographic, socioeconomic, and subcultural features that may be found in neighborhoods at various points in their development as high crime areas. The question whether those features that index deterioration induced a rise in crime or were consequences of a rising crime trend was taken up in the following chapter.

In Chapter VI, three types of statistical procedures were used in addressing the causal issue: cross-lagged bivariate correlation analysis; multivariate regression analysis examining both cross-sectional and cross-lagged relationships; and the correlation of deviational change. For simplicity and clarity, the bivariate cross-lagged simple correlation analysis utilized a restricted but representative set of variables indexing neighborhood conditions. Findings from this analysis established structural factors as the prior and therefore the independent variables, in subsequent analyses. Multivariate regression analysis permitted identification of those prior effect variables within the independent set that, net, explained the highest proportion of the variance in the subsequent crime measure. However, it remained for the lagged correlation of deviational change, a statistic designed to assess comparative velocities of change in two variables over time, to obtain a view of the neighborhood structural variables whose change rates most impacted the change rates in crime. This analysis is presented separately for the 1950-1960, and the 1960-1970 decades in Chapters VII and VIII. Specifically, the procedure identifies those structural variables whose change velocities in the 1950-1960 decade accounted for most of the variance in the change velocity of the crime measure in the 1960-1970 decade.

In Chapter VII the many variables used to measure neighborhood social structure were factor analyzed to produce a

standardized composite score expressing the time point value for the land use, demographic, socioeconomic, and subcultural dimensions of structure. The development of composite scores in lieu of many separate individual measures was based on the expectation that at best any one variable is only imperfectly related to a particular structural dimension. The combination of the many scores into one composite "indicator" was regarded as conceptually more closely related to the given aspect of neighborhood structure than can be attributed to any one single measure.

Chapter VIII presents an analysis of a "short-term" set of relationships between neighborhood change and crime for the period 1970-1976. This more abbreviated period provides a test of the reliability of many of the measurements developed for the longer 1950-1970 time period. In addition, the use of the more recent period allowed us to examine the validity of the conclusions based on the analysis of the 1950-1970 trends.

The final chapter presents an overall evaluation of the the areas identified by the more relaxed level of significance of .01 findings based on the historical and short-term trends of the study. These evaluations are couched in the form of tersely but carefully formulated conclusions. Included are a number of suggestions, tentatively advanced, respecting the implications of the findings for crime control policy. These are concerned principally with possible policy initiatives that may inhibit or reverse processes of neighborhood deterioration and escalating crime in neighborhoods at the earliest stages of their development as high crime areas.

CHAPTER II

CONCEPTUAL PROPOSITIONS AND OPERATIONAL ISSUES

A. "Neighborhoods" and Crime

In examining the relationship of change in the character of urban residential neighborhoods to change in their crime problems, a prior question arises concerning the specification of the term, "neighborhood," as an areal unit. Since the relationship in question must be open to measurement, the designation of the areal unit must be definitively bounded in order to reference all measures of its characteristics to a fixed and unvarying unit of space. Although the term, "neighborhood," has an intuitive and readily recognized meaning, and can be defined in some respects in a sociologically meaningful manner, it is unsuitable for the purpose at hand.

This is the case not only because of the difficulty of defining the neighborhood concept in spatial terms. In addition, the urbanization process has increasingly undermined its central component, largely restricting the term to its nostalgic value. In its original and substantial meaning, a neighborhood is defined by a web of primary relationships binding its residents to one another around common occupational interests and social values, and creating mutually acknowledged claims on one another's resources and services. The ideal typical neighborhood in this sense was found in the past in rural communities. With massive migration to the cities in the U. S. during the past century, there survived only the minimal supports of "neighborliness" intermittently represented by common interests in the education and welfare of children, the orderliness of shared public space, and most infrequently by the occurrence of natural disasters and other crises. Dewey (1950) has pointed out that the efforts of urban planners to recreate the vanished rural neighborhood in the metropolitan setting ignores the transformed character of the urban residential area. In fact, the only surviving primary groups are those formed by families and friends. These observations have long been familiar, and efforts have been made to redefine urban residential areas in the light of their actual character.

An early effort is represented by the "natural area" concept developed by the Chicago School of urban sociologists. Park (1967:61-62) defined the natural area as a product of processes of selection and segregation that brought together persons of similar cultural and occupational characteristics. Thus, "Natural areas are the habitats of natural groups. Every typical urban area is likely to contain a characteristic selection of the population of the (city) as a whole."

An initial application of the "natural area" concept was made in the City of Chicago, where 75 "communities" were identified, each described according to their demographic, occupational, ethnic, and economic characteristics (Wirth and Bernert, 1949). While this exercise had some usefulness for social and governmental agencies in providing detailed population information about various segments of the city, the basis on which local communities as "natural areas" were defined remained conceptually ambiguous. "Each," it was claimed, "... has a history of its own, and is marked off from the others by distinctive physical and social characteristics and by natural boundaries. The names of these seventy-five communities . . . evoke among the inhabitants a sense of identification if not of loyalty . . .. These communities retain a certain constancy" (Wirth and Bernert, 1949:vii). In this application of the "natural area" concept, no attempt was made to identify communities on the basis of a set of conceptually meaningful population characteristics capable of establishing each at a satisfactory level of homogeneity. They were defined, rather, on the basis of historical and geographic considerations. Clearly needed in following out the suggestions offered by Park's notion of the "natural area" was the use of precisely the kind of population characteristics used descriptively in the identification of "local communities" as dimensions of social structure. With these specified, the discovery of "natural areas" within urban space becomes an empirical enterprise in which subunits similar in their significant social characteristics might constitute useful units for analysis.

A step in this direction was taken with the advent of social area analysis (Shevsky and Bell, 1955). The method employed a classification scheme which categorized the populations of census tracts on three major status dimensions: socioeconomic, family structure, and ethnicity as indicators of urbanization. The choice of these dimensions was based on a conceptual scheme in which these were postulated as the main factors in processes of differentiation and stratification in cities. The dimensions in specified combinations were seen, moreover, as being associated with distinctive modes of social organization and patterns of values and attitudes. Social area analysis constituted a distinct advance in the specification of the "natural area" concept. It related the development of urban spatial subunits to a set of concepts descriptive of the processes involved in the differentiation and segregation of populations in urban space.

However, the areas so identified were restricted to the individual census tracts which generated the data for their place in the classification scheme. From this base it was possible to create only "statistical" rather than spatial geographic areas. Subareas were identified in mathematical rather than in physical space. Thus, all tracts categorized as "familistic" at given levels of economic status and ethnicity might be widely dispersed geographically. This meant that in terms of location no "natural

area" as operationally constructed could logically encompass more than a single census tract, which might or might not form a "cluster" with continguous census tracts. Since the census tract is only a convenient standard unit of territory for purposes of population accounting, it can hardly function as a "natural area" (Schmid, 1938). This is not to say, however, that social area analysis is without its uses. At the level of abstraction at which social and ecological processes must be analyzed it held some promise for relating trends in the relationship between urbanization and segregation (Shevsky and Bell, 1955:28-53). However, subsequent evaluations of both the logic and method of social area analysis pointed out that it failed to advance the analytic utility of the "natural area" concept (Duncan, 1955:84-85).

Thus, neither the Wirth and Bernert "local community" nor the social area analysis approaches have offered a defensible operational procedure for the identification of natural areas. Needed is an empirically based method for locating urban spatial units composed of contiguous subareas, which are similar with respect to their land use, demographic, socioeconomic, and cultural features. Variables drawn from these domains define the conditions of physical and social environment under which its residents organize their activity and develop patterns of behavior that function as adaptations to those conditions. They represent, in brief, the structural features of subarea populations. Contiguous subareas at an acceptable level of measured similarity in these respects may then be assembled into "clusters," each of which may be considered a "natural area" in the sense that each is a product of urban processes of differentiation and segregation. Such clusters are not necessarily "neighborhoods" in the sense that its residents are bound together by common interests, value consensus, and interpersonal ties. They constitute natural areas in that they share a set of common structural traits definitive for their place in the economy and prestige order of the city's social system, and for the characteristic adaptive response of their residents to the problems generated by the opportunities and disabilities associated with both physical and social location. This, presumably, is what Robert Park had reference to in characterizing the urban community as a spatial pattern and a moral order.

On the basis of these considerations, we have defined "neighborhood" for purposes of the present investigation of crime and neighborhood deterioration as clusters of contiguous spatial subareas that are relatively homogeneous with respect to their crime measures and their associated structural features. In addition to the land use pattern of the clusters, their structural features include the age and ethnicity composition of the population, such indicators of economic status as occupation and income, family and household composition, and the prevalence of status offenses as a measure of the prevailing level of social

control independent of the crime rate. In the long-term trend analysis presented in this report, spatial units representing crime areas were formed by statistically clustering spatially contiguous "idealized" census tracts on the basis of similarity in their 1970 crime status and the relative homogeneity of their structural characteristics. Structural features as well as their crime patterns were then examined in the same clusters at the two earlier time points of 1960 and 1950 in order to define their character and the rate at which they changed in the course of the 20-year period. On this basis, then, it became possible to determine the order of development between change in the character of residential areas and change in their crime patterns. A technical account of the statistical procedure used in identifying areal subunits homogeneous with respect to particular characteristics is provided in the next section. Here the rationale of the procedure will be described mainly in non-statistical terms.

As has been indicated, urban areas similar in selected features may be identified in two ways. In the work of Lander (1954) and of Shevsky and Bell (1955), census tracts of similar characteristics were assembled in analytically homogeneous groups, i.e., all tracts in which measures of the feature of interest fall within a defined range of magnitude are included as a single class. It is important to note that in this procedure the tracts so assembled may or may not be contiguous in space; frequently they are not. As such, they do not constitute "neighborhoods" either conceptually or empirically even in the extended meaning of the term used here. And as we have already noted, a census tract by itself can hardly be termed a natural area.

The alternative method of identifying relatively homogeneous areal subunits, and the one employed in the present study, is to search out similarities between and among only those spatial subareas that are contiguous to one another. The criterion for the inclusion of a subarea within the same cluster is set at a point of minimum statistical difference in the magnitude of the measure for any adjacent subarea. The traditional procedure of grouping adjacent areal subunits is to pick some arbitrary point of value difference between, say, two census tracts at which the researcher deems there is too great a disparity in subarea values (Form, Smith, Stone, and Cowlig, 1954:434-440). For example, if the difference in rate of crime is less than, say, five percent between one census tract and another contiguous tract, they may be said to be the same, but if greater than the designated value, the offending tract is excluded from the pool of common tracts.

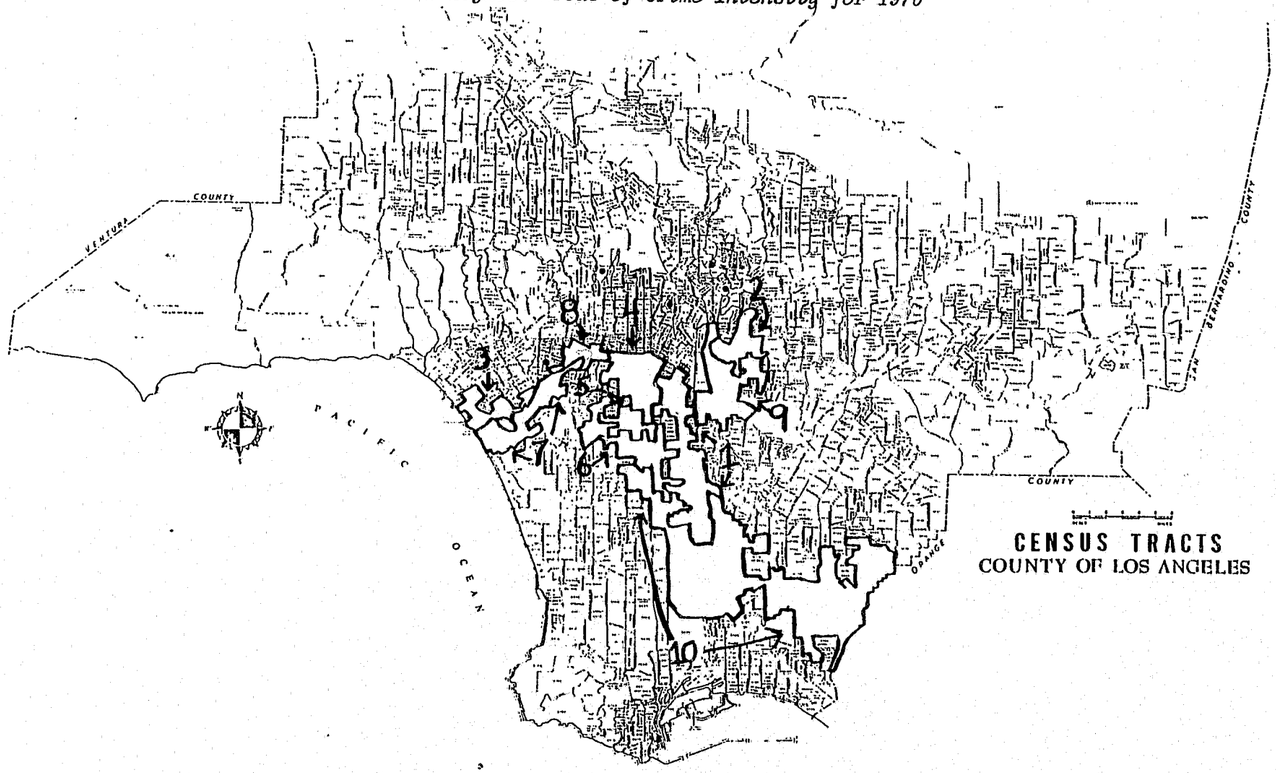
The clustering procedure adopted in the current research is not predicated strictly on an arbitrary descriptive spatial difference. Rather generic spatial areas are treated as clustered units in a relative state of homogeneity, defined in terms of an analysis of statistical variance of differences. The

clustering algorithm starts with the subarea with the largest magnitude of the given feature, e.g., densities of crime or crime types, commercial and industrial land use, unskilled laborers in the work force, etc., and searches only those spatially contiguous subareas with magnitudes falling within a minimal statistical difference range for inclusion. A subarea not included in the first cluster but which is next lower to the starting subarea of the first cluster, and beyond the minimal statistical difference among subareas of that group, is selected as the new starting point for the construction of the next cluster. This process is repeated until no new "legal" starting points are found to permit the inclusion of a subarea within the same cluster. Starting points for all succeeding clusters are selected in the manner described. This process is repeated until all subareas of the universe of territory (in this case, Los Angeles County) are located within clusters, with the exception of the "isolate" subareas, whose measures preclude their clustering with adjacent subareas. As noted, the statistical procedures used in clustering subareas is more fully detailed in the next section. The location in Los Angeles County of ten clusters in 1970 with the highest concentrations per square mile of delinquents adjudicated on misdemeanor and felony complaints is shown in Figure 2.1. The entire set of 1142 "idealized" census tracts of the County were clustered, yielding 192 "neighborhoods" that were statistically homogeneous with respect to their crime levels. That they were also relatively homogeneous respecting their land use, demographic, socioeconomic, and subcultural characteristics as well is evident in the data presented in Appendix A.

Although the clustering procedure emphasizes the importance of contiguity in the identification of homogeneous units, within any single cluster the measure of a particular feature may well vary within a substantial range, such that a tract included in a cluster with a lower mean value may itself be higher on that measure than the mean for the next higher cluster. But since the differences between adjacent tracts are statistically minimal for the total cluster, the likelihood is at a maximum that the effect of any given tract characteristic will permeate tract boundaries, with the exception of those tracts whose boundaries are formed by major physical barriers. The homogeneity of a cluster of census tracts thus consists in the fact that within the space defined by the cluster there exists sets of contiguous tracts between which there is statistically minimal differences in the measure of a characteristic over the total cluster. In this manner, a continuous spatial area is identified where for each tract there are (technically) 95 chances in 100 that it is similar in the measured feature to the total set of adjacent tracts in the cluster. True, it may be equally, or possibly even more, similar to a tract lying in another cluster, but it is spatially separated from that cluster by some distance in space and cannot be joined to it except through analytic abstraction. It cannot, in brief, be joined to it to form a <u>spatial</u> unit.

Figure 2.1

Ten Highest Areas of Crime Intensity for 1970



Again, attention is called to the distinction between homogeneity within units of continuous space (clusters of subareas) and homogeneity synthetically derived for quite different analytic purposes by creating classes of census tracts, however dispersed spatially, on the basis of the similarity of their features. For the purpose of examining the "real time" relationship between changes in the physical and population characteristics of concrete spatial areas and changes in their crime patterns, with which this study is concerned, the statistical clustering procedure described below in detail is an appropriate one.

B. Identifying Statistical Spatial Enclaves

To obtain an empirically based identification of neighborhoods, the present study used a modified statistical measure of spatial clustering first suggested by R.C. Geary as a Contiguity Ratio (c) (Geary, 1954). In its original form, c is a ratio that indicates the degree of spatial autocorrelation. In mathematical form, c for an entire universe of values is defined in Figure 2.2.

The numerator is composed of the "within cluster" variation for contiguous satellite subareas around each observational, or parent, subarea. The denominator of the ratio is the total variation for the entire universe of observations. When all values are randomly arranged, c equals unity. Values less than unity indicate positive spatial clustering. Values exceeding unity signify a negative spatial clustering. This descriptive measure provides the basis for an inferential test of whether or not a defined characteristic is distributed in a random fashion. The test is based on a moment frame of reference and is defined in Figure 2.3. Thus, Z* equals the test statistic that describes the normal deviate or distribution of the observed value of c from unity. As might be expected, Z* can be interpreted as equivalent to the usual Z score. In general, c is a descriptive summary measure of an entire areal territory's degree of spatial clustering. However, it does not isolate specific clusters of similar subareas within the universe.

In this section, we describe an extension of c, which statistically isolates subarea spatial clusters within a universe. In general, the process assesses the degree of spatial or areal autocorrelation by measuring the similarity patterns of subareas according to a given interval or ratio scale and contiguous location in space.

Instead of treating the whole County area at once, the procedure isolates clusters of contiguous subareas through a set of algorithmic functions. Utilizing the rapid execution capacity of a computer, the simulation of spatially isolating enclaves within a large number of spatial units can be achieved by means of a gradual "building up" via a decision tree process of

Figure 2.2

$$c = \frac{(n-1)}{2K_j} \cdot \frac{\Sigma_j \Sigma^*_{j \neq j'} (Y_j - Y_{j'})^2}{\Sigma_j (Y_j - M)}$$

where:

j = parent subarea,
j' = contiguous subarea,
n = total number of subareas in the universe,
k_j = number of contiguous satellite subareas for each j^{th} parent subarea,
$K_j = \Sigma k_j$,
Y_j = value for j^{th} parent subareas,
$Y_{j'}$ = value for j' contiguous subarea to Y_j,
Σ = sum over all subareas,
Σ^* = sum over contiguous subareas j', and where K, is the number of connections or joins for a particular parent subarea j,
M = mean value for total universe of territory.

Figure 2.3

$$Z^* = \frac{(1-c)}{SE_c}$$

where:

$$SE_c = \sqrt{(n-1)/n^2(n+1)\ K_1^2\ \{n^2K_1^2+2_n(K_1+K_2)\}-1},$$

$$K_1 = \frac{\Sigma_i k_i}{n},$$

$$K_2 = \frac{\Sigma_i k_i^2}{n}.$$

statistically related and mutually exclusive contiguous subareas. The major procedural steps may be described as follows:

(1) The highest observed score for the subareas of the defined universe is isolated. In general, this value can be any relevant interval variable. For example, a measure of delinquency might be the proportion of juveniles in a census tract arrested for a "Part I" crime over one year of time.

(2) Defining this highest contiguous subarea value as a "temporary subuniverse," initial spatial similarity is tested through a calculation of c and Z* by examining this initial value and its degree of congruence to spatially coterminous values. Steps 1 and 2 are repeated until a contiguous relation is identified at a predefined level of confidence.

(3) A vector is established when three contiguous subareas are statistically defined as having similar values. The vector direction is in a continuing hierarchically ordered and contiguous set of branches and subbranches until all contiguous subarea values are exhausted according to the defined level of statistical similarity.

(4) As long as the contiguous subareas of a decision branch are found to be statistically homogeneous, step 3 is repeated. If the test level for Z* is not reached, and all subbranches are exhausted, the vector is terminated.

(5) Procedures 3 and 4 are repeated until all branches and subbranches along each vector have been exhausted.

(6) After a subuniverse has been totally defined, i.e., a neighborhood, the next largest observed value outside all defined subuniverses is identified; all of the above steps are then repeated until all subareas in the total universe have been tested for inclusion into a unique set of subuniverses or remain as isolated subareas.

In order to demonstrate the usefulness and flexibility of the algorithm in the current research let us examine a typical rate of delinquency which can be developed from a selected set of

transaction records of the Los Angeles County Department of Probation.

These data consisted of all officially petitioned probation cases of juveniles between the ages of 10-17 years of age for the 1975 calendar year. On the average this represents over 30,000 new petitions per year for violations or crimes ranging from "status" or exclusively juvenile offenses to homicide. The unit of spatial analysis utilized was 1,142 census tract comparable areas for the total County of Los Angeles. The rates constructed were based on the Federal Bureau of Investigation's Uniform Crime Report designations for homicide, forcible rape, robbery, assault, burglary, grand theft, and auto theft. The raw data collected were coded according to the residence of the juvenile offender. Note, that this contrasts with the use of Part I crime counts typically recorded by location of the incident. The distribution of juvenile crime rates was created by summing the number of Part I complaints occurring in each census tract for 1975 and dividing this number by an estimate of the total population in that census tract between the ages of 10 and 17. Then the final rate was multiplied by 1,000 to provide the number of Part I complaints per 1,000 of the population between ages 10 and 17. Thus the rates obtained may be said to reflect the census tract residence of serious criminal activity of a juvenile population for a given year.

To apply the earlier discussion of spatial clustering as it pertains here to juvenile crime rates, the program initiates the clustering process by selecting the census tract with the highest rate. Then the program selects, identifies, and retains contiguous subareas or tracts if the rates of these adjacent subareas are probabilistically similar. A spatial enclave so identified is defined as distinctive in relation to all other clusters respecting the level of offense activity of its juvenile population for the given complaint category. The computer program repeats this selection process by searching again for the highest remaining rate and spatially coterminous subareas.

For this example, three guidelines were used to select the clusters. First, a minimum of three census tracts was used to qualify a set of subareas as a neighborhood exhibiting a specified delinquency rate. Second, a "minimum rate" was used to set a threshold for initiating a search for any remaining clusters. For example the value used for Part I juvenile complaints was set at a level of 50 per 1,000 of the juvenile population. Third, once a subarea was selected as belonging to a specific spatial cluster, the subarea was excluded as a candidate for subsequent clusters.

These three constraints are not necessary restrictions to the general clustering algorithm. They were imposed as reasonable constraints for purposes of identifying crime areas of a substantive nature.

As a starting point, the statistical criterion for selection of spatial clusters was set at a significance level of .0001. This higher than usual rejection criterion was adopted in order to demonstrate sharply delineated, i.e., homogeneous neighborhoods, and at the same time provide a rigorous test of the usefulness of the statistical algorithm. However, it should be pointed out that this higher level of significance increases the possible commission of a Type II statistical error. That is, we may reach the conclusion that the area is truly unique when in fact it is not. This problem can arise particularly in the case when disparate areas are identified which are also spatially coterminous.

The result of isolating neighborhoods of juvenile Part I crimes through the spatial algorithm at a .0001 are summarized in Table 2.1. In column 2 of the table the mean rate is shown for each contiguous subarea. It should be pointed out that even though a cluster is based upon the census tract with the highest rate, it is possible that the overall mean value for a particular cluster may be lower than in a subsequent cluster. This only indicates that the search for the subsequent cluster was initiated by the selection of census tracts which have relatively more values in the higher ranges than the preceding cluster. Nevertheless, as might be expected, the general trend in mean values tends to diminish with each successive cluster extracted. The only exceptions are cluster numbers 3, 6, and 7. It should be clear that initiating the cluster process is actually a function of the nonassigned "highest" magnitude available, and this is reflected by the maximum value of the cluster shown Column 5. Figure 2.4 was prepared to show the relative spatial location of each area identified as expressed by Part I juvenile criminal activity. It is apparent that areas numbered 1, 2, 3, 5, and 8 are relatively close, while areas 4, 6, and 7 are relatively isolated.

Methodologically, it might be argued that the rather close proximity of the five designated areas is actually a product of the stringent .0001 level of significance set to define the cluster. Hence, this may entail the danger of a Type II statistical error; i.e., the areas are actually not separate areas at all but are in fact at the same delinquency level. For example, one might argue areas 1 and 8 would be merged as a single enclave if the level of significance were reduced to .01.

To explore this possibility, the level of significance was reduced to .01, and the data rerun through the computerized algorithm. The statistical results are presented in Table 2.2. Based on the argument of a Type II error, it might be expected that isolated areas which are spatially contiguous would merge as the level of significance is reduced. However, this is not the case, at least at the .01 level of significance. For example, Table 2.2 shows that when the significance level was lowered to

Table 2.1. Percent Reporting Selected Neighborhood Problems: Total, by Year

		1974-1976 Total	1974	1975	1976
1.	Noise[a]	41.2	52.1	35.5	36.3
2.	Heavy Traffic	31.0	31.8	30.3	30.9
3.	Inadequate Public Transportation	28.7	30.8	28.3	27.1
4.	Crime	21.9	21.0	22.5	22.1
5.	Non-Residential Land Use	20.1	19.8	18.1	22.2
6.	Inadequate Street Maintenance	15.7	16.9	14.7	15.5
7.	Trash, Litter, or Junk	15.3	15.0	15.9	16.1
8.	Random Housing	10.5	10.7	10.0	10.6
9.	Odors, Smoke, or Gas	10.1	10.7	9.3	10.2
10.	Inadequate Health Facilities	10.0	9.9	9.7	10.4
11.	Inadequate Police Protection	7.8	7.7	7.4	8.3
12.	Abandoned Buildings	7.2	6.9	7.2	7.5
13.	Inadequate Schools	3.9	4.2	3.6	3.8
14.	Inadequate Fire Protection	2.4	2.5	2.1	2.7

Data Sources: U.S. Bureau of the Census 1976, 1977, 1978. (Adapted from Lee, 1981).

[a] Percentage for 1974 refers to all types of noise, while 1975-1976 percentages refer to street noise only.

Figure 2.4 *Spatial Enclaves of Juvenile Part I Crimes (at .0001 Level of Significance): 1975*

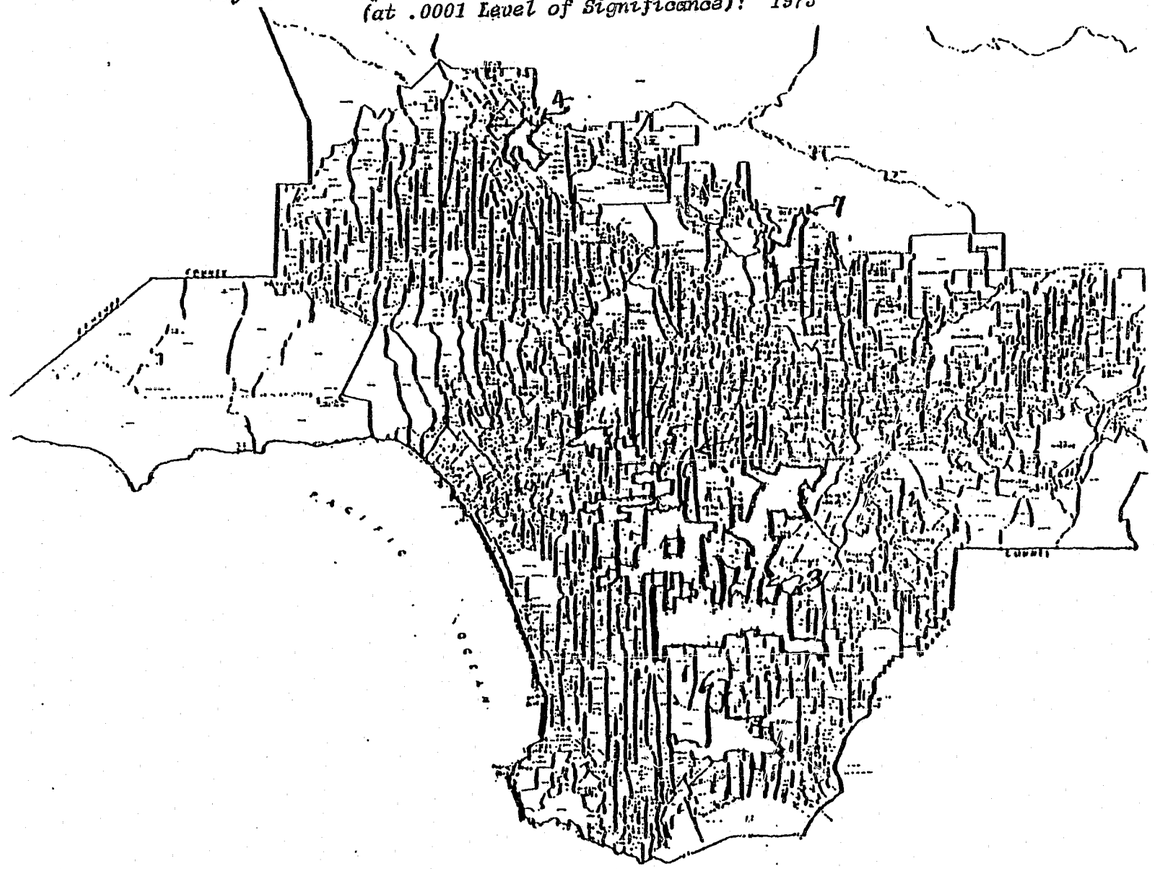


Table 2.2. Zero Order Correlations Between the Distribution of Rates of Commitment of 7,541 Male Adults to the Cook County Jail, 1920, and the Distribution of Five Series of Male Juvenile Delinquents

Series	Correlation
1. 1926 Police Delinquents	.84
2. 1927 Police Delinquents	.84
3. 1917-1923 Juvenile Court Delinquents	.89
4. 1900-1906 Juvenile Court Delinquents	.84
5. Boys Court Offenders	.88

Source: Shaw et al., op. cit., p. 136

.01 from .0001, the number of subareas tends to increase for each identified cluster, but the overall level of crime tends to diminish as indicated by the mean and the minimum value level for each subsequent cluster. At the same time, however, the original integrity of each cluster is generally retained. This is reflected in the maximum values in Table 2.2 which are usually the same as found in Table 2.1. This value, it should be remembered, designates the initiation of a new cluster. Therefore, each cluster maintained its identity, even at a lower level of significance and tended to include additional fringe subareas with less intense criminal activity. The actual shift and expansion of each cluster is shown in Figure 2.5. When this set of clusters is compared to those outlined in Figure 2.4, the graphic display clearly indicates that the original delinquency neighborhoods identified at a .0001 level are contained within the areas identified by the more relaxed level of significance of .01.

Of course, it might be expected that if the significance level were to be continuously lowered, we greatly increase the risk of moving from a Type II to Type I error. That is, we would include more subareas than actually should be considered as part of a given delinquency area. This condition may have actually occurred, for example, when the same data in the current example were reprocessed through the space statistical algorithm at .10 level of significance and more then 236 subareas were included in the first spatial cluster. And as a result, the mean value was 18.17, and the minimum value for the first cluster was only 4.69. These values were both lower than any of the corresponding values in Table 2.2. Processing the data with use of the .01, .05, and .10 levels of significance revealed that the .05 level produced the minimax solution with respect to risks of the Type I and Type II errors, yielding 192 clusters. As noted, the .10 level included a very large and probably highly heterogeneous set of tracts in the first, or highest crime density cluster. But except for the top five clusters of highest crime density, which included the same tracts as those selected at the .05 level, selection of tracts at the .01 level produced a virtually unbroken declining gradient in crime density, thus failing to identify clearly the set of highest crime clusters (Table 2.3). On the other hand, the 192 clusters produced by the conventional .05 p value revealed 10 clusters which exhibited both high crime density measures and high uniformity in these measures as evidenced by the narrow range of variation around their mean densities (Table 2.4).

The advantages gained by these procedures in identifying spatially defined clusters would appear to be evident. However, four points are especially relevant and should be emphasized in order to indicate the importance of a statistical technique in bridging the gap between an intuitive notion of crime or delinquency areas, and the empirical grounding of the concept by identifying them through measurement methods as unique spatial enclaves in terms of patterning, intensity, and location.

Figure 2.5 Spatial Enclaves of Juvenile Part I Crimes (at .01 Level of Significance): 1975

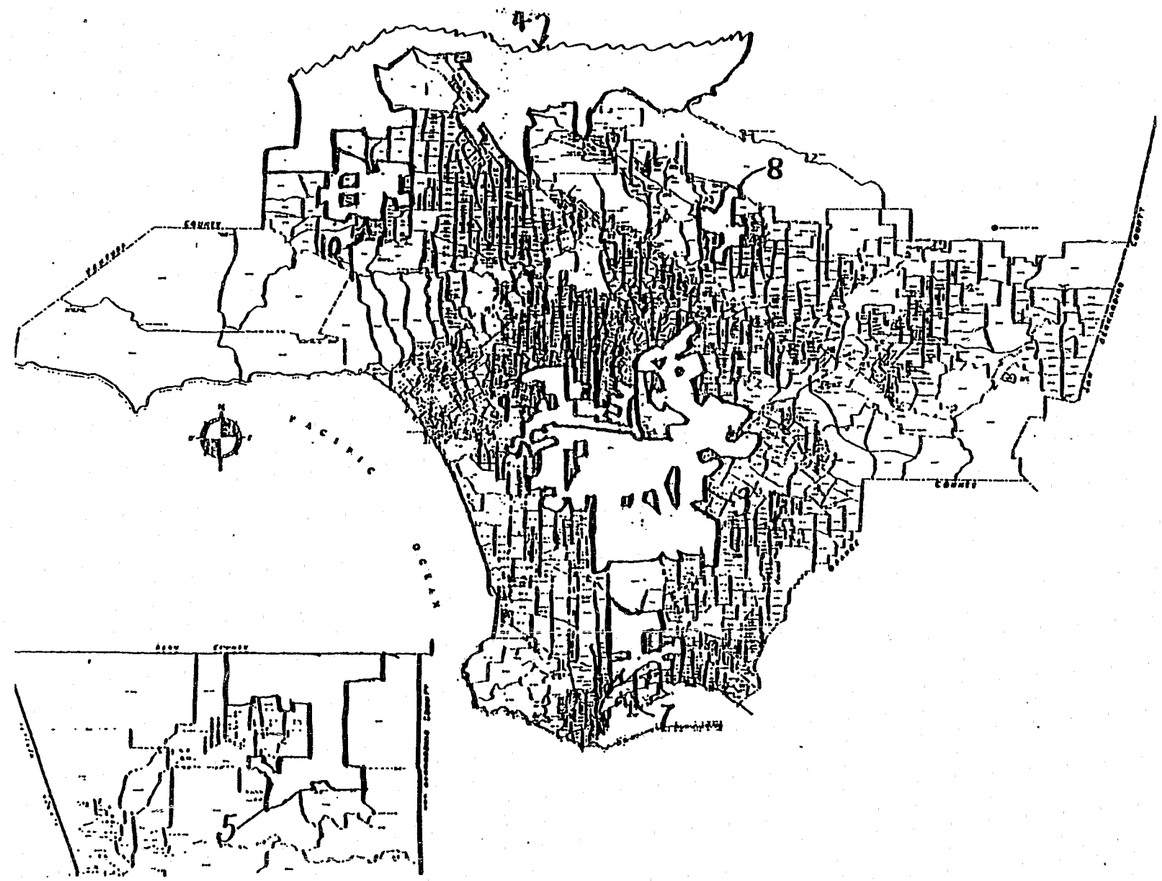


Table 2.3. Relationship of Distribution of Juvenile to Adult Offenses, by Type, Los Angeles County, 1970

Adult Conviction Offenses[2]	Juvenile Offenses[1]							
	All Prosecutable Offenses[3]		Property		Person		Status	
	Density/ Sq. Mile	Rate	Density/ Sq. Mile	Rate	Density/ Sq. Mile	Rate	Density/ Sq. Mile	Rate
Felony	.83	.45	.80	.53	.71	.68	.74	.30
Property	.64	.34	.72	.45	.72	.64	.45	.15
Person	.12	-.01	.09	-.01	.07	-.02	.17	.00

[1] Population 10-17 years of age

[2] Population 18-30 years of age

[3] Felony and misdemeanor offenses (excluding traffic violations)

Table 2.4. Proportion of Isolate Census Tracts in Number of Clusters Identified, by Selected p Levels of Significance, Juvenile Prosecutable Offender Density (per Square Mile), 1142 Census Tracts, Los Angeles County, 1970

p Value for Inclusion of Contiguous Census Tracts	Test Clusters	Isolates	Mean Number of Tracts in Cluster	Analytically Useful Clusters	
				Number	Percent of Tracts in County
.01	195	133	5.86	62	88.4
.05	192	132	5.95	60	88.4
.10	144	97	7.93	47	91.5

First, the clustering procedures, when transformed into a generalized computer program, can be readily executed for as many different types of urban problems or areas as desired, e.g., Part I crimes or specified type of crime; social structural factors such as demographic characteristics, land use, socioeconomic conditions, etc. Second, each simulation can be adjusted quickly for relevant spatial conditions or for restrictions often encountered in the use of secondary data sources, e.g., political bounded areas, census tracts, block groups, blocks, parcels, etc., as well as levels of acceptable measurement and statistical errors, e.g., statistical Type I or Type II error conditions, for a given research problem. Third, unlike mathematical space clustering procedures which may only incidentally locate subareas geographically together, the present approach statistically tracks, isolates, and uniquely identifies each subject area in physical space based on specific quantitative values and thus permits research to be focused on the analysis of each areal cluster.

As was shown in the above example of delinquency areas based on Part I crimes, spatially defined neighborhoods isolated by a spatial contiguity simulation process are posited on statistical probabilistic statements which allow for a certain degree of incertitude and gradient qualities within the isolated subuniverse. In providing a means of measuring specific subarea differences and similarities, this approach deals with the problem often raised when urban sociologists treat the subareas of metropolitan regions as essentially homogeneous without providing an empirical test of this assumption. By grounding the issue of subarea homogeneity in a set of concrete measures it became possible in this study to establish contiguous census tracts in Los Angeles County as constituting true clusters in contrast to a random collection of tracts. Application of the Geary-C measure to the 1,142 census tracts of the county demonstrated the chance occurrence of their clustering, yielding a Z value of 30, to be so rare as to be virtually inexpressible numerically. A Z value of this magnitude indicates that the clusters are not arbitrary collections of tracts and a satisfactorily high probability that tracts of similar crime density are adjacent to one another rather than randomly dispersed throughout the metropolis.

C. Identifying Neighborhoods of High Crime

To determine which of the features of neighborhood structure are associated with varying levels of crime in specific neighborhoods requires in the first instance a clear empirical specification of the distribution of spatial crime density. With the association between specified structural features and high crime levels established for a set of census tract clusters, it then became possible to examine this relationship at prior time points in order to investigate the sequences and order of change, if any, in the relationship between patterns of crime and

neighborhood structural changes. In brief, it was necessary to lay the groundwork in order to answer the question: Are the high crime density clusters of 1970 the same as those that would have been found in 1960 and 1950 and, if not, what differences existed in both the earlier prevalence and pattern of crime in these clusters accompanied by what alterations in their structural characteristics?

Ten clusters were identified as representing the county's highest crime areas in 1970. The actual geographic location of each high crime cluster in relation to the others is shown in Figure 2.1. The numbers designating each cluster correspond to the cluster number in Table 2.6. In all cases, the clusters are constituted by contiguous census tracts. As will be discussed in detail below, the grouping pattern represented in Figure 2.1 show three distinct high crime area locations. Areas with the higher and longer term history of crime are in the south-central portion of the County. They are surrounded by a set of areas of lower crime levels with a briefer history. The third pattern is that of areas extending westward along a major freeway, with the lowest measure of crime among the high crime areas, and by 1970, at the point of emerging into the set.

While the cutoff point at the tenth highest may seem somewhat arbitrary, there were specific conceptual and analytical indications suggesting these to be the County's main crime areas in 1970. For example, through content analysis it was apparent that the decline of delinquency measures beyond the tenth was fairly abrupt. Also, remembering that the clustering algorithm is based on the highest available measure, the tenth highest value of 132.8 prosecutable offenses per square mile dropped in the next useful high cluster value to 100.0 (Tables 2.4 and 2.5). From a statistical point of view, all of the initiating high values for the first ten clusters exceeded at least two standard deviations, i.e., 107.0, above the County's average value of 27.0 prosecutable offenses per square mile.

The concentration of the relatively high crime density measures in a limited number of clusters embracing only 214 census tracts, or 18.7 percent of the 1142 tracts in the County, is consistent with standard findings on the ecology of crime in urban areas.

It is important to note, however, that the high crime areas are not segregated behind a "Chinese wall" beyond which lie crime-free areas. Crime rates are known to decline on a gradient, such that there must exist clusters of decreasing prevalence of criminal activity. The validity of the clustering procedure employed is further evident in having aggregated census tracts in just such a series of decreasing densities. The gradient is apparent in the detail of Tables 2.6, 2.7, 2.8, and 2.9. However, it is clear that after the first ten identified areas, differences become more obscure. Nevertheless, as summarized in

Table 2.5. Thirteen Highest Census Tract Spatial Clusters Selected at .01 Level of Significance by Juvenile Prosecutable Offender Density (Per Square Mile) Los Angeles County, 1970

Cluster	Number of Census Tracts	Mean	Standard Deviation	High Value	Low Value
1	48	133	86	497	47
2	13	74	52	206	11
3	10	67	69	201	6
4	32	87	41	177	0
5	10	100	26	150	64
6	4	58	52	147	21
7	18	53	41	141	0
8	46	65	40	136	5
9	7	55	33	135	34
10	1	129	--	129	129
11	3	91	19	115	69
12	13	48	26	106	12
13	14	42	30	94	10
Summary 13	219	94	40	172	31

Table 2.6. Ten Highest Census Tract Spatial Clusters Selected at .05 Level of Significance by Juvenile Prosecutable Offender Density (Per Square Mile), Los Angeles County, 1970

Cluster	Number of Census Tracts	Mean	Standard Deviation	High Value	Low Value
1	48	130	89	497	10
2	13	74	52	206	11
3	10	67	68	201	13
4	32	86	42	177	0
5	10	100	26	150	64
6	27	84	37	149	18
7	7	50	54	147	6
8	9	48	38	141	10
9	15	51	32	135	1
10	43	40	29	133	3
Summary	10	214	73	47	194	14

Table 2.7. Ten Census Tract Spatial Clusters with Initial 60-100 High Juvenile Prosecutable Offender Densities (Per Square Mile), Los Angeles County, 1970

Cluster	Number of Census Tracts	Mean	Standard Deviation	High Value	Low Value
12	9	43	38	100	0
13	13	40	31	94	6
14	3	88	5	94	80
15	5	36	27	89	12
17	39	28	18	88	4
18	117	12	12	85	0
19	19	21	19	75	0
20	28	26	15	73	4
23	23	25	14	60	0
25	71	22	12	60	3
Summary	10	327	34	19	82	11

Table 2.8. Twenty-Three Census Tract Spatial Clusters with Initial 19-56 High Juvenile Prosecutable Offender Density (Per Square Mile), Los Angeles County, 1970

Cluster	Number of Census Tracts	Mean	Standard Deviation	High Value	Los Value
26	15	17	15	56	0
28	3	37	13	53	22
29	120	12	8	48	0
30	11	25	14	48	3
32	30	20	10	45	6
33	11	22	12	43	5
34	6	19	17	42	2
35	4	22	12	41	9
37	5	26	9	38	16
38	3	30	8	37	18
39	29	16	7	35	1
40	4	25	5	34	20
41	6	20	10	34	8
42	7	19	8	34	8
44	4	19	8	31	11
46	24	10	7	28	0
47	9	11	8	28	2
48	5	13	8	28	5
52	12	11	8	27	2
53	29	11	6	25	1
54	4	15	6	24	6
60	7	10	6	22	4
63	3	15	3	19	11
Summary 23	351	18	9	36	7

Table 2.9. Seventeen Census Tract Spatial Clusters with Initial 0-17 High Juvenile Prosecutable Offender Density (Per Square Mile), Los Angeles County, 1970

Cluster	Number of Census Tracts	Mean	Standard Deviation	High Value	Low Value
66	7	9	4	17	3
68	26	5	4	15	0
72	5	4	5	13	0
76	3	8	2	11	6
83	8	4	3	10	0
88	7	2	3	9	0
90	10	5	3	8	0
91	4	4	3	8	2
93	8	2	3	8	0
96	4	3	2	7	1
97	5	3	3	7	1
109	4	3	2	5	0
121	5	2	2	4	1
123	4	2	2	4	0
155	4	0	0	1	0
160	4	0	0	0	0
176	10	0	0	0	0
Summary 17	118	3	2	8	1

Table 2.10, it can be seen that juvenile offender mean densities decline abruptly from a high of 73 in the first ten clusters covering 214 census tracts (the "high crime" neighborhoods), to half that magnitude at a density of 34 in the next lower set of ten clusters, covering 327 census tracts. Offender densities in the next 40 clusters embracing 469 of the County's 1142 census tracts decline equally sharply to density levels of 18 and three, respectively.

In this connection it should also be noted that empirically there exist census tracts whose crime density measures may make them eligible for inclusion in either of two bordering clusters of distinguishable mean density magnitudes. However, the treatment of such "interstitial" tracts (or "imbricated" areas, as Professor Reiss has designated them), presents both conceptual and analytical problems. The use of the clustering algorithm in relation to the present research task had as its immediate purpose the identification of a set of areas that could be reasonably designated "high crime areas." Once identified, it would then be possible to determine their social structural features in 1970 and the relationship of past changes in these features to change sequences in crime patterns over time. For this purpose a clustering algorithm that defines sharply demarcated areas, ("exclusive" clustering), works best, Table 7 even at the possible cost of generating a number of individual census tracts with membership in no cluster, i.e., "isolates," as more and more tracts are brought into clusters. The alternative algorithm which tests the potential membership of each census tract in some cluster, many of which are either included in or overlap with other clusters, ("inclusive" clustering), while possibly reducing the isolate tract problem, but equally capable of identifying the high density clusters, quickly loses its capacity to identify clusters of reduced crime density. In addition, this clustering method automatically introduces massive interaction between cases, i.e., clusters, rendering most subsequent analysis virtually uninterpretable.

For example, when the computer program was applied to the crime density measures, with the option for "inclusive" clustering, the first five clusters exhibited the following identical statistical parameters:

mean	=	130,
standard deviation	=	89,
low value	=	10,
high value	=	497,
c	=	1.32, and
Zc	=	-2.20.

Continued clustering produced similar patterns. Many of the groups reflected little more than a statistical "milling around" within the same set of values, selecting first one value then another, resulting in the end in 1142 clusters (the number of

Table 2.10. Summary Parameters for Number of Clusters and Census Tracts by Major Breaks in Juvenile Offender Density (Per Square Mile), 1142 Census Tracts, Los Angeles County, 1970

Number of Clusters	Total Tracts	Percent of Tracts in County	Density	Mean Standard Deviation	Mean High Value	Mean Low Value
10	214	18.7	73	47	194	14
10	327	28.6	34	19	82	11
23	351	20.7	18	9	36	7
17	118	10.3	3	2	8	1
Isolates[1]	132	11.6	10	-	129	0
Summary	1142	100.0	.05	.04	.15	.001

[1]Isolate is defined as a single tract whose inclusion with contiguous tracts to form a cluster is rejected at the stated level of significance.

tracts in Los Angeles County), with each identified to a separate initial census tract crime density value. As the clustering progresses downward in initial value, more and more tracts come to be included in a single cluster. This expansion process should be expected when the spatial distribution of the value to be clustered has an extreme range, with large portions of the subareas containing a similar value. This, of course, is the situation with the differential distribution of crime. While not absent elsewhere, a very high proportion of criminal activity is concentrated in a few areas. As crime density values approach zero, with those values already assigned to an earlier cluster not restricted, there is statistical justification for including all but the very highest values in a single cluster. That is, after the twentieth cluster, the computer algorithm produced a series of clusters each of which included more than 900 tracts.

This test of the inclusive clustering option thus indicates that, at least with respect to the distribution of crime density, the "interstitial" or "imbricated" phenomenon has little salience. Nor is this finding an artifact of the statistical method employed. There exist a small number of high crime density census tract clusters, followed in a precipitously declining gradient by a very large number of clusters of drastically reduced densities.

Finally, it may be noted that in some of the identified highest crime areas, there were included subareas of relatively low concentration of crime, as may be expected as an effect of statistical variance. However, upon further examination these were found to be either completely spatially surrounded by high crime areas, and had high crime measures in subsequent years, or were found to be devoid of a resident population.

D. Neighborhoods and "Deterioration"

The concern in this investigation is the question of the time order in the relationship of changes in the character of urban neighborhoods to changes in their crime patterns. More specifically, the question may be stated in the form: do neighborhoods undergo deterioration, i.e., a reduction in residential desirability, before they experience a rise in their crime rates, or is the sequence in the reverse order?

For purposes of clarity it becomes necessary to define with some precision the notion of deterioration and to specify its operational expression. An early attempt to describe the deterioration process as an aspect of city growth and change was offered by Burgess (1926:509). Areas of stable residential home owners ("with a high degree of community spirit") experience incipient deterioration when they become apartment house areas ("stage of tenancy, with a decline of neighborhood loyalty"). This is followed by the "invasion of business," i.e., transformation into a commercial area, and by the conversion of

residences into rooming houses. With its residential desirability thus impaired and the cost of housing sharply reduced, the next stage witnesses "the entrance of racial or nationality groups of imputed inferior social status." These developments having occurred, there takes place "the intrusion of vice and crime." The final stage, according to this scenario, is the invasion of commerce and industry and its obliteration as a residential area.

The main features of the deterioration process presented by Burgess was essentially confirmed forty years later by the Hoover and Vernon (1962) study of the urban land use cycle. They found that urban regions develop from multiple centers, beginning with residential settlement by single dwelling units. The regions shift in the next stage to multiple dwelling units, followed by the conversion and downgrading of the original structures. Through vacancy and demolition they become abandoned and finally, in the fifth and last stage become renewal areas. However, Schuerman (1974) noted that this development cycle is not necessarily consistent in time, nor does it occur by contiguous areas. Further, the deterioration process is not necessarily confined to the central city region, but can occur in multiple locations scattered throughout a metropolitan region. And at each such location, the land use cycle tends to conform to the same pattern (Van Arsdol and Schuerman, 1971).

The Hoover and Vernon materials, as amplified and qualified, suggest that it is possible to track the deterioration process by focusing on the data of land use. One approach taken, therefore, has been to determine the changes in land use pattern for the identified high crime 1970 clusters that occurred between 1950 and 1960, and between 1960 and 1970. Attention was devoted in particular to the rate of change between these time points with respect to particular features of land use, since change velocity was regarded as possibly crucial in the relationships of deterioration to changing crime patterns. The specific land use measures employed are presented in Chapter III.

Tied to land use changes are related aspects of the deterioration process which, with some degree of independence, may also affect residential desirability. As neighborhoods decline in their physical aspects, reduced demand by more affluent groups for its housing is followed by a reduction in housing values and in housing costs, opening the way for an influx of lower income groups. Early declines in residential desirability may result in no more than a shift in land use from single to multiple family dwellings, with moderate increases in population density. Further stages in the decline of older areas occur with the expansion of the city into newly settled areas, and the movement of middle income groups into available neighborhoods of enhanced residential ambience and amenities. With the continued aging of neighborhoods, and successive population replacement by ever lower income groups, old areas

ultimately come to house the most recent migrants to the city. These are typically the racial/ethnic groups at the lower end of the occupational and income pyramid.

Impacted by problems of poverty, high ratios of children and youth to working adults, crowded living space, families broken by desertion, divorce, and death, abnormally high rates of female headed families and high rates of welfare, and subcultural practices that foster a disorderly use of public space, neighborhoods often acquire an aspect of deterioration that goes beyond the physical consequences of changed land use. These features represent elements of social deterioration as distinguished from the physical changes attendant on shifts in land use, and separately constitute components of the neighborhood deterioration process. Although dependably associated with changes in land use, the level of association is likely to vary, suggesting the importance of measuring these variables separately. It may well be the case, for example, that the changes in social climate that commonly are produced by shifts in land use may not necessarily occur. In her classic critique of neighborhood redevelopment policies of the 1950s, Jacobs (1961) argued that stabilized low income ethnic neighborhoods can generate a desirable residential climate and hold in check the worst features of social deterioration.

But with respect generally to the way neighborhood deterioration is experienced and responded to by its residents, the condition of a residential area is determined by the number of problems it presents and their perceived importance. An indication of the kinds of problems likely to represent deterioration in the eyes of residents is provided by the data of the Annual Housing Survey conducted by the U.S. Census Bureau. The data of Table 1.1 reveal that over the three-year period, 1974-1976, the principal features of neighborhoods that were reported as problems by residents, and that may be construed as indicators of deterioration, included noise, heavy traffic, inadequate public transportation, crime, and non-residential land use. These led the list of 14 identified neighborhood problems in the responses of city residents in the sample survey (Lee, 1981).

E. Crime-Measurement-Considerations

The obvious and well-known caution to be raised at this point is that the measurement of crime is strewn with pitfalls. None of the official records compiled by agencies of criminal justice, typically for limited administrative purposes, serves as a basis for the accurate measurement of crime. Their shortcomings have been extensively catalogued in the criminological literature, among others by Sellin (1962), Wheeler (1967), Biderman and Reiss (1967), Newman (1962), and Kitsuse and Cicourel (1963). Statistics on reported crimes omit those that are not reported (the "dark figure" of crime statistics), and

reported arrests vary in unknown ways as a ratio of crimes committed, reflecting, moreover, unknown variation in police policy. Sellin (1951) opted for reported crimes as the most accurate among the set of flawed measures on grounds that this record is closest to the actual commission of an offense.

In view of the inevitable confounding of the volume of criminal acts with the administrative response to them, Cressey (1957) has probably proposed the most reasonable approach to the problem. In his view, the statistics compiled on crime and delinquency can serve as an index of social concern about the problem. Crime and the response to crime constitute a single and inseparable phenomenon and renders the question of the "real" volume of crime for purposes of measurement all but unanswerable. This is not to say that for purposes of control undetected, unreported, and unpunished crime is not a matter of pressing concern. But it remains possible to measure only that part of the volume of crime which has been selected by or brought to the attention of the agencies of justice and is thus made part of the record of their activity. In so doing, we also measure the social response to crime.

That response is neither irrelevant to nor, in the long run, without significance for the assessment of the level of crime in a society. In the nature of the case, the volume of deviant behavior in an extensively regulated libertarian and pluralistic society inevitably outruns the capacity of its control agencies to bring it to book. As a consequence, the limited resources tend to be focused on the control of those offenses consensually regarded as the most serious, and on the most persistent offenders. That the consensus may be partial, reflecting an existing balance of political power among various publics, does not alter the case. The same consensus that has been responsible for the establishment of an orderly structure of power commonly creates consensus regarding the order of seriousness among offenses.

Noteworthy in this connection has been the course of the controversy over the comparative validity of official and self-report statistics on juvenile delinquency. Official data record a lower volume of delinquency highly concentrated in the lower income ethnic groups; self-report data disclose a significantly higher volume widely diffused throughout the social class structure. In their recently published research, Elliott and Ageton (1980) identified as a serious methodological weakness of self-report delinquency studies the fact that the request for responses to questions of offense frequency were inadvisedly truncated at a low point. With truncation eliminated, their data demonstrated a significantly closer fit of official and self-report measures as regards differential distribution by race and social class. This finding supports the view that the "dark figure" of delinquency is likely to include the offenses that evoke less social concern and the more infrequent offenders. For

the more serious juvenile offenses committed by more persistent offenders, the discrepancy between self-reported and official data is minimized.

Similarly, the National Crime Survey, based on the self-reports of the victims rather than the perpetrators of crime, reveals relative measures of crime to be congruent with those of the Uniform Crime Reports with respect only to the more serious property offenses of robbery, burglary, and auto theft. While differing widely in absolute value because of chronic under-reporting of victimization to the police, the UCR and NCS rates for these offenses in 26 central cities of the U.S. during the first half of the 1970 decade were found by O'Brien et al. (1980) to correlate at .90, .79, and .69 for auto theft, robbery, and burglary, respectively. In another study utilizing a similar data base, Booth et al. (1977) found the corresponding correlations to be .62, .60, and .70. In the O'Brien et al. study, drastically reduced correlations between the two forms of measurement were found for personal larceny, rape, and aggravated assault. While none of the latter are necessarily or uniformly non-serious, it has been found that these kinds of offenses tend to be differentially under-reported for reasons, among others, of the triviality of many thefts, and victimization by persons known to the victim in cases of rape and assault. But even in these cases as well, Black (1970) found that the likelihood that a crime will be reported is determined by the relative seriousness of the offense, as is the police response to the report and its inclusion in the official record. It should also be noted that Hindelang (1978), concerned with the issue of differential selection of minority group members for justice processing, found their arrest rates to correspond closely to rates of their identification by victims of these offenses in the NCS data.

In the current study, we face an important additional problem in crime measurement. Crime reports by type of offense, geocoded to census tracts, are available only for 1973-1971 and even here they are not completely available for the entire County for each year. These data do not exist at all for the 1960 and 1950 time points. For these years, only data on juvenile offenses as recorded in court petitions are available in geocoded form. Since crime data referenced to urban subareas were unavailable, the decision was made to use juvenile offense data as a surrogate measure of the volume and distribution by crime type for census tract clusters over the 20-year period, 1950-1970. A critical question concerns the robustness of this measure as a surrogate for the missing adult crime data for 1950 and 1960.

This question was examined in an early study of the residential distribution of juvenile delinquency in urban areas. Using rates of commitment by square mile areas of 7,541 adult offenders to the Cook County (Ill.) jail in 1920, of whom approximately 70 percent were being held for trial on felony charges, Shaw et al. (1929:118, 136) found that their distribution by residence correlated from .84 to .89 with the

distribution by residence of five series of juvenile delinquents totalling 34,031 individuals drawn from the period 1920 to 1927 (Table 1.2).

In the current study, measures of the association between the two distributions have been available for the census year of 1970. Two data series were obtained: census tract of residence for all adults convicted of felony offenses; and census tract of residence for all juveniles petitioned to the juvenile court for misdemeanor and felony offenses. The offenses of the adult series were collapsed into three categories: (1) all felony crimes, (2) crimes against property, and (3) crimes against persons. Juvenile petitioned complaints were collapsed into (1) total prosecutable juvenile offenses (those which, if committed by an adult, would be subject to prosecution), (2) property offenses, (3) offenses against the person, and (4) juvenile status offenses. These data have offered a further opportunity to examine the association between the distribution of juvenile and adult offenders, and to determine whether and to what extent the areal distribution of juvenile offenses provides a biased estimate of the areal distribution of adult crime.

As seen in the correlation measures for density presented in Table 1.3, in Los Angeles County in 1970 the census tract distribution of adult convictions for all felony offenses were highly associated (.83) with the census tract distribution for all petitioned juvenile prosecutable offenses. Similarly high associations were found between adult felony convictions and (1) juvenile petitioned offenses against property (.80), (2) juvenile petitioned offenses against persons (.71), and (3) status offenses (.74). High associations were found also between juvenile offenses against property and against persons and adult convictions for crimes against property (.72 and .72, respectively). On the other hand, adult crimes against persons appear to be substantially unrelated to total juvenile prosecutable offenses (.12), property offenses (.09), and offenses against the person (.07).

Density measures are, of course, based on raw numbers controlled only for area size. They do not take into account differences in the size of the juvenile and adult populations among census tracts. The rate measure, based on denominator populations at risk, show lower correlations between adult and juvenile areal distributions. The difference in the two correlations measures poses the question of their comparative appropriateness. We would argue that density represents a measure of the concentration of officially identified offenders within census tracts, and is therefore more relevant to the issue of neighborhood deterioration. Residents are likely to perceive the crime level of their neighborhoods in terms of the frequency with which criminal incidents come to their attention, rather than by the proportion of their residents who are arrested or convicted, information to which they are unlikely to have access.

If the assumption is made that the sheer number of adults convicted for felony crimes and of juveniles reaching the court petition stage who reside in an area (both groups constituting a fraction of those active in crime) has a high and consistent relationship to the frequency of criminal events known to residents, then the measure of density as used here is a valid indicator of the areas's crime level.

The alternative incidence, or rate measure is, of course, calculated on the base of the population at risk, and is useful principally in determining the crime relevant characteristics of a social class, ethnic, or age group. Other types of analysis employed in this study will, in fact, use rate measures for precisely this purpose. Here we are concerned, rather, with the attributes of geographic areas, for which the concentration measure appears to be more appropriate. The use of the rate measure would in any event be inappropriate in the present connection, where the question concerns the utility of juvenile offenses as an indicator of area crime levels, since the juvenile and adult populations differ materially in crime proneness. Crime rates for the latter decline abruptly toward the end of the 18-30 year age range; this is not as sharply the case for juveniles as they approach their terminal age point. Indeed, when the distribution measure of an area is based on rates, the correlation coefficients between juveniles petitioned to the court and adults convicted of felony crime are much reduced. As seen in Table 1.3, the juvenile property-adult felony correlation is reduced from .80 to .53; juvenile person-adult felony from .71 to .68; and juvenile person-adult property from .72 to .64.

F. Issues of Offense Typology

Existing classifications of offenses offer a wide choice of methods for describing crime patterns. They range in general from those based on legal and statutory considerations of seriousness to those based in some sense on the meaning of the criminal act to the offender. The common distinction between felonies and misdemeanors is elaborated in the Uniform Crime Reports by distinguishing between the seven more serious index crimes and all other offenses, with further breakdowns separating specific types of property crimes from those against the person. Another classification focuses on categories that are relevant for measurement and control, as in Glaser's distinction between predatory and non-predatory crimes (Glaser, 1974:75-76).

For the purpose at hand, a classification of crimes is needed that is plausibly related to stages in the transformation of neighborhood social climate. Here meant by social climate is the sense that residents develop of the dangers of victimization and the orderliness, conventionality, and predictability of behavior in the public spaces of the neighborhood. The fear of victimization is commonly focused on offenses against persons and property; the weakening and progressive decline of conventional

standards of conduct are manifested in illicit drug use, public displays of inebriety, the boisterous, sometimes riotous and often menacing behavior of adolescent street gangs, and the rejection by the young of the discipline of school and family represented by high rates of truancy and early school leaving may all be subsumed under the rubric of public order offenses.

These considerations suggest the utility and relevance of a simplified three-category classification consisting of crimes against persons, property, and public order. While it has the virtue of simplicity, parsimony, and correspondence to the categories used for administrative and reporting purposes by criminal justice agencies, this classification is not entirely useful in capturing the evolution of crime patterns as neighborhoods deteriorate. What, for example, are the types of crimes that emerge as precursors of incipient neighborhood decline? Is progressive decline accompanied by a shift from a predominance of crimes against persons to a predominance of property crimes? Where in this developmental sequence are public order offenses the most prominent?

To address these questions, a quite separate type of offense classification is needed, one rooted in existing research and theory respecting the relationship between forms of local social organization and level of social control on the one hand, and on the other the forms of behavior predictable from them.

For this purpose, a testable hypothesis predicting this relationship is employed as a guide to the construction of the needed offense typology. The hypothesis asserts that in the early stages of neighborhood decline the predominant offense pattern will include expressive crimes, i.e., those in which the offense act and the aim or objective of the act are indistinguishable. The assumption is made that the aim of such offenses is the immediate gratification intrinsic to the act itself. Included are offenses against the person such as simple and aggravated assault (armed robbery is a marginal case), many homicides, and almost all the so-called victimless crimes such as illicit drug use and, at the juvenile level, gang fighting and all of the so-called status offenses.

These are distinguished from the class of instrumental crimes, in which the aim of the act is monetary gain, i.e., where the offense is the means required to attain an objective (Bandura, 1968:296; Chambliss, 1967). The reference is principally to the property crimes, including burglary, auto theft, and the several forms of larceny.

Glaser (1974:75-77) has pointed out a number of problems with this typology, principally that (a) it gratuitously assumes a knowledge of motivation in specific instances of offense behavior; that (b) instrumental acts often have expressive values for the actor and vice versa; and that (c) it is difficult in

many types of offenses to determine whether the instrumental or the expressive component is the principal motivational element, e.g., pointless violence in armed robbery, or the sale of illicit drugs by an addict to obtain money to support the addiction. Despite these shortcomings, the typology is useful when dealing with aggregate data on large numbers of offenders, permitting a determination of the predominance of one or the other type of offense in neighborhoods at different points in their decline. The need to "second guess" motivation in individual acts of offense is, in this connection, obviated.

The general hypothesis to be tested may be stated in the following form: In the sequence of stages defining the deterioration of neighborhoods, the progressive decline in relatively high levels of social cohesion, value consensus, occupational, ethnic, and income homogeneity, attachment to place, and land use devoted principally to single family dwellings, on all of which the residential desirability of a neighborhood rests, is paralleled by a slow but steady shift from a crime pattern of the predominantly expressive type to one in which, without a total displacement of expressive crimes, those of the instrumental type become increasingly prominent.

The hypothesis is prompted by the general body of social control theory. In the earliest statements of the theory in its relevance for crime and delinquency, Shaw and McKay (1942) identified as determinants of high levels of local social control the variables of neighborhood cohesion around sentiments supportive of conventional conduct norms that include law observance. A more recent version of social control theory offered by Hirschi (1969) elaborated the theory to specify the process through which young persons are "bonded" to the value orientations and behavioral norms of law observant adult authorities. With reference to the sequences in patterns of deviant behavior, including crime and delinquency, it would follow that the initial stage, in which the first indications of a loosening of the social bond appear, weakened controls are likely to affect only the norms of interpersonal conduct and the legitimacy of authority. Predictable would be a growing incidence in two types of behavior: random interpersonal conflict, often violent, among both adults and juveniles, and non-criminal acts prohibited by the juvenile code. The first type of behavior would be expected to be reflected in increases in gang fighting; the second in a rise in the incidence of such status offenses among juveniles as incorrigibility, truancy, the use of alcoholic beverages, and the like. All such data are recoverable from the official records at the juvenile level in 1950 and 1960, and at both the juvenile and adult levels in 1970. With advancing deterioration in both the social and physical features of neighborhoods, there occurs (a) an increase in the anonymity, i.e., the number of "strangers" among residents associated with chronic population displacement, and with this, the number of adult criminal offenders, generating a

cross-generational criminal learning environment (Cloward and Ohlin, 1960:148-150; Sutherland and Cressey, 1974:75-78), and (b) the emergence of a tradition of increasingly sophisticated delinquency among male adolescent youth groups, transmitted from older to younger cohorts. The earlier predominantly expressive pattern of law violation then tends to be replaced by a pattern of predominanty instrumental offenses. The end stages of neighborhood deterioration are then marked by differentially higher rates of such property crimes as burglary, armed robbery, auto theft, and miscellaneous larcenies, a crime pattern which becomes relatively stabilized among populations trapped in ghetto-like enclaves.

This hypothesis states only the relationship between declines in local social control and the accompanying crime pattern change. The relationship between ecological changes and the decline in social control, in particular the precise sequence between shifts in land use, in age composition, and in the socioeconomic and ethnicity features of neighborhood populations on the one hand, and shifts in the social control capacity of these populations on the other, remains a question for empirical investigation. With respect to this relationship, there is little prior research that might suggest a plausible hypothesis to be tested by the data. For this issue, there is available only the general proposition derived from the corpus of sociological knowledge that the rate of decline in social control is a function of the velocity of social change. On this basis, it is tentatively expected that the pace of loss in social control is determined largely by the rapidity with which the ecological character of neighborhoods is transformed, in turn determining sequences in the transformation of the predominant crime pattern.

In this report, use will be made of two types of offense classifications. First, in pursuing the aims of the 1950-1970 historical trend analysis, the initial classification scheme to be used will distinguish three categories: property offenses, person offenses, and status offenses. The first two are aggregated under the rubric of "prosecutable" offenses. These data will then be regrouped as instrumental and expressive offenses, permitting the continued investigation of one of the major hypotheses of the study.

CHAPTER III

SPECIFICATION OF STRUCTURAL VARIABLES

Neighborhood deterioration may be defined as change in its land use, demographic, socioeconomic, and subcultural features from greater to reduced residential desirability. Whether changes in these features of neighborhood social structure may be construed as determinants of change in neighborhood crime levels is left for later analysis. It is possible, for example, that deterioration is initiated under some conditions by a rise in the level of crime. That question is treated in Chapter VI as an empirical issue by examining the temporal sequence in changes in neighborhood conditions and in crime.

In this chapter we want only to identify and define the components of neighborhood social structure, select from available data elements the variables that may be employed in the measurement of structural components, and determine the types of measures most useful for the analytic purposes at hand. The focus in this study is on changes in the social structure of neighborhoods as these may be relevant to changes in the magnitude of their crime problem.

More specifically with reference to the problem at hand, we are also concerned with the possible effect of the rate of change in neighborhood structural features on crime. The interest in this matter rests on the general proposition that all social change tends to introduce uncertainty in the prescriptive force of established behavioral norms and thus to increase the likelihood of deviant behavior, and that the swifter the change the greater the incidence of deviant behavior in the affected population. It follows, then, that the link between structural change and crime may be the velocity of change in the former as this affects the social control capacity of neighborhood populations.

Thus, a final and basic element of the conceptual framework to be used concerns the dynamics of change and stability in neighborhood features as these may affect their crime problems. The destabilizing impact of change depends in part on whether it is continuous, affecting uniformly the nature of land use as well as all of the important population characteristics, or whether it is intermittent. In the latter case, opportunity is provided for some restabilization of neighborhoods that have already undergone substantial deterioration. But with this, there may tend to occur an entrenchment of the patterns of deviant behavior that have emerged, to become established as adaptive responses to the chronically disadvantageous competitive position their residents may face in the social and economic order of the city.

Evidence for such restabilization of deteriorated high rate crime and delinquency areas of the city is provided by a study of delinquency trends in Chicago over the 27-year period, 1934-1961 (Shaw and McKay, 1969:376-384). Three such community areas were identified in which relative rates of delinquency had declined and three in which the trend rose. To be noted is the fact that the group of communities with declining relative rates remained among the highest delinquency rate communities of the city in absolute terms. McKay attributed their declining relative rates to an increase in "institutional stability," induced by a reduction in the rate of change in community areas ". . .in which Negro population has been concentrated for several decades" (378). The study is unfortunately silent on the character and form of the growing institutional stability, as well as on the distribution of delinquency across types of offenses. But the fact of high absolute rates of delinquency suggests that this condition is not inconsistent with some degree of community restabilization.

The point to be made is that stability may represent the crucial intervening variable linking neighborhood structural change and crime patterns. Stability, moreover, is here considered to vary in inverse relationship to two dimensions of change: its velocity and its reach. Change may be fast or slow, and may affect all of the structural features of a neighborhood more or less simultaneously, or in either condition of velocity, it may selectively initially affect some elements of structure and not others. Land use may change, for example, without change in the ethnic character of the population. Whatever the differences in the rate at which the several features of neighborhood structure are transformed, the sequence in which these changes occur may be critical for their loss or retention of stability.

In the absence of prior systematic observation of the relationship among the variables sketched, at least with respect to processes of neighborhood change, it is probably the better part of wisdom to refrain from proposing substantive hypothetical propositions for test. Use will be made of the conceptual scheme described to examine empirically the question of comparative velocities of change in order to discover those patterns of sequence that are found to be crucial for neighborhood deterioration.

This discussion suggests the perspective from which the variables of neighborhood structure to be employed in the research design were identified and selected. The term "structure" is here defined in accord with more or less established usage. The reference is to both the biotic aspects of human communities such as population numbers in relation to the size and other physical characteristics of the space occupied, and to the attributes of its population. More generally, the referende is to those features of human

communities that constitute the relatively enduring arrangements of their resources of physical space and social and cultural organization within whose imperatives and constraints its members carry on a social existence. In social action theory, elements of structure as determinants of behavior are distinguished from individual motivation as providing both the form and content of motivated acts (Parsons, 1951:18-20). Structural elements are thus viewed as attributes of groups, not of individuals. As Blau (1964:3) has noted, for example, only the group can have an occupational distribution. Social structure thus refers to the specific pattern of relationships existing among such empirical items as population density, occupational distribution, age and sex composition, type of family organization, and the like. For the matter of concern here, namely, variation in the stability of the social and cultural organization of the populations of neighborhoods, and consequently in the scope of control potentially exercised over deviant behavior, it is structure in the sense indicated that is viewed as a possible determinant of behavior. As already noted, the emergent relationships among neighborhood characteristics that in fact affect the stability and control capacities of its occupants will subsequently be examined empirically by factor analytic methods.

Structural components of four kinds have been defined: those of land use, and of the demographic, socioeconomic, and subcultural attributes of neighborhoods. Each is represented as a composite constructed from variables directly measured from the census, land use and local administrative data.

Three types of measures of neighborhood attributes are available: concentration or density, distribution or rate, and unit share measures. We have noted earlier that in the measurement of crime, it appeared more appropriate to use the concentration measure, since this keyed most directly to resident perceptions of neighborhood change. With respect to the variables of social structure, there is some question as to which of the available measures is the more appropriate. Concentration measures speak to the attributes of a neighborhood in its character as a unit of space. Distribution or rate measures concern the attributes of the population that occupies the area. On a commonsense basis, perceptions of change associated with neighborhood deterioration appear to be equally likely to focus on population attributes, such as its poverty, its position in a hierarchy of occupational statuses, its ethnic composition, and the like. One or more of these measures will be used, depending on the analytic problem addressed.

The unit share measure provides a means of assessing shifts over time in the distribution of the attributes of a metropolitan region. Because the analysis focuses on neighborhood change, this measure will be applied to the crime as well as the structural variables. The measure is described in fuller detail in a later chapter. The variables constituting each of the

structural domains may be defined, and the rationale underlying their choice briefly described.

For purposes of the present study, land use refers to the distribution of functions served by the physical properties of an area, and includes the proportion of space occupied variously for residential, commercial, industrial, institutional, and recreational purposes, with particular focus on the character of residential structures. Demographic variables include the density of the area's population, and indicators of social stability such as residential mobility, proportions of unrelated, or defamilized, individuals, non-intact families, and the youth and aged dependency ratios. The socioeconomic structure of the population of an area is represented by its occupational distribution; educational and income level; employment status; and its housing turnover, value, crowdedness, and adequacy.

The fourth structural component, the subculture of an area's population, requires special comment. Its role in relation to behavior can hardly be brought into question, nor the fact that, while responsive to and reflective of both demographic and socioeconomic forces, it can and does vary independently of these (Jonassen, 1949). The system of values and beliefs that inform behavior and that constitute the distinctive culture of a population give to its demographic and socioeconomic elements of structure a significance unique to that population. Culture thus refers to the traditions and systems of belief which independently endow age and sex roles as well as the statuses attached to occupation, income, and education with meanings that specifically characterize that population.

In brief, we have here followed Hawley's suggestion, defining the subcultural dimension of structure as referring to "the prevailing techniques by which a population maintains itself in a habitat" (1961:150). "Technique" as commonly employed in ecological analysis refers primarily to those features of technology by which a population organizes its subsistance producing activities. But the practices through which such organization is sustained cannot exclude the element of rule-boundedness. As regards the matter of law violation, this element may well constitute a defining feature of the "prevailing technique" by which a population "maintains itself" in its ecological niche. An example is the economic viability achieved by communities at the border of nations through entrenched and organized smuggling.

We are nonetheless mindful of the fact that the inclusion of culture as an independent component of the structure of a community departs from the usual practice in ecological analysis. It is customary in such analysis to assign to the demographic category the ascribed and to socioeconomic the achieved characteristics of a population. But embedded in these structures, for example in its age, sex, and ethnicity

composition, and in the distribution of occupational and income statuses are the distinctive meanings these features have for its members. These meanings are in principle and without exception susceptible to description and to inclusion in systematic analysis. However, this would require the use of long-term anthropological field methods, and is beyond the resources of this study.

The alternative strategy employed has been to select only those features of demographic and socioeconomic structure for which recorded data exist, and which may reasonably be inferred to reflect either traditions of belief or adaptive patterns of practice that are relevant to social control processes.

With respect to demographic variables, ethnic identity has been selected as a somewhat useful indicator of culturally rooted orientations to the law and to legal authority, limited and modified by educational level as the instrument of social mobility and acculturation. Implied in this selection are (1) that the culture of each of three major ethnic groups (Black, Spanish surname, i.e., Mexican-American in Los Angeles County, and Anglo) is informed by its historical experience respecting its relationship to the authority of the state; and (2) that whatever its initial character, the orientation of the two minority groups is altered as a function of their educational level in the direction of conformity to that held by the majority group. Crime and criminal behavior is here conceived of as influenced by group subculture in two quite distinct ways.

First, in mobile urban societies, population groups bring to their collectively elaborated view of the legitimacy of law the traditions carried in their group histories. Such group differences have been exemplified in the experience of American cities in a number of ways. Relevant traditions of the earlier immigration of peasant and village groups from Europe included among some a history of domination by remote and oppressive governments. This was the case notably of the Irish in the 19th century, and of southern Italians and Sicilians in the 20th (Blok, 1975; Hess, 1973). The later massive migration of Blacks to Northern cities from the rural regions of the South, where they had occupied a pariah racial status, resulted in an historical experience tending similarly to undermine in their eyes the legitimacy of law (DuBois, 1935; Frazier, 1966). Moreover, it is often the case in such groups that practices tolerated and approved by the law and customs of the place of origin are defined as crimes in the places of destination (Sellin, 1938). The purpose in alluding to these materials is simply to argue that ethnicity is usefully interpretable as a subcultural as well as a demographic variable with reference to variation in tolerance for some types of criminal behavior. The extent to which membership in an ethnic group is in fact related to such variations remains an empirical question for examination in the course of data analysis. The relationship of ethnicity to crime is assumed to be no more than plausible.

Four additional measures appear also to be interpretable as indicators of group subculture. The first two are drawn from the sex distribution of the labor force as recorded in the decennial censuses, and from juvenile justice records. The measures selected were the ratio of females in the labor force and the volume of status offenses among children. These are construed as indicators of patterns of practice that arise as adaptations to the level of stress intrinsic to group location in the social and economic hierarchy of the wider community. Assumed with rerference to the first is that the level of control over youth behavior specifically, and more generally the degree of local consensus generated with respect to illegal activity, is a function of the proportion of families in a neighborhood which corresponds to the conventional model of the intact, two-parent family. Since the proportion of female-headed households by census tract was not available for each of the three time points of 1950, 1960, and 1970, it was necessary to resort to the related measure of the ratio of females in the labor force. The second assumption was that the degree of youth control and of consensus was highly likely to be reflected in the volume of such non-criminal youth offenses as incorrigibility, truancy, runaway, and similar status violations. The specific sense in which the identified elements of family composition and of youth behavior constitute items of culture is that each represents an enduring adaptation to relatively fixed conditions. This is to say that just as some patterns of behavior in the culture of a population group have their origin in prior belief systems and value orientations, other patterns originate in simple adaptations to prevailing conditions, become collectively shared, and enter into the normative expectations of its adult and juvenile members.

A third measure in the same category is represented by the fertility ratio, i.e., the proportion of children under five years of age per 100 women 15-44 years old. This measure also is assumed to be related to variation in the control capacity of families, with an expected inverse correlation to a high fertility ratio. Moreover, for ethnic groups with a recent and continuing history of immigration, as is the case for the Spanish surname minority population, a high fertility ratio is likely as well to reflect directly cultural values associated with place of origin.

The fourth measure, ethnic population ratio, is construed as an emergent cultural variable. It is most directly a measure of ethnic heterogeneity. In residential areas with high proportions in the juvenile age groups, this variable is likely to be inversely related to community consensus regarding problems of social control. Where consensus is at a low ebb, typical modes of response to disruptive, disorderly, and criminal conduct tend to get established, and to become shared and transmitted among residents at all age levels. It is in this sense that these modes of response come to constitute an item of emergent culture. Typical responses in these situations are generalized fear of

anonymous others as representing a potential threat to safety, hostility to members of other ethnic groups, and studied avoidance of involvement as witnesses or informants of criminal acts (Suttles, 1968).

We are aware that these assertions regarding neighborhood subculture raise the ghost of earlier controversies concerning the reality of the "delinquent subculture" (Matza, 1964), and of the "culture of poverty" (Lewis, 1966; Valentine, 1968). There is no need here to review opposing contentions or to enter a judgment regarding their merits. In classifying these four measures as cultural variables, we simply mean to allocate them in the interest of a "best fit" among the land use, demographic, socioeconomic, and cultural components of community structure. No more is meant by this allocation than that adaptive patterns of behavior, however devoid of justificatory ideologies, are phenomenologically assimilable to all varieties of culturally determined action.

Figure 3.1 lists the specific variables constituting each of four structural dimensions and the measures to be employed with respect to each dimension.

Figure 3.1. Neighborhood Structural Dimensions, Variables, and Measures

		Measures
I.	Land Use Variables	
	A. Concentration	
	1. Owner housing	Owner occupied housing/sq.mi.
	2. Rental housing	Renter occupied housing/sq.mi.
	3. Residential dwellings	Single units/sq.mi.
	4. Multiplex dwellings	2 to 10 units/sq.mi.
	5. Apartment dwellings	11 or more units/sq.mi.
	6. Commercial activity	(Number of commercial + number of business parcels)/sq.mi.
	7. Industrial activity	(Number of industrial parcels)/sq.mi.
	8. Open land	(Vacant + rural farm parcels)/sq.mi.
	9. Traffic generators	(Parcels with buildings over 25,000 sq.ft)/sq.mi.
	B. Distribution	
	10. Owner housing	Owner/total occupied housing *100
	11. Rental housing	Rental/total occupied housing *100
	12. Residential dwelling	Single units/total housing *100
	13. Multiplex dwellings	2 to 10 units/total housing *100
	14. Apartment dwellings	11 or more units/total housing *100
	15. Commercial activity	(Number of commercial + number of business parcels)/total number of parcels *100
	16. Industrial activity	(Number of industrial parcels)/total number parcels *100
	17. Open land use	(Vacant + rural farm parcels)/total number of parcels *100
	18. Traffic generators	(Parcels with building over 25,000 sq.ft.)/total number of parcels *100
	19. Index of household stability	Renter occupied housing/owner occupied housing

		Measures
II.	Demographic Variables	
A.	Concentration	
1.	Population	Total population/sq.mi.
2.	Unrelated Individuals	(Number of unrelated + number of primary individuals /sq.mi.
3.	Non-intact individuals	(Widowed + divorced)/sq.mi
4.	Residential stability (1)	Population living in same house for at least a year/sq.mi.
5.	Residential mobility (1,2)	(Total population - population living in same house for at least a year/sq.mi.
B.	Distribution	
6.	Unrelated individuals	(Number of unrelated + number of primary individuals) /14 years and older *100
7.	Non-intact families	(Widowed + divorced)/14 years and older *100
8.	Residential stability (2)	Population living in same house for at least a year/ total population *100
9.	Youth dependency	0-17 age/18-64 age
10.	Aged dependency	65 and older/18-64 age
11.	Average Age	Median age

III. Socioeconomic Variables

		Measures
A.	Concentration	
1.	Professional occupations	(Prof., tech., mgmt., adm.) /sq.mi.
2.	Skilled occupations	(Sales, clerical, craftsmen, and kindred workers)/ sq.mi.
3.	Semi-skilled and unskilled laborers	(Operatives,laborers,service workers,private household workers)/sq. mi.
4.	Unemployment	Unemployed/sq.mi.
5.	Population with advanced education	25 years and older with 4 or more years college/ sq.mi.
6.	Housing lacking basic plumbing (3)	Occupied housing lacking plumbing/sq.mi.
7.	Housing with overcrowded conditions	Occupied housing with more than one person per room/sq.mi.
8.	Housing turnover (4)	(Occupied housing for sale and rent)/sq.mi.
B.	Distribution	
9.	Professional occupations	(Prof., tech., mgmt., adm.) /14 yrs. and older in labor force *100
10.	Skilled occupations	(Sales, clerical, craftsmen, and kindred workers)/ 14 yrs. and older in labor force *100
11.	Semi-skilled and unskilled laborers	(Operatives, laborers, service workers, private household workers)/14 yrs. and older in labor force *100
12.	Unemployment	Unemployed/14 yrs. and older in labor force *100
13.	Population with advanced education	25 yrs. and older with 4 or more yrs. college/ persons 25 yrs. and older *100
14.	Housing lacking basic plumbing (3)	Occupied housing lacking plumbing/all occupied housing *100

15.	Housing with overcrowded conditions (5)	(Occupied housing with more than one person per room)/all occupied housing *100
16.	Housing turnover (4)	(Occupied housing for sale or rent)/total occupied housing *100
17.	Average family income	Median income of family and unrelated individuals
18.	Average home value	Median value of total housing
19.	Average rent	Median contract rent
20.	Average education	Median education for persons 25 years and older

IV. Subculture Variables

		Measures
A.	Concentration	
	1. Status offenses	Juvenile status delinquency/sq.mi.
	2. Black population	Black/sq.mi.
	3. Spansur population	Spansur/sq.mi.
	4. Anglo population (6)	Anglo/sq.mi.
	5. Non-White all population	Non-White/sq.mi.
	6. Non-White females in civilian labor force	Non-White females in civillian labor force/sq. mi.
	7. Spansur females in civilian labor force	Spansur females in civilian labor force/sq.mi.
	8. Anglo females in civilian labor force	Anglo females in civilian labor force/sq.mi.
	9. Non-White advanced education	Non-White adults with 4 or more years of college/ sq.mi.
	10. Spansur advanced education	Spansur adults with 4 or more years of college/ sq.mi.
	11. Anglo advanced education	Anglo adults with 4 or more years of college/ sq.mi.
	12. Mexican foreign born (7)	Foreign born in Mexico/sq.mi.
B.	Distribution	
	13. Mexican foreign born (7)	Foreign born in Mexico/total population *100
	14. Status offenses	Juvenile status delinquency cases/age 10-17 *100
	15. Black population	Black/total population *100
	16. Spansur population	Spansur/total population *100
	17. Anglo population	Anglo/total population *100
	18. Non-White population	Non-White population/total population *100
	19. Non-White females in labor force	(Non-White females in civilian labor force)/ non-White females 14 yrs. old and older *100

20. Spansur females in labor force (8)	(Spansur females in civilian labor force)/ Spansur females 14 yrs. old and older *100
21. Anglo females in labor force	(Anglo females in civilian labor force)/ Anglo females 14 yrs. old and older *100
22. Non-White population with advanced education	Non-White adults with 4 or more yrs. college/ Non-White population 25 yrs. old and older *100
23. Spansur population with advanced education	Spansur adults with 4 or more yrs. college/ Spansur population 25 yrs. old and older *100
24. Anglo population with advanced education	Anglo adult with 4 or more yrs. /Anglo adult population 25 yrs. old and older *100
25. Non-White fertility ratio	Less than 5 yrs. non-White/15-44 yrs. non-White females *100
26. Spansur fertility ratio	Less than 5 yrs. Spansur/15-44 yrs. Spansur females *100
27. Anglo fertility ratio	Less than 5 yrs. Anglo/15-44 yrs. Anglo females *100
28. Non-White/Anglo population ratio	Black/Anglo *100
29. Spansur/Anglo population ratio	Spansur/Anglo *100
30. Non-White/Spansur population ratio	Black/Spansur *100
31. Non-White female/non-White male labor force ratio	Non-White females in civilian labor force/ non-White males in civilian labor *100
32. Spansur female/Spansur male labor force	Spansur females in civilian labor force/ Spansur males in civilian labor force *100
33. Anglo female/Anglo male	Anglo females in civilian labor force/ Anglo males in civilian labor force *100

	Measures
V. Criminal Activity Variables	
A. Concentration	
1. Juvenile criminals	Juvenile prosecutable crimes/sq.mi.
2. Juvenile crimes against property	Juvenile crimes against property/sq.mi.
3. Juvenile crimes against persons	Juvenile crimes against persons/sq.mi.
B. Distribution	
4. Juvenile crimes	Juvenile crimes against persons/10-17 yrs *100
5. Juvenile crimes against property	Juvenile property crimes/10-17 yrs *100
6. Juvenile criminals	Juvenile prosecutable crimes/10-17 years *100

Notes:

(1) In 1950, population lived in same house for more than one year.
In 1960, population lived in same house five years earlier.
In 1970, population moved into unit before 1969.

(2) 1950, 1960 total population is the population age 1 +
1970, total population is the total population

(3) 1950, housing lacking plumbing includes no private bath and/or no plumbing
1960, housing lacking plumbing includes no private toilet or bath or water
1970, housing lacking plumbing includes no hot water, cold water, toilet, and/or bathing facilities used by occupants in another unit

(4) 1950, data not available to compute variable
1960 and 1970 occupied housing for sale and rent is total housing for sale and rent

(5) 1950, all occupied housing is the number of units reporting persons per room
1960 and 1970 all occupied housing is total occupied housing

(6) 1950 and 1960 Anglo equals total population - non-White - Spanish surname
1970, Anglo equals White - (total - White) - Spanish surname

(7) 1960, foreign born in Mexico is born in Mexico with Spanish Surname

(8) 1970 Spanish surname females 16 yrs. old and older

CHAPTER IV

SHIFTS IN HIGH CRIME AREAS: 1950-1970

A. The Distribution of High Crime Areas in Los Angeles County

The distribution of crime rates is one among the many ways metropolitan regions become internally differentiated. Indeed, their distribution at any single time point has long since come to be a fixed feature of the social topography of the city. As far back as the Booth (1891) studies of 19th century London, the habitats of occupational groups in the population were identified, described, and distinguished with reference to local subcultures, some of which were by implication differentially associated with high crime rates. Almost a century later in the work of Schmid in Seattle (1960), of Shaw and McKay in Chicago (1969), and Shannon in a medium sized city (1967), high crime and delinquency rate areas remained identifiable as relatively fixed locations in the city.

However, whether over time the spatial enclaves of crime remain unchanged, whether they expand or contract in size, is a question that had not been specifically addressed. Most of the past research based on single time point analyses suggest relative stability of location. The early Shaw-McKay work, which dealt with long-time trends, failed to assess variation in the spatial parameters of Chicago's delinquency areas.

Data available in the present study permit examination of changes over time in the location of the city's high crime areas. With use of the juvenile offense surrogate measure of crime, correlations among the three time points of 1950, 1960, and 1970 of the distribution of absolute frequencies of petitioned complaints were run for all prosecutable offenses, for property offenses, and for offenses against persons in Los Angeles County.

As seen in the product moment correlations of Table 4.1, knowledge of the distribution of crime in 1960 can "explain" almost half the variance in its distribution in 1970 ($R^2 = .47$). However, the correlation of the 1950 and the 1960 distributions indicates that the 1950 distribution is less predictable of that for 1960, accounting for slightly more than one-quarter of the variance in distribution at the latter time point ($R^2 = .27$). The least predictive over a 20-year time span is the correlation in the distribution of crime between 1950 and 1970 ($R^2 = .19$). For property offenses, the 1960 distribution is fairly predictive of that for 1970 (Table 4.2). The r of .628 yields an R^2 of .39. Notable on the other hand, is the very sharp reduction in explained variance provided by the correlation either between the 1950 and the 1960, or the 1950 and the 1970 distributions. In

Table 4.1. Product Moment Correlations, Distribution of All Prosecutable Offenses, Los Angeles County, 1950-1970

	1970	1960	1950
1970	--		
1960	.687	--	
1950	.440	.524	--

Table 4.2. Product Moment Correlations, Distribution of All Property Offenses, Los Angeles County, 1950-1970

	1970	1960	1950
1970	--		
1960	.628	--	
1950	.306	.314	--

CONTINUED

1 OF 5

both cases the relationships leave "unexplained" approximately 90 percent of the variance.

Finally, as seen in Table 4.3, there appears to be virtually no relationship between time point distributions for crimes against persons. Noted earlier was the fact that the use of the juvenile offense measure as a surrogate for crimes against persons, in contrast to both all prosecutable and property offenses, is much reduced in reliability.

The findings for all prosecutable and property offenses do, however, suggest substantial movement in the location of high crime areas over the 20-year period. The movement has the general character of increasing concentration. The 1950 distribution of all prosecutable offenses is less predictive of the 1960 distribution than is the 1960 of the 1970 distribution. While the 1950 distribution explains little more than one-quarter of the variance in the 1960 distribution, that for 1960 explains almost one-half the variation for 1970. Over the course of two decades, one feature of the movement of crime areas in Los Angeles County has been its increasing geographic concentration.

A more locationally specific test of a possible 20-year trend toward increasing concentration of crime is provided by examining the time point relationships of census tract clusters with similar relative offense measures. The data on which the correlations presented in Tables 4.1, 4.2, and 4.3 are based were direct measures of offense frequencies for all census tracts in the County. On the other hand, the countywide data can also be used to generate measures of offense frequencies for identified clusters of census tracts of specified magnitudes of square mile densities. The correlations presented in Tables 4.4 through 4.6 measure the relationship between the total number of subareas found in the clusters of highest densities in 1970 (as defined in Chapter III) and the number in the same category in 1960, as well as the 1960-1970 and the 1950-1970 relationships.

Because of the constraints introduced when subareas are spatially clustered for a single time period and compared to another period, the correlations across time points are reduced. The analytical importance of this is discussed below. Nevertheless, again with the exception of offenses against persons, the cluster distribution for 1960 with respect to all prosecutable offenses and property offenses is more predictive of the 1970 distribution than is the 1950 distribution for 1960. As indicated in Table 4.4, all prosecutable offenses the 1960 distribution explains twice the variance of the 1970 distribution than does the 1950 for the 1960 distribution (R^2 = .112 vs. .056). For property offenses, the same distinction is suggested (Table 4.5), but not for offenses against the person (Table 4.6).

Finally, when each crime area is examined separately over the 20-year period, important patterns begin to emerge. For

Table 4.3. Product Moment Correlations, Distribution of All Offenses Against Persons, Los Angeles County, 1950-1970

	1970	1960	1950
1970	--		
1960	.197	--	
1950	.280	.169	--

Table 4.4. Product Moment Correlations, Census Tract Clusters of Similar Relative Magnitude of All Prosecutable Offenses, Los Angeles County, 1950-1970

	1970	1960	1950
1970	--		
1960	.334	--	
1950	.189	.236	--

Table 4.5. Product Moment Correlations, Census Tract Clusters of Similar Relative Magnitude of Property Offenses, Los Angeles County, 1950-1970

	1970	1960	1950
1970	--		
1960	.272	--	
1950	.234	.120	--

Table 4.6. Product Moment Correlations, Census Tract Clusters of Similar Relative Magnitude of Offenses Against Persons, Los Angeles County, 1950-1970

	1970	1960	1950
1970	--		
1960	.182	--	
1950	.187	.141	--

example, stronger relationships are displayed in Tables 4.7, 4.8, and 4.9 by the "time point" correlations of the clusters with the highest, second, and third highest crime densities in 1970, with the same census tract clusters in 1960 and 1950, than those between these tract clusters in 1950 and 1960. What emerges is a pattern of increasing concentration of crime with the passage of time, affecting the more heavily impacted crime density clusters than those with lower crime densities.

In the "all prosecutable offenses" category for the highest 1970 crime density cluster, the comparative correlations between 1960 and 1970, and between 1950 and 1960 were .73 and .32, respectively (Table 4.7). This was also substantially the case for the second highest 1970 crime density cluster, where the parallel correlations were .82 and .22 (Table 4.8). The concentration effect begins to dissipate in the third highest 1970 crime density cluster, with a 1960-1970 correlation of .29 (Table 4.9). On the other hand, in the 1950-1960 decade the measure was .55, suggesting the possibility that in these same census tracts developments occurred resulting in a long-term reduction of crime.

It should be borne in mind that these time point relationships center on the measure of crime density, i.e., the absolute number per square mile of juvenile offenders petitioned on complaint to the court. In summary, the correlation patterns indicate that over the 20-year period, between 1950 and 1970, there was a continuous increase in crime concentration. This trend was particularly evident in the locations that showed a high crime concentration as early as 1950. However, these relationships are based on absolute measures, which are notoriously subject to the vicissitudes of police policy and practice respecting the deployment of resources and the recording and reporting of offenses over a two decade span of time. It is possible, for example, that the increase in crime density in the highest crime areas could have been a function in part of growing reactive police attention to residents' demands for more protection from crime victimization that attended the rise of the civil rights movement, and in part of an increasing entrenchment and diffusion of a subculture of delinquency and criminality among young males.

The shortcomings of an absolute measure may be obviated in part by shifting to a relative measure. The rank order of census tract clusters based on crime densities may be examined, yielding a measure of crime relative to all other clusters in the County, and thus standardized to the mean crime density level of the entire County region. While this measure is not without its own shortcomings, for example, differences in police policies and practices among the many enforcement agencies in the County at any single time point, it provides a more reliable indicator of change in the crime status of any given cohort of census tracts.

Table 4.7. Product Moment Correlations, Tracts in Highest Square Mile Density Cluster in 1970, with Same Tract Clusters in 1960 and 1950, by Offense Type, Los Angeles County

	1960			1970		
	All Prosecutable	Property	Person	All Prosecutable	Property	Person
1970	---	--	--			
1960	.730	.648	.031	---	--	--
1950	.319	.139	.242	.348	-.051	.282

Table 4.8. Product Moment Correlations, Tracts in Second Highest Square Mile Density Cluster in 1970, with Same Tract Clusters in 1960 and 1950, by Offense Type, Los Angeles County, 1970

	1960			1970		
	All Prosecutable	Property	Person	All Prosecutable	Property	Person
1970	---	--	--			
1960	.817	.787	-.295	---	--	--
1950	.221	.238	-.065	.115	.071	-.032

Table 4.9. Product Moment Correlations, Tracts in Third Highest Square Mile Density Cluster in 1970, with Same Tract Clusters in 1960 and 1950, by Offense Type, Los Angeles County

	1960			1970		
	All Prosecutable	Property	Person	All Prosecutable	Property	Person
1970	---	--	--			
1960	.292	.100	-.159	---	--	--
1950	.406	-.197	.000	.549	.285	.000

Table 4.10 presents shifts in the rank order of crime densities in the ten highest 1970 clusters across the 1950, 1960, and 1970 time points. Notable is the fact that little change in crime density rank order among the ten 1970 high density clusters occurred in the two highest density clusters. For all prosecutable offenses, these occupied only the sixth and eighth rank, respectively, in 1950 (Table 4.11). This means that they remained high crime clusters throughout the two decade period. Also identifiable are those clusters that underwent substantial increases in their crime density during this period. The largest change in rank order position occurred in those tracts constituting cluster 7 in 1970, whose average rank moved from the 85th to the seventh place. Five additional clusters exhibit large increases (clusters 3, 4, 5, 6, and 8). Thus, of the ten high density 1970 clusters, six experienced high increases in their crime measures. There was relatively little change in crime status in the remaining four.

Readily identified in Table 4.11 are the clusters of greatest crime increase during the 20-year period: clusters 3, 4, 6, 7, 8, and 10. However, this increase was not uniform for all types of offenses. To assess the change in the distribution of neighborhood crime, the measure used is the residence of juveniles with criminal offenses. Therefore, it is necessary to use a classification scheme appropriate to this population.

Distinguished among juvenile offenses were the two which, if committed by adults, were subject to prosecution: property and person offenses, and a third made up of juvenile status offenses. The latter was included not as an indicator of crime but, in the light of the study hypothesis, as a precursor or leading indicator of a future increase in the crime level of a community. Approximately three-quarters of all juvenile status offenses consist of incorrigibility and runaway (Kobrin and Klein, 1983:65). This type of behavior is interpreted as an early signal of declining capacity in a population to exercise control over deviant conduct, reflecting mainly the kinds of impairment in family organization that accompany recent migration and disadvantaged economic and social status.

When the prosecutable offenses, crimes against property and against persons, are disaggregated, a different pattern for property and for person offenses emerges in the distribution of rank order change among the highest ten tract clusters in the County. Table 4.12 reveals that for property offenses the largest increase in crime density rank order between 1950 and 1970 occurred only in clusters 3, 5, 6, and 7. For person offenses, the increase was notable only in clusters 5 and 6 (Table 4.13). These differences in patterns of increase can only mean that conditions affecting the frequency of these types of offenses varied in unknown ways. At the juvenile level in particular, the distribution of person offenses (homicide, robbery, and assault) at the earliest time point is virtually

Table 4.10. Crime Density Rank Order Changes, 1950-1970, Ten Highest Crime Density Clusters in 1970, Los Angeles County

	Minimum Rank	Maximum Rank	Mean Rank	Lowest Tract	Highest Tract	Mean Density
			(Cluster # 1)			
1970	1	1	1.0	9.85	496.55	130.27
1960	1	20	2.2	0.00	143.44	27.53
1950	2	77	5.9	1.65	52.71	15.50
			(Cluster # 2)			
1970	2	2	2.0	10.71	206.17	74.34
1960	1	12	3.2	5.35	60.13	20.94
1950	3	40	8.0	2.80	28.94	13.03
			(Cluster # 3)			
1970	3	3	3.0	12.84	100.68	67.03
1960	5	62	10.7	2.14	26.34	14.68
1950	9	193	29.8	0.00	18.44	5.99
			(Cluster # 4)			
1970	4	4	4.0	0.00	176.55	86.05
1960	1	6	4.1	0.00	78.27	15.38
1950	5	173	21.6	0.00	22.07	8.99
			(Cluster # 5)			
1970	5	5	5.0	63.60	150.45	99.59
1960	3	3	3.0	5.96	32.37	17.84
1950	5	12	9.2	0.00	9.96	4.95
			(Cluster # 6)			
1970	6	6	6.0	17.61	148.93	84.27
1960	3	126	22.0	0.00	49.61	11.30
1950	5	185	28.6	0.00	16.10	4.36
			(Cluster # 7)			
1970	7	7	7.0	5.68	147.20	50.19
1960	5	5	5.0	1.88	23.49	9.43
1950	15	203	85.6	0.00	3.00	0.78

Table 4.10
Page Two

	Minimum Rank	Maximum Rank	Mean Rank	Lowest Tract	Highest Tract	Mean Density
			(Cluster # 8)			
1970	8	8	8.0	9.92	141.36	48.05
1960	5	162	29.1	0.00	13.54	5.46
1950	9	111	38.8	0.00	10.16	1.79
			(Cluster # 9)			
1970	9	9	9.0	0.20	134.85	50.84
1960	1	10	2.8	0.00	29.88	18.30
1950	3	44	9.1	0.00	51.81	22.39
			(Cluster # 10)			
1970	10	10	10.0	3.33	132.86	39.47
1960	1	120	13.7	0.00	27.17	7.25
1950	2	184	35.0	0.00	11.00	2.47

Table 4.11. Change in Mean Rank of 1970 Crime Density Tract Cluster, Prosecutable Offenses, 1950-1970, Los Angeles County

1970 Cluster Rank	1970	1960	1950	1950-1970 Rank Order Advance
1	1.0	2.2	5.9	4.9
2	2.0	3.2	8.0	6.0
3	3.0	10.7	29.8	26.8
4	4.0	4.1	21.6	17.6
5	5.0	3.0	9.2	4.2
6	6.0	22.0	28.6	22.6
7	7.0	5.0	85.6	78.6
8	8.0	29.1	38.8	30.8
9	9.0	2.8	9.1	-0.1
10	10.0	13.7	35.0	25.0

Table 4.12. Change in Mean Rank of 1970 Crime Density Tract Clusters, Property Offenses, 1950-1970, Los Angeles County

1970 Cluster Rank	1970	1960	1950	1950-1970 Rank Order Advance
1	3.4	6.6	12.7	9.3
2	2.0	8.6	3.0	1.0
3	4.0	12.0	16.2	12.2
4	13.3	21.6	7.4	5.9
5	6.0	5.0	22.2	16.2
6	6.1	22.6	26.9	20.8
7	18.7	6.0	45.6	26.9
8	21.2	21.6	20.9	-0.3
9	19.0	4.6	12.1	6.9
10	16.5	13.5	22.1	5.6

Table 4.13. Change in Mean Rank of 1970 Crime Density Tract Cluster, Person Offenses, 1950-1970, Los Angeles County

1970 Cluster Rank	1970	1960	1950	1950-1970 Rank Order Advance
1	6.6	19.8	13.2	6.6
2	10.5	26.8	4.6	5.9
3	33.0	30.0	42.0	9.0
4	10.9	19.7	23.8	12.9
5	9.6	9.5	32.9	23.3
6	8.3	23.5	34.6	26.3
7	63.4	30.0	38.9	-24.5
8	23.1	30.0	34.9	11.8
9	4.6	26.6	4.5	0.1
10	37.4	25.9	30.0	7.4

uncorrelated with their distribution at the two later time points (Table 4.3). Nonetheless, the two clusters whose person crime density rank order increased notably between 1950 and 1970 (clusters 5 and 6) also registered high advances in rank for property and for all prosecutable offenses.

B. Shifts in the Location of High Crime Areas, 1950-1970

Following the procedure described in Chapter II, high crime areas were established for 1960 and 1950. Those subareas falling within a given cluster for 1970 were searched for their location in whatever cluster they were found at an earlier time point. For example, of each of the 48 subareas constituting the highest crime cluster in 1970, some were found in the second, the fifth, the twentieth, etc., cluster of the 1960 series. The ranks of the clusters into which they fell were then averaged to arrive at the mean rank in 1960 of the tracts that had constituted the highest density cluster in 1970. Thus, as seen in Table 4.11, the average rank in 1960 of the 1970 highest crime tract cluster was 2.2, and in 1950, 5.9.

Another method of tracking shifts in the distribution over time of high crime areas in the County is to examine the proportion of census tracts in the 1970 high crime clusters that were present among the highest crime clusters in 1960 and in 1950. Again using the clustering procedure, we determined that in both 1950 and 1960 the first seven clusters constituted a similar pattern of crime concentration as was established for the first ten clusters in 1970. Once these crime areas for previous periods were established, it was possible to examine the proportion of census tracts in the seven highest crime clusters in 1950 and 1960 that were included in the ten highest crime clusters for 1970. In turn, this permits identification of those areas of the County which remained or which became high crime areas in the course of the 20-year period. Thus, the data of Table 4.14 identifies three 1970 clusters that were consistently high crime areas from 1950 to 1970 (clusters 1, 2, and 9). Distinguishable also are those 1970 high crime clusters that were extremely low crime areas in 1950 by virtue of the fact that no tract present in the 1970 clusters was present in the seven highest crime clusters for 1950 (clusters 3, 7, and 8). Of these, two (clusters 3 and 7) experienced almost their entire increases in crime density status between 1950 and 1960, remaining virtually constant in this respect during the 1960-1970 decade. In the remaining 1970 high crime clusters, substantial percentages of their tracts were found in the high crime clusters of 1950. Further, in two instances (Clusters 6 and 10) there occurred a steady rise in crime density across decennial time points. Thus, as regards characteristic modes of crime increase there appeared to be three classes of areas over the time period considered: those consistently high throughout the period; those that experienced a precipitous increase in crime status during the second half of the period; and those in which there occurred a steadily rising gradient in crime.

Table 4.14. Percent of Tracts in Ten Highest Crime Density Clusters, 1970, Present in Seven Highest Crime Density Clusters in 1960 and 1950

1970 Cluster Rank	Number of Tracts	Percent of 1970 Tracts in 1960	Percent of 1970 Tracts in 1950
1	48	95.8	97.9
2	13	76.9	76.9
3	10	90.0	0.0
4	32	100.0	18.8
5	10	100.0	40.0
6	27	70.4	29.6
7	7	100.0	0.0
8	9	44.4	0.0
9	15	80.0	80.0
10	43	76.7	25.6

Twenty-year shifts in high crime areas on a prospective view are highlighted in Table 4.15. Shown there is the proportion of tracts in the seven designated high crime density clusters for 1950 that were present in the 1970 high crime clusters. In four of the seven 1950 clusters (Clusters 2, 3, 5, and 7), from three-quarters to over one-half of their tracts were present in the 1970 high crime clusters. The prospective view of the shifting distribution of crime areas reveals, moreover, the interesting phenomenon of the disappearing high crime area (clusters 4 and 6). In the first, none of the 1950 tracts reappeared in the 1970 clusters; in the second, only eight percent reappeared. Such "elimination" of crime was found to be accounted for by total population displacement occasioned by such drastic land use changes as conversion to freeway, institutional, and recreational building.

C. Shifts in the Distribution of Crime Types

Shifts in the location of crime areas from 1950 to 1970 have thus far been considered only with reference to total prosecutable crimes, as measured by court records of juvenile offenses. The question may now be raised of differential shifts over this period among classes of offenses. In addressing this question we will be concerned solely with the two major categories of crime: against property and against persons. Use of these summary classes has the possible advantage of differentiating areas with respect to the criminal "maturation" of neighborhoods, that is, their stabilization over time as high crime areas. This notion is simply a variant form of one of the guiding theoretical propositions in this investigation, namely, that the development of high crime areas is the end product of a process marked by distinguishable stages. The last of these stages is characterized by relatively high densities of both person and property crimes, following on earlier periods of low precursor densities of person crimes in relation to property crimes. While this suggests the possibility that the number of person crimes tends to escalate as neighborhoods advance in criminal maturity a more detailed subsequent analysis indicated that in those clusters which emerged as high crime areas only in 1970 person crimes briefly outstripped the rise in property offenses.

The measure used in examining this possibility is the zero-order correlation of the density or concentration of property and person offenses with total prosecutable offenses for each of the three decennial points, 1950, 1960, and 1970. These are first estimated retrospectively, using the ten highest crime census tract clusters in 1970.

Two trends are discernible in the data of Table 4.16. First, property offenses are highly and stably related to total prosecutable crimes over all three time points, although the strength of the relationship increased from a mean of .78 to .94

Table 4.15. Percent of Tracts in Seven Highest Crime Density Clusters, 1950, Present in Ten Highest Crime Density Clusters in 1970

1950 Cluster Rank	Number of Tracts	Percent of 1950 Tracts in 1970 Clusters
1	1*	0.0
2	26	76.9
3	39	53.9
4	20	0.0
5	51	76.5
6	50	8.0
7	26	53.9

* This was an "isolate" tract completely surrounded by Cluster 6.

Table 4.16. Zero Order Correlations of Person and Property Offenses with Total Prosecutable Crimes, Ten Highest 1970 Crime Clusters for 1970, 1960, and 1950, Los Angeles County

	Property Offenses			Person Offenses		
Cluster	1970	1960	1950	1970	1960	1950
1	.97	.96	.73	.94	.00	.35
2	.95	.96	.79	.84	.00	.38
3	.91	.92	.70	.84	-.20	.00
4	.89	.96	.72	.75	.00	.41
5	.90	.94	.71	.66	.16	.00
6	.96	.92	.80	.86	.16	.00
7	.92	.98	.99	.32	.00	.00
8	.99	.98	.80	.81	.00	.00
9	.96	.74	.60	.88	.00	.22
10	.98	.90	.92	.93	.00	.32
Mean	.94	.93	.78	.78	.05	.17

between 1950 and 1970. Second, while property offenses were by far the most important constituent of crime in these areas in 1950, and person offenses (with a mean of .17 to total prosecutables) constituted a relatively minor element in the picture, with the passage of time person offenses increased emphatically. Simply interpreted, this means that in 1950 every unit increase in total prosecutable crimes was associated with an increase in person offenses of only 17 percent; in 1970, there occurred a 78 percent increase in person offenses with every unit increase in total prosecutable crimes. In brief, with advancing entrenchment of crime in these areas, person crimes, initially lagging behind, "caught up."

The same trends are seen when viewed prospectively. Table 4.17 is based on the seven highest crime density clusters in 1950, with cluster 1 excluded as it comprised a single "isolate" census tract. While property offenses exhibited a stable rise in its correlation with total prosecutable crimes from a mean of .67 in 1950 to .95 in 1970, the corresponding measure for person offenses during this period advanced from the much lower .48 to .83.

A further word is in order respecting the stability of person offenses as a constituent element of the total crime picture. It is evident in Tables 4.15 and 4.16 that person offenses in both the retrospective and prospective cluster cohorts fluctuate extensively over the individual clusters, although the overall trend is reasonably clear. The fluctuation is in the first instance a reflection of the instability associated with the small numbers of juvenile person offenses in each tract. In addition, and speculatively, extensive fluctuation may also reflect uncertainties in the response of enforcement agencies in dealing with and recording instances of offenses against persons. The uncertainty may be in turn a reflection of the complex contingencies that arise in these cases, such as the unwillingness of victims to press charges against assailants known to them, and the difficulty of determining the level of injury that justifies an arrest. Above all, it should be borne in mind that these are juvenile data. The seriousness of assaultive crimes among juveniles may vary more widely than among adults, and police policy may vary more randomly among different neighborhoods and in different time periods.

D. Summary

To examine the relationship between changes in the characteristics of communities and changes in their crime problem, it is necessary first to ascertain whether, to what extent, and where in an urbanized region change in the distribution of the crime problem has occurred. In this section we have described the changes in the distribution of the crime problem in Los Angeles County during the 1950-1970 period, using the surrogate measure of the square mile density of the juvenile

Table 4.17. Zero Order Correlations of Person and Property Offenses with Total Prosecutable Crimes, Seven Highest Density 1950 Crime Clusters for 1950, 1960, and 1970, Los Angeles County

	Property Offenses			Person Offenses		
Cluster	1950	1960	1970	1950	1960	1970
2	.67	.97	.98	.20	.00	.97
3	.71	.94	.95	.36	.00	.79
4	.70	.86	.93	.78	.48	.60
5	.43	.78	.95	.53	.05	.87
6	.84	.95	.90	.48	.00	.85
7	.69	.90	.96	.51	.00	.88
Mean	.67	.90	.95	.48	.08	.83

prosecutable crimes of offenses against property and against persons.

Assessed first was the question of stability and change in the distribution of crime. Interannual zero-order correlations for crime density distributions over the three time points of 1950, 1960, and 1970 revealed that the 1950 distribution was less predictive of the 1960 distribution than was that of 1960 for 1970, suggesting that between 1950 and 1970 the movement of high crime areas in the direction of increased concentration in fewer locations was accelerated during the latter half of the two decade period. While the same effect was not unexpectedly evident for property offenses alone, it was not for offenses against persons.

Although this was clearly the case for the ten neighborhoods or tract clusters treated as a single unit that exhibited the highest measures of crime density in 1970, encompassing 214 census tracts, the question remained of whether increasing concentration of crime was characteristic of all neighborhoods or only of those established by 1950 as high crime areas. Here it was found that indeed the accelerating concentration effect was greater in the highest crime density than in the lower density clusters. That is, the more crime-impacted an area is initially, the greater the pace of change in the direction of concentration.

From consideration of trends based on absolute magnitudes of crime density, attention was then shifted to trends based on relative magnitudes. For this purpose, the ten highest density crime clusters in 1970 were rank ordered in crime magnitude. Three change patterns were noted: those that remained relatively high across the three time points; those that experienced substantial increase in crime; and those that remained unchanged at a relatively low level. The clusters so identified will subsequently become focal points of interest as the analysis moves to an examination of community structure correlates.

In a further refinement of the same identification procedure, a determination was made of the percentage of tracts in the ten 1970 highest crime density clusters that were included in the seven 1960 and 1950 highest crime density clusters. Identified there were three modes of crime increase: high crime densities over all three time points; those that increased only moderately between 1950 and 1960, with a sharply accelerated rise between 1960 and 1970; and those that underwent an increase on a steadily rising gradient. Here, again, interest attaches to related variation in each case in community structural features.

A prospective examination of shifts between 1950 and 1970 in the subarea composition of the 1970 high crime areas shows them to be substantially similar to those disclosed by a retrospective examination. All but two of the 1950 high crime areas were encompassed in the 1970 high crime areas. The disappearance of

crime from the two exceptions was due to the "paving over" of these areas, not to some social structural change. Their populations were moved into adjacent subareas included in the 1970 high crime areas.

Finally, with respect to crime types it was found that in those clusters showing sharp increases in crime densities, the increases in offenses against persons typically lagged behind increases in property offenses. Notable, however, was the tendency for person offenses to rise with increasing rapidity as areas moved toward a heavily crime-impacted status.

CHAPTER V

NEIGHBORHOOD DETERIORATION AND CRIME: DESCRIPTIVE MEASURES

Presented to this point has been the evidence identifying those sectors of the County that may reasonably be characterized as its high crime areas. The aim of this chapter is to describe trends in crime and in community characteristics that reflect processes of neighborhood deterioration. The concern here is simply to chart the changes in neighborhood conditions and in crime as they moved in tandem through two decades in communities which, at the terminal date of 1970, constituted the high crime areas of one highly urbanized region. The variables selected to represent neighborhood conditions are those whose changes capture the process of deterioration in its social as well as its physical manifestations. These changes are here considered to be those that reduce the residential desirability of a neighborhood from the perspective of its inhabitants. Our opportunity to compare 20-year changes in neighborhood conditions among the county's 10 highest crime areas with those of the county's 10 lowest crime areas is provided in Appendix A.

For purposes of description, change will be rendered here quite simply as percentage increases or decreases within crime areas in selected variables across the time points of 1950, 1960, and 1970 in their concentration or density per square mile and in their distribution or rate per unit of appropriate population. In addition, use will be made of the demographer's "unit share" measure. The unit share measure provides a means of standardizing changes in an area's characteristics to changes in the same characteristics that have occurred countywide. It is expressed as the "share" or percentage of any given neighborhood feature, e.g., crime, residential mobility, labor force in the unskilled occupations, etc., in the county that exists at a given time point in some specified areal unit. The unit share measure provides a means of determining whether a particular change has differentially affected any given crime area.

In this as well as in the chapter that follows, the data are presented in two forms. First, all measures are provided for the ten highest crime density clusters in 1970 that constituted the county's high crime areas. As noted earlier, beyond the first ten clusters on the crime density measure, there was a steeply declining gradient, such as to indicate an extraordinary degree of concentration of offense activity in the top ten clusters. For example, of the 1142 census tracts in Los Angeles County, the 214 tracts, or 19 percent of the total, of which the ten clusters were constituted, recorded in 1970 34.6 percent of the county's 10-17 year old group cited for prosecutable crimes, with a mean square mile density of 73 for the single year of 1970.

A second form of data presentation, to be employed as well in the analytic chapter that follows, reassembles the data of the ten clusters in order to examine trend differences for sets of census tract clusters at different stages of development as high crime areas.

Data presented earlier have disclosed three distinct patterns of increase in crime during the 1950-1970 period. Among the ten high crime density census tract clusters in 1970 were, first, those that were uniformly highest at the three time points of 1950, 1960, and 1970; those that increased only slightly between 1950 and 1960, but with an accelerated rise between 1960 and 1970, and those that underwent a slow but steady increase over the two-decade period. Clusters with these distinctive patterns of increase were identified by examining the proportion of census tracts in the 1970 highest density census tract clusters that were included in the 1950 and the 1960 highest crime density census tract clusters. The distribution of these proportions was shown in Table 4.14.

With respect to the historical development of high crime areas, this distribution identifies census tract clusters in 1970 that were at distinguishable stages of their development as high crime areas. None of the tracts in three of the 1970 clusters (3, 7, and 8) were included in the 1950 highest crime clusters, although somewhat increased proportions of tracts in the 1960 clusters were. Hence, by 1970, these three clusters were, so to speak, relatively new arrivals as high crime areas, which we shall here designate as in the early, or emerging, stage in their development. At the opposite extreme of the developmental cycle were three other 1970 clusters (1, 2, and 9). These clusters included 97.9, 76.9, and 80.0 percent of the tracts in the 1950 high crime clusters, respectively. The high percentages of inclusion persisted for the 1960 high crime clusters, where the corresponding percentages were 95.8, 76.9, and 80.0. By 1970, these clusters represented high crime areas of substantial duration, in which criminal activity had become a stable or enduring feature, representing the final stage in the cycle of development. We designated these as enduring crime areas. Finally, differing from each of these two sets of clusters was a third set (4, 5, 6, and 10). This set appears to be at an intermediate, or transitional, stage of development as a high crime area. The proportion of census tracts in these four 1970 high crime clusters present in the 1950 high crime clusters was 18.8, 40.0, 29.6, and 25.6 percent, respectively. By 1960, these percentages ranged from 100.0 percent in Clusters 4 and 5, to 70.4 and 76.7 percent in Clusters 6 and 10. In other words, the crime density measure was already moderately high by 1950 in a large proportion of the tracts constituting the 1970 clusters, and in an even larger proportion of these tracts by 1960. This would indicate that the neighborhoods represented by these four 1970 clusters were in a state of slow but steady transition toward stabilization as a high crime area during the preceding two decades.

However, a distinction may be made between a transitional and a stabilized high crime area. By virtue of having been established as a high crime area over a longer period of time, the latter may be expected to exhibit an entrenchment of criminal behavior patterns, such as may enter into collectively supported practices among juvenile and young adult males. These areas are likely to be similar to those designated "delinquency areas" in the early ecological studies of the Chicago school. Developmental progression from emergence through transition to stabilization is thus essentially defined by movement toward an increasing ecological segregation of criminal activity patterns. The question to be raised is whether such development is accompanied by definable patterns of change in their land use characteristics, and in the demographic, socioeconomic, and subcultural features of their populations.

With these observations, we may now move to examine the long-term transformations in the crime and structural characteristics of the three classes of areas in order to identify the variables in each of the domains of neighborhood structure that may be differentially patterned.

A. Concentration and Distribution

1. Crime. Because standard crime report data were not available for the 1950 and 1960 time points, juvenile prosecutable crimes against property and persons (petitions alleging misdemeanor and felony offenses) are used as surrogate measures. The very high and consistent relationship of the areal distribution of these measures with the distribution of adult crime has been described in an earlier section of this report. The data on juvenile offenses for the ten highest density 1970 census tract clusters during the preceding 20-year period are presented for clusters representing the three stages in the development of high crime areas, as will be the case as well in the presentation of neighborhood structural variables.

The concentration, distribution, and unit share measures of crime for the three classes of clusters at the 1950, 1960, and 1970 time points are presented in Tables 5.1 through 5.9. Total prosecutable, property and person offenses are presented in separate tables. Table 5.10 provides summary measures of percentage changes in these variables between 1950 and 1970.

While increases in both the density and rate of total prosecutable offenses occurred in census tract clusters at each of the three stages of development, they were highest in those at the emerging stage, lowest in clusters representing the enduring high crime areas, and intermediate for clusters in the transitional stage. These distinctions hold as well when total prosecutable offenses are disaggregated into their constituent elements of property and person offenses. The gradient of declining increase across classes of clusters deviates with

Table 5.1. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Prosecutable Offenses, Emerging High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
3	50	6.20	5.65	.62	.55
	60	14.98	8.21	.92	.54
	70	67.30	68.80	3.09	1.81
7	50	.78	1.11	.25	.34
	60	8.96	6.83	.78	.45
	70	50.19	54.30	2.37	1.85
8	50	1.75	3.19	.17	.28
	60	5.29	4.87	.43	.40
	70	48.10	38.00	3.21	1.42

Table 5.2. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Property Offenses, Emerging High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
3	50	2.83	2.70	.31	.28
	60	12.37	7.21	.76	.49
	70	22.10	22.90	.99	.80
7	50	.68	.98	.20	.28
	60	7.84	6.87	.67	.46
	70	12.33	14.60	.57	.41
8	50	.69	1.30	.07	.14
	60	4.77	4.67	.39	.38
	70	18.40	17.40	1.18	.66

Table 5.3. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Person Offenses, Emerging High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
3	50	.00	.00	.00	.00
	60	.10	.29	.01	.02
	70	9.01	16.90	.31	.49
7	50	.03	.07	.03	.06
	60	.03	.07	.01	.03
	70	5.44	9.93	.27	.48
8	50	.00	.00	.00	.00
	60	.00	.00	.00	.00
	70	7.38	5.42	.53	.33

Table 5.4. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Prosecutable Offenses, Enduring High Crime Areas, 1970, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
1	50	15.50	11.10	1.11	.74
	60	27.50	23.30	1.35	.70
	70	130.30	88.60	5.19	1.80
2	50	13.00	8.80	.82	.52
	60	20.90	13.74	1.07	.60
	70	74.35	52.10	2.39	.86
9	50	22.40	15.30	1.20	.69
	60	18.30	7.22	1.03	.52
	70	50.80	31.99	2.50	1.23

Table 5.5. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Property Offenses, Enduring High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
1	50	6.90	6.06	.52	.49
	60	2.17	2.16	1.05	.64
	70	59.70	40.30	2.40	.90
2	50	5.48	4.90	.38	.29
	60	14.10	10.90	.69	.46
	70	23.50	16.90	.78	.36
9	50	8.82	6.04	.51	.33
	60	9.84	5.33	.59	.41
	70	15.30	11.64	.93	.87

Table 5.6. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Person Offenses, Enduring High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
1	50	1.97	3.12	.13	.18
	60	.87	2.29	.05	.13
	70	26.20	21.80	1.01	.52
2	50	1.67	3.00	.11	.19
	60	.30	.84	.03	.06
	70	6.93	6.56	.21	.14
9	50	2.68	4.20	.15	.21
	60	.37	.97	.03	.10
	70	7.79	7.62	.36	.35

Table 5.7. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Prosecutable Offenses, Transitional High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
4	50	8.99	5.56	.99	.75
	60	15.38	14.55	1.14	.87
	70	86.05	42.40	4.24	1.51
5	50	4.95	3.60	.51	.35
	60	17.80	7.89	1.40	.70
	70	99.59	26.05	4.33	.78
6	50	4.36	4.23	.40	.35
	60	11.30	11.29	.85	.79
	70	84.30	37.60	3.91	1.30
10	50	2.41	2.86		
	60	7.24	5.13	.67	.48
	70	39.50	28.80	2.35	1.13

Table 5.8. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Property Offenses, Transitional High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
4	50	4.90	5.05	.56	.78
	60	11.73	13.35	.83	.70
	70	34.49	20.00	1.72	.83
5	50	3.25	3.04	.34	.31
	60	15.40	7.83	1.20	.65
	70	45.01	11.78	1.96	.34
6	50	2.49	3.13	.23	.27
	60	7.39	7.90	.56	.57
	70	37.30	18.00	1.71	.62
10	50	1.65	2.29	.29	.38
	60	5.64	3.67	.54	.39
	70	16.30	14.70	.84	.62

Table 5.9. Mean Concentration and Distribution Measures, 1950-1970, Juvenile Person Offenses, Transitional High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Cluster	Year	Square Mile Density		Rate	
		M	SD	M	SD
4	50	1.09	2.50	.10	.24
	60	.69	1.45	.06	.14
	70	15.02	10.60	.72	.45
5	50	.53	1.09	.05	.11
	60	.78	1.23	.07	.11
	70	14.82	6.89	.64	.24
6	50	.26	.93	.02	.08
	60	.20	.75	.01	.05
	70	16.20	9.79	.74	.40
10	50	.34	.82	.09	.24
	60	.06	.27	.00	.02
	70	5.04	5.76	.29	.27

Table 5.10. Percent Change in Mean Concentration and Distribution of Juvenile Prosecutable Offenses, 1950-1970, by Stages of Development as High Crime Areas, Los Angeles County*

Stage	Property		Person		Total Prosecutable	
	Density	Rate	Density	Rate	Density	Rate
Emerging	594.5	377.7	**	**	1651.0	705.7
Transitional	896.0	303.1	1975.3	663.1	1282.9	404.7
Enduring	535.9	270.9	836.0	470.7	538.0	287.7

*Weighted means are used in all summary tables.

**Virtual absence of person offenses for 1950. Mean weighted density for 1970 was 7.48; mean weighted rate was .38.

respect to property offenses, with clusters at the transitional stage of development showing a larger percentage increase between 1950 and 1970 than those at the emerging stage. However, the rate measure, calculated from the denominator of the 10-17 year age group, exhibits consistently larger percentage increases in association with the recency of establishment of the class of clusters as high crime areas. These data provide empirical validation of the typology here employed to differentiate classes of high crime areas on the basis of the postulated cycle of development.

Similar descriptive measures and their changes across the two-decade period have been developed for the variable of land use, and of the demographic, socioeconomic, and subcultural variables characterizing the populations residing in the three classes of clusters.

2. Land use. Concentration and distribution measures of land use variables are presented in Tables 5.11 through 5.16. Table 5.17 provides summary measures of percentage changes in rates of each variable between 1950 and 1970; Table 5.18 presents the same measures for density. Trends in housing characteristics indicate that the sharpest changes occurred in the emerging high crime areas, where the largest decline in owner-occupied housing took place, as well as the greatest increase in renter-occupied housing. A similar difference in trend is evident in the character of housing structures. The rate of single housing units declined more precipitously in the emerging high crime areas than in the other two classes of clusters, to be replaced by a greater increase in the rate of multiplex and apartment housing. On the other hand, the shift to commercial and industrial land use was, on the whole, more prominent in the clusters at the transitional and enduring stages of development as high crime areas. This suggests that change in land use with respect to home ownership and the character of residential structures may have been more predictive in Los Angeles County of potential rise in crime than those respecting conversion to commercial and industrial use.

Perhaps the clearest distinction with respect to land use that may be drawn between areas at the three stages of development as high crime areas is the status of each in a parallel cycle of urban land use development. The cycle defines a process of aging, or maturation, in which initially vacant land in an urban subarea is successively used for single family residential units, multiple dwelling units, e.g., apartment houses, with commercial and industrial land use characterizing the final two stages in the maturation cycle. In time, the cycle tends to be re-initiated through land clearance activity and urban renewal (Hoover and Vernon, 1962). Because of cost and other economic problems as well as the population mobility and displacement involved in land use change, the stages in the cycle typically overlap. Earlier types of land use give way slowly to the encroachments of each succeeding stage.

Table 5.11. Mean Square Mile Density, 1950-1970, Selected Land Use Variables, Enduring High Crime Areas, 1970, Los Angeles County

Cluster	Year	Owner Occ. Housing		Renter Occ. Housing		Single Units		Multiplex Housing		Apartment Housing		Commercial Parcels		Industrial Parcels		Traffic Generators	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1	50	1815	742	2396	1438	1382	568	619	476	65	121	133	76	67	95	4	5
	60	1463	489	2703	1463	1517	649	757	642	76	125	151	82	77	106	4	5
	70	1235	458	2564	1342	1540	662	869	727	87	136	166	91	86	122	6	7
2	50	1641	588	2716	1753	1067	507	1045	1097	162	246	134	98	28	65	7	12
	60	1458	538	2850	1805	1151	563	1127	1045	186	299	144	102	35	79	8	15
	70	1319	545	3177	1954	1185	596	1470	1226	289	333	166	115	42	95	10	18
9	50	1433	822	2350	875	734	451	734	548	86	157	122	50	72	111	12	17
	60	1458	538	2850	1805	1151	563	1127	1045	186	299	144	102	35	79	15	20
	70	1037	608	2311	938	776	479	920	694	96	163	156	61	99	141	17	23

Table 5.12. Mean Square Mile Density, 1950-1970, Selected Land Use Variables, Emerging High Crime Areas, 1970, Los Angeles County

Cluster	Year	Owner Occ. Housing		Renter Occ. Housing		Single Unit		Multiplex Housing		Apartment Housing		Commercial Parcels		Industrial Parcels		Traffic Generators	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
3	50	1853	429	1969	1353	1753	477	813	565	186	331	151	86	20	29	0.1	0.3
	60	1953	421	2990	1480	1930	509	1277	896	278	346	161	90	23	34	0.2	0.4
	70	1655	523	3745	1743	1948	516	1930	1534	641	578	177	99	24	34	1.0	2.1
7	50	1266	783	609	649	1169	644	307	381	79	117	80	58	26	41	1.3	1.3
	60	1438	558	1579	1095	1503	681	601	489	205	173	92	68	33	48	2.1	2.2
	70	1400	481	2279	1591	1588	682	777	601	451	400	99	70	35	51	3.4	3.2
8	50	2235	271	2060	678	1397	361	751	391	68	77	185	62	24	23	1.4	1.7
	60	2059	319	2789	526	1410	363	911	430	131	76	212	75	32	31	2.3	3.0
	70	1717	292	3330	939	1412	363	1061	502	208	117	230	82	33	31	3.2	2.5

Table 5.13. Mean Square Mile Density, 1950-1970, Land Use Variables, Transitional High Crime Areas, 1970, Los Angeles County

Cluster	Year	Owner Occ. Housing		Renter Occ. Housing		Single Units		Multiplex Housing		Apartment Housing		Commercial Parcels		Industrial Parcels		Traffic Generators	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
4	50	1767	589	4322	1698	1054	510	1279	743	751	771	184	79	32	61	4	6
	60	1465	569	4498	1533	1087	500	1386	801	936	1002	190	83	34	64	5	7
	70	1208	582	4578	1795	1097	502	1598	893	1092	1089	203	89	36	71	7	9
5	50	2305	667	2214	647	2144	659	778	304	65	90	195	71	38	49	2	3
	60	2385	525	2099	705	2151	661	819	304	87	110	202	73	39	49	3	3
	70	2111	538	2286	676	2156	661	868	349	97	135	211	77	42	52	4	4
6	50	2179	547	1819	1029	2010	987	868	852	103	172	215	89	18	25	1	3
	60	2073	441	2346	1166	2049	1018	1129	1017	208	274	232	93	23	33	2	3
	70	1783	559	2866	1415	2061	1019	1337	1112	364	563	249	101	24	34	3	4
10	50	927	827	356	370	1017	764	96	145	9	26	44	48	10	18	1	2
	60	1649	669	662	616	1633	672	205	274	62	109	53	54	14	24	2	3
	70	1666	567	986	948	1744	619	258	328	136	201	63	58	21	39	6	6

Table 5.14. Mean Rates, 1950-1970, Selected Land Use Variables Enduring High Crime Rate Areas, 1970, Los Angeles County

Cluster	Year	Owner Occ. Housing		Renter Occ. Housing		Single Units		Multiplex Housing		Apartment Housing		Commercial Parcels		Industrial Parcels		Traffic Generators	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1	50	48.3	18.0	53.5	16.0	70.6	22.3	26.7	19.3	2.7	4.6	6.5	5.3	3.5	6.5	0.2	0.3
	60	39.3	17.6	60.7	17.6	67.4	23.0	29.7	20.4	2.9	4.4	6.7	5.3	3.7	6.7	0.2	0.3
	70	34.5	15.3	63.4	17.2	65.1	23.7	31.8	21.2	3.1	4.4	7.1	5.6	3.9	7.4	0.6	2.0
2	50	43.9	16.1	56.1	16.1	54.4	25.3	40.6	19.7	5.0	6.7	6.6	4.5	2.0	4.9	0.5	0.9
	60	39.4	17.7	60.6	17.7	52.8	25.3	42.0	19.5	5.1	7.2	6.7	4.5	2.2	5.0	0.5	1.0
	70	34.6	16.3	65.4	16.3	48.3	25.4	43.7	19.3	7.9	7.2	7.2	4.6	2.5	5.8	0.3	0.6
9	50	34.1	15.0	65.9	15.0	42.9	17.2	39.2	18.3	18.0	28.9	8.2	2.9	10.9	17.3	2.4	4.9
	60	30.6	14.1	69.4	14.1	41.9	17.2	40.7	18.8	17.5	28.4	8.7	3.4	11.9	18.4	2.6	5.4
	70	28.4	12.4	71.6	12.4	39.6	17.0	43.2	19.1	17.2	27.8	9.6	4.1	12.3	18.9	2.8	5.9

Table 5.15. Mean Rates, 1950-1970, Selected Land Use Variables Emerging High Crime Areas, 1970, Los Angeles County

Cluster	Year	Owner Occ. Housing		Renter Occ. Housing		Single Units		Multiplex Housing		Apartment Housing		Commercial Parcels		Industrial Parcels		Traffic Generators	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
3	50	58.8	18.5	46.2	18.5	67.4	19.3	26.9	14.6	5.8	8.6	5.6	2.9	0.7	1.1	0.01	0.0
	60	42.8	15.8	57.2	15.8	59.6	20.6	32.8	17.2	7.7	8.2	5.2	2.7	0.7	1.1	0.01	0.0
	70	33.7	15.4	66.3	15.4	51.2	24.2	35.9	19.1	12.9	9.3	5.4	2.8	0.7	1.1	0.01	0.0
7	50	70.4	9.4	29.6	9.4	79.1	12.4	15.8	14.3	5.1	7.8	4.7	2.6	2.1	3.3	0.1	0.1
	60	53.9	16.2	46.1	16.2	68.5	12.4	23.6	13.3	7.9	4.5	4.3	2.8	2.0	3.0	0.1	0.1
	70	43.1	17.5	56.9	17.5	59.4	12.4	25.7	13.0	14.9	8.5	4.3	2.8	2.0	3.0	0.2	0.2
8	50	53.1	8.9	46.9	8.9	63.9	11.0	33.4	10.6	2.6	2.9	7.4	2.7	0.9	0.9	0.1	0.1
	60	42.6	5.2	57.4	5.2	58.0	12.9	36.8	11.9	5.2	2.1	8.1	2.9	1.2	1.1	0.1	0.1
	70	35.0	5.8	65.0	5.8	53.3	12.5	39.1	12.8	7.5	3.8	8.5	3.1	1.2	1.1	0.1	0.1

Table 5.16. Mean Rates, 1950-1970, Selected Land Use Variables, Transitional High Crime Areas, 1970, Los Angeles County

Cluster	Year	Owner Occ. Housing		Renter Occ. Housing		Single Units		Multiplex Housing		Apartment Housing		Commercial Parcels		Industrial Parcels		Traffic Generators	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
4	50	30.3	11.5	69.7	11.5	38.0	20.3	39.4	12.9	22.6	17.1	8.9	5.7	1.9	4.9	0.3	0.4
	60	25.4	11.1	75.1	11.9	36.6	20.7	39.1	13.5	24.3	18.5	8.7	4.8	2.0	4.9	0.3	0.4
	70	21.0	11.5	75.9	17.5	33.7	21.0	40.6	14.0	25.7	19.6	8.9	4.7	2.0	5.3	0.4	0.6
5	50	48.7	12.4	46.5	8.7	70.6	12.9	27.4	12.7	2.0	2.6	6.3	2.8	1.2	1.6	0.1	0.1
	60	53.8	12.8	46.2	12.8	69.3	13.0	28.0	12.5	2.7	3.1	6.5	2.9	1.2	1.6	0.1	0.1
	70	48.5	12.4	51.5	12.4	68.2	14.1	29.0	13.5	2.9	3.6	6.7	2.9	1.3	1.7	0.1	0.1
6	50	55.0	18.0	40.6	14.3	69.0	22.1	27.7	19.6	3.2	5.1	6.8	3.3	0.6	0.8	0.04	0.1
	60	50.0	17.4	50.4	17.5	62.8	22.2	31.6	18.8	5.6	6.7	8.0	3.4	0.7	1.0	0.1	0.1
	70	41.8	18.9	58.2	18.9	58.3	23.6	33.4	19.0	8.2	10.7	8.3	3.5	0.8	1.0	0.1	0.1
10	50	64.6	23.4	31.8	19.7	87.6	21.6	7.2	9.3	0.6	1.5	5.2	6.6	1.1	1.8	0.1	0.3
	60	73.3	15.3	26.9	15.5	86.6	14.3	10.4	11.5	3.0	4.7	2.8	2.6	1.0	2.0	0.1	0.2
	70	67.4	18.4	32.3	18.3	83.4	18.0	11.0	11.8	5.7	7.5	3.0	2.6	1.3	3.0	0.3	0.4

Table 5.17. Percent Change in Mean Rate, 1950-1970, Selected Land Use Variables by Stages of Development as High Crime Areas, Los Angeles County

Stage	Number of Census Tracts	Owner Occ. Housing	Renter Occ. Housing	Single Units	Multiplex Housing	Apartment Housing	Commercial Parcels	Industrial Parcels	Traffic Generators
Emerging	26	-23.2	21.3	-15.2	8.1	7.1	0.2	0.1	0.0
Transitional	112	-4.8	6.3	-5.6	3.3	4.1	-0.7	0.2	0.1
Enduring	76	-11.4	9.0	-5.2	4.5	0.6	1.7	0.6	0.2

Table 5.18. Percent Change in Density, 1950-1970, Selected Land Use Variables by Stages of Development as High Crime Areas, Los Angeles County

Stage	Number of Census Tracts	Owner Occ. Housing	Renter Occ. Housing	Single Units	Multiplex Housing	Apartment Housing	Commercial Parcels	Industrial Parcels	Traffic Generators
Emerging	26	-11.5	96.2	13.1	101.2	278.1	21.4	30.8	121.5
Transitional	112	.01	29.2	22.3	40.3	85.2	16.1	34.6	176.6
Enduring	76	-29.2	7.3	10.7	37.4	69.9	25.2	32.2	45.4

The work of B. Duncan et al. (1962) and the refinements of these earlier efforts by Schuerman et al., (1974) reduced this process to measurable form through creation of an urban development index. In this method, development index values are assigned to census tracts based on the earliest date at which any given form of land use occurred. The areas of first development are accorded the lowest index value, and consist of those in which commercial land use was fully developed before 1940. Correspondingly, the areas of latest development, those in which no urban land use had yet occurred by 1970, i.e., vacant land, are accorded the highest rank index value of 27.

Table 5.19 presents the urban development median weighted index rank of each of the ten high crime density census tract clusters, and for those constituting each stage in their development cycle. The most advanced in maturation were the clusters constituting the enduring high crime areas, with a median index rank of 17.0. Both the transitional and emerging areas were less advanced, with median index ranks of 21.5 and 20.4, respectively. If cluster 10 in the transitional area group of clusters is removed (a substantial segment of the cluster was still agricultural land in 1950) its median weighted index value falls to 18.6. Briefly, then, the clusters with the highest crime density over the longest time span were located in areas most advanced in the urban development cycle of land use.
Table 5.19

3. Demographic variables. Tables 5.20 through 5.22 provide the concentration data for the variables of population size, unrelated individuals, non-intact families (widowed, divorced, and separated), and residential mobility. Distribution data are provided for the variables of residential stability, youth dependency, and median age in Tables 5.23 through 5.25. Trends in those variables for which density and rate estimates were possible are summarized in Tables 5.26 and 5.27.

Evident there is the fact that percentage increases in rates of defamilized individuals and of non-intact families were highest in the emerging high crime areas, with a declining gradient in percentage increase in rate for the transitional and enduring areas. Similarly, the largest percentage decline in the rate of residential stability was found in the emerging areas. On the other hand, the percentage increase in the youth dependency ratio (0-17/18-64) was greatest in the enduring, or stabilized, high crime areas and least in the emerging areas. A similar shift is evident in the much larger decline in median age in both the transitional and the enduring than in the emerging high crime clusters. In brief, the major demographic changes differed in clusters at different stages of development as high crime areas. Those at the emerging stage lost familized individuals, intact families, and stable residents more rapidly than occurred in the more advanced stage areas. The latter underwent a more decisive shift in the age structure of their populations in the direction of higher ratios of younger persons.

Table 5.19. Median Index Rank of Urban Development for High Crime Density Census Tract Cluster and by Stages of Development as High Crime Areas, 1970 Areal Cohorts, Los Angeles County

	Cluster	Median Index Level
Enduring Stage	1	16.5
	2	20.0
	9	16.0
		17.0*
Transitional Stage	4	20.0
	5	16.0
	6	18.0
	10	26.0
		21.5*
Emerging Stage	3	19.0
	7	23.0
	8	20.0
		20.4*

* Weighted median index value

Table 5.20. Mean Square Mile Density, 1950-1970, Selected Demographic Variables, Enduring High Crime Areas, 1970, Los Angeles County

		Population		Unrelated Individuals		Widowed and Divorced		Residential Mobility	
Cluster	Year	M	SD	M	SD	M	SD	M	SD
	50	14,368	5744	1521	1313	1607	1006	1010	419
1	60	14,480	4947	*		1549	817	**	
	70	12,800	4530	1434	910	1543	778	3549	1670
	50	15,426	7233	1039	844	1504	921	811	274
2	60	15,339	6133	*		1389	746	**	
	70	16,472	6895	1211	854	1437	827	4447	2150
	50	14,085	5626	797	425	1353	590	997	366
9	60	13,276	5823	*		1176	554	**	
	70	12,328	5028	803	356	1130	480	2809	1329

*Data available inappropriate
**Measure is incomparable

Table 5.21. Mean Square Mile Density, 1950-1970, Selected Demographic Variables in Emerging High Crime Areas, 1970, Los Angeles County

		Population		Unrelated Individuals		Widowed and Divorced		Residential Mobility	
Cluster	Year	M	SD	M	SD	M	SD	M	SD
	50	11,301	3147	983	807	1162	591	1175	965
3	60	14,105	3802	*		1586	649	**	
	70	14,273	4367	2405	1126	1723	478	4511	2078
	50	5,810	3890	304	299	456	449	891	575
7	60	9,992	5283	*		760	467	**	
	70	11,319	5103	1233	863	1106	583	3740	2198
	50	12,206	1412	966	381	1327	442	872	321
8	60	12,437	1606	*		1670	347	**	
	70	12,422	2942	2669	557	1830	541	3716	1467

*Data available inappropriate
**Measure is incomparable

Table 5.22. Mean Square Mile Density, 1950-1970, Selected Demographic Variables, Transitional High Crime Areas, 1970 Los Angeles County

		Population		Unrelated Individuals		Widowed and Divorced		Residential Mobility	
Cluster	Year	M	SD	M	SD	M	SD	M	SD
	50	16,418	3639	3281	1804	2805	834	1089	388
4	60	15,575	3281	*		2381	626	**	
	70	16,005	3865	2992	1239	2248	663	5570	2319
	50	12,942	1815	1391	355	1866	423	866	226
5	60	12,945	2039	*		1744	373	**	
	70	13,591	1736	1455	269	1665	263	4078	980
	50	11,965	2350	958	427	1365	465	933	312
6	60	12,289	2439	*		1550	484	**	
	70	13,613	2652	1598	658	1567	473	4074	1569
	50	4,212	3578	167	184	281	299	912	884
10	60	7,848	2829	*		497	356	**	
	70	8,901	3164	578	478	677	398	2190	1274

*Data available are inappropriate
**Measure is incomparable

Table 5.23. Mean Rates, 1950-1970, Selected Demographic Variables, Enduring High Crime Areas, 1970, Los Angeles County

		Unrelated Individuals		Widowed and Divorced		Residential Stability		Youth Dependency		Median Age	
Cluster	Year	M	SD	M	SD	M	SD	M	SD	M	SD
	50	12.1	6.7	13.8	3.6	75.3	5.4	.51	.18	29.3	4.1
1	60	*		15.9	4.7	**		*		24.2	6.5
	70	16.7	7.6	17.9	5.3	73.1	6.6	.91	.28	22.7	5.7
	50	7.7	3.5	12.0	2.3	80.9	1.9	.51	.13	30.1	4.4
2	60	*		12.9	2.2	**		*		24.7	4.7
	70	10.2	4.2	12.3	2.6	73.0	5.6	.81	.24	22.4	4.0
	50	8.8	4.3	13.4	1.8	81.7	2.9	.58	.14	27.4	3.1
9	60	*		14.0	1.8	**		*		23.9	5.0
	70	10.7	4.4	14.5	3.8	77.3	6.9	.87	.32	22.9	4.1

*Data available are inappropriate
**Measure is incomparable

Table 5.24. Mean Rates, 1950-1970, Selected Demographic Variables, Emerging High Crime Areas, 1970, Los Angeles County

		Unrelated Individuals		Widowed and Divorced		Residential Stability		Youth Dependency		Median Age	
Cluster	Year	M	SD	M	SD	M	SD	M	SD	M	SD
3	50	10.2	5.6	12.7	2.9	74.4	3.8	.46	.07	28.7	10.0
	60	27.9	13.4	15.3	4.2	*		**		29.8	3.6
	70	23.1	8.9	16.2	2.3	68.8	9.4	.52	.16	27.2	3.4
7	50	6.7	2.6	9.5	2.2	74.9	3.7	.50	.12	26.0	11.4
	60	16.1	7.3	10.9	2.6	*		**		26.8	5.7
	70	14.9	5.8	15.0	3.1	67.9	8.8	.58	.20	27.7	5.4
8	50	9.4	2.6	12.7	2.7	78.8	5.4	.30	.06	38.5	3.3
	60	25.5	5.2	16.3	2.1	*		**		39.0	5.8
	70	21.1	3.0	18.5	2.9	70.7	7.1	.44	.06	32.9	5.4

*Residential stability measure is incomparable
**Data available are inappropriate for this measure

Table 5.25. Mean Rates, 1950-1970, Selected Demographic Variables Transitional High Crime Areas, 1970, Los Angeles County

		Unrelated Individuals		Widowed and Divorced		Residential Stability		Youth Dependency		Median Age	
Cluster	Year	M	SD	M	SD	M	SD	M	SD	M	SD
4	50	22.6	8.9	19.6	2.8	73.3	4.3	.24	.05	37.8	3.4
	60	*		19.4	2.8	**		*		32.4	3.4
	70	24.4	5.9	18.8	3.9	64.9	10.2	.53	.15	26.9	2.9
5	50	12.7	2.2	17.1	2.4	80.7	3.8	.30	.05	39.1	2.6
	60	*		18.0	2.1	**		*		32.3	3.6
	70	15.7	2.5	17.9	1.6	70.2	5.9	.75	.06	25.1	2.0
6	50	9.5	2.8	13.7	2.2	78.1	4.6	.35	.07	32.3	11.9
	60	*		16.5	3.1	**		*		33.9	7.5
	70	16.4	4.7	16.4	3.2	70.9	6.8	.70	.18	25.1	4.9
10	50	4.6	1.9	7.7	2.7	66.1	20.3	.61	.21	22.8	11.5
	60	*		8.9	3.3	**		*		26.4	6.5
	70										

*Data available are inappropriate
**Measure is incomparable

Table 5.26. Percent Change in Mean Rate, 1950-1970, Selected Demographic Variables, by Stages in Development as High Crime Areas

Stage	Number of Census Tracts	Unrelated Individuals	Widowed and Divorced	Residential Stability	Youth Dependency	Median Age
Emerging	26	124.8	42.4	-9.1	21.4	-5.8
Transitional	112	31.9	9.4	-5.4	78.9	-23.1
Enduring	76	31.6	14.1	-6.1	62.3	-21.7

Table 5.27. Percent Change in Mean Density, 1950-1970, Selected Demographic Variables, by Stages of Development as High Crime Areas, Los Angeles County

Stage	Number of Census Tracts	Population	Unrelated Individuals	Widowed and Divorced	Residential Mobility
Emerging	26	-8.2	173.2	54.9	305.4
Transitional	112	20.7	17.3	2.8	292.1
Enduring	76	-8.0	-1.9	-6.2	266.9

4. Socioeconomic variables. These included indicators of occupational status associated with income levels, employment status, educational level, and housing characteristics indexing poverty. Densities and rates of the variables are presented in Tables 5.28 through 5.33. Tables 5.34 and 5.35 provide a summary view of 20-year trends between 1950 and 1970.

Differential shifts are apparent in the occupational composition of the labor force in the three classes of crime areas. Expected declines overall in rates of those in the professional and skilled occupational categories were more pronounced in the transitional than in either the emerging or the enduring high crime areas. However, the decline in rates of both professional and skilled workers was greater in the emerging than in the enduring areas. As a complementary development, the percentage increase in the rate of semi-skilled and unskilled laborers was higher in the emerging than in the enduring crime areas. Rates of unemployment show virtually no change in any of the classes of high crime areas. But it should be cautioned that rates on this measure are likely to be affected by proportions counted as labor force participants, itself a variable for which measures were unobtainable.

Some indication of differences among classes of crime areas is found in the 20-year trend of density measures of Table 5.35. Square mile concentrations of the unemployed consistently declined between 1950 and 1970 in all three of the clusters constituting the enduring high crime areas (Table 5.28) while they rose in the emerging and in three of the four clusters of the transitional crime areas Tables 5.29 and 5.30). As suggested, the decline in unemployment density in the older established high crime areas is likely to be an effect of higher proportions of "discouraged" workers, those who have withdrawn from the labor market.

As to the remaining socioeconomic variables, rates of population with advanced education show a small increase in the emerging areas and a small decrease in the enduring areas. Here again, however, the density data suggest a more visible contrast in this respect between the emerging and enduring areas. In the former, the weighted mean density of population with advanced education increased 40 percent between 1950 and 1970, indicating a substantial degree of heterogeneity in its population. In the enduring areas, the mean density of population with advanced education declined by 49 percent.

Finally, housing measures showed higher increases of overcrowding in the enduring than in the emerging areas, but with the greatest rise in the transitional high crime areas. The rate of housing lacking plumbing declined over the 20-year period in all three categories of areas, but most extensively in the oldest crime areas. Speculatively, it is likely that the decrease there was an effect of growth in public and other forms of subsidized housing units.

Table 5.28. Mean Square Mile Density, 1950-1970, Selected Socioeconomic Variables, Enduring High Crime Areas, 1970, Los Angeles County

Cluster	Year	Professional Occupations M	Professional Occupations SD	Skilled Occupations M	Skilled Occupations SD	Semi- and Unskilled M	Semi- and Unskilled SD	Unemployment M	Unemployment SD	Pop. Adv. Education M	Pop. Adv. Education SD	Hsg. Lack Plumbing M	Hsg. Lack Plumbing SD	Housing Overcrowded M	Housing Overcrowded SD	Housing Turnover M	Housing Turnover SD
1	50	436	245	1315	623	3531	2050	739	491	236	173	738	541	862	442	*	
	60	231	121	915	322	2799	1052	643	278	130	86	120	164	952	538	201	108
	70	219	109	940	372	2024	812	472	200	101	77	57	71	802	370	281	155
2	50	820	446	1834	938	2657	1351	666	341	339	233	524	283	883	475	*	
	60	460	224	1461	552	2699	1207	518	298	217	136	117	162	980	493	164	112
	70	439	163	1711	702	3184	1563	380	235	217	138	111	116	1319	618	102	62
9	50	496	233	1535	657	2758	1202	602	257	174	101	673	398	991	457	*	
	60	310	213	1222	642	2437	1258	374	202	144	115	79	71	922	409	129	84
	70	290	179	1292	625	2200	1074	331	174	119	71	64	63	951	411	79	52

* Data unavailable

Table 5.29. Mean Square Mile Density, 1950-1970, Selected Socioeconomic Variables, Emerging High Crime Areas, 1970, Los Angeles County

Cluster	Year	Professional Occupations M	Professional Occupations SD	Skilled Occupations M	Skilled Occupations SD	Semi- and Unskilled M	Semi- and Unskilled SD	Unemployment M	Unemployment SD	Pop. Adv. Education M	Pop. Adv. Education SD	Hsg. Lack Plumbing M	Hsg. Lack Plumbing SD	Housing Overcrowded M	Housing Overcrowded SD	Housing Turnover M	Housing Turnover SD
3	50	738	160	1784	381	1624	702	371	220	357	81	284	239	414	189	*	
	60	728	260	2044	402	2338	1013	505	233	362	123	66	110	622	388	313	261
	70	1210	524	2465	996	2278	1014	578	250	790	363	49	92	608	377	289	174
7	50	529	516	1017	756	712	393	184	186	250	232	93	44	178	76	*	
	60	752	325	1403	538	1292	730	280	217	445	268	19	27	378	359	147	108
	70	899	248	1936	808	1753	1056	393	237	470	134	10	12	518	381	91	62
8	50	1833	372	2323	426	971	214	349	80	874	291	64	44	153	69	*	
	60	1368	296	2519	408	1474	527	362	96	861	210	25	36	182	119	232	165
	70	1250	299	2342	435	1986	682	465	152	802	231	26	32	294	221	196	116

* Data unavailable

Table 5.30. Mean Square Mile Density, 1950-1970, Selected Socioeconomic Variables, Transitional High Crime Areas, 1970, Los Angeles County

Cluster	Year	Professional Occupations M	Professional Occupations SD	Skilled Occupations M	Skilled Occupations SD	Semi- and Unskilled M	Semi- and Unskilled SD	Unemployment M	Unemployment SD	Pop. Adv. Education M	Pop. Adv. Education SD	Hsg. Lack Plumbing M	Hsg. Lack Plumbing SD	Housing Overcrowded M	Housing Overcrowded SD	Housing Turnover M	Housing Turnover SD
4	50	1412	387	3010	770	2916	1061	698	283	962	391	707	755	510	244	*	
	60	867	364	2076	576	3037	879	696	237	726	371	259	293	572	233	364	170
	70	796	457	2002	605	3269	914	573	219	534	398	163	196	807	426	367	183
5	50	1084	206	2692	385	1756	388	369	106	491	189	151	118	252	86	*	
	60	551	161	1782	330	2483	598	466	145	373	117	47	41	405	170	142	48
	70	492	122	1641	238	2498	505	504	111	259	70	31	42	563	186	208	75
6	50	968	496	2298	584	1710	747	370	150	435	307	182	174	324	195	*	
	60	715	516	1770	616	2087	833	434	209	397	361	31	31	453	327	216	116
	70	630	365	1808	650	2382	583	516	213	393	336	24	34	652	319	269	134
10	50	311	298	703	695	539	490	103	99	133	136	77	119	152	148	*	
	60	503	322	1210	618	1028	473	170	107	245	197.	19	32	282	212	78	73
	70	602	336	1398	566	1295	608	269	157	301	216	9	13	339	262	103	119

* Data unavailable

Table 5.31. Mean Rates, 1950-1970, Selected Socioeconomic Variables, Enduring High Crime Areas, 1970, Los Angeles County

Cluster	Year	Professional Occupations M	Professional Occupations SD	Skilled Occupations M	Skilled Occupations SD	Semi- and Unskilled M	Semi- and Unskilled SD	Unemployment M	Unemployment SD	Pop. Adv. Education M	Pop. Adv. Education SD	Hsg. Lack Plumbing M	Hsg. Lack Plumbing SD	Housing Overcrowded M	Housing Overcrowded SD	Housing Turnover M	Housing Turnover SD
1	50	7.6	3.5	23.9	9.5	56.9	10.2	11.4	3.4	2.8	1.4	17.2	10.7	22.2	9.1	*	
	60	4.7	2.5	18.6	6.1	54.5	5.9	*		1.9	1.2	3.5	5.2	23.9	10.6	4.9	2.4
	70	6.0	2.5	25.6	4.7	55.0	7.7	13.4	5.3	1.8	1.2	1.5	2.1	21.6	7.5	7.3	3.1
2	50	13.9	3.3	31.1	4.6	44.2	6.6	10.7	1.9	3.7	1.3	12.3	4.6	20.7	6.5	*	
	60	8.5	3.8	27.4	5.4	47.9	4.5	*		3.0	1.7	2.9	3.3	23.1	8.8	3.7	1.4
	70	8.5	3.3	31.0	5.0	54.2	5.8	6.3	2.1	3.2	2.7	2.2	1.9	29.4	7.1	2.5	1.3
9	50	9.2	3.8	28.1	5.7	51.4	6.9	11.3	3.1	2.7	1.9	19.0	9.1	26.7	7.2	*	
	60	6.6	2.7	27.0	6.5	51.9	5.8	*		2.2	1.5	2.7	1.7	26.0	7.0	4.8	4.0
	70	7.6	2.8	31.9	6.1	51.4	7.7	9.1	4.5	2.5	1.8	1.7	1.4	28.0	8.7	3.1	3.1

* Data unavailable

Table 5.32. Mean Rates, 1950-1970, Selected Socioeconomic Variables, Emerging High Crime Areas, 1970, Los Angeles County

Cluster	Year	Prof. Occupations M	Prof. Occupations SD	Skilled Occupations M	Skilled Occupations SD	Semi-and Unskilled M	Semi-and Unskilled SD	Unemployment	Unemployment SD	Pop. Adv. Education M	Pop. Adv. Education SD	Hsg. Lack. Plumbing M	Hsg. Lack. Plumbing SD	Housing Overcrowded M	Housing Overcrowded SD	Housing Turnover M	Housing Turnover SD
3	50	17.4	5.4	40.3	3.3	34.6	6.5	7.7	3.1	5.5	2.0	6.4	3.6	10.6	2.5	**	
	60	12.8	6.0	34.7	7.3	37.2	9.0	*		4.7	1.9	1.5	2.4	11.8	5.0	5.6	3.3
	70	18.9	6.5	37.8	5.9	34.3	8.9	9.0	3.3	10.3	4.5	0.81	1.4	11.1	8.5	5.1	2.3
7	50	19.2	4.6	41.4	1.2	32.5	5.3	6.9	1.2	6.3	1.5	6.6	3.6	12.7	5.2	**	
	60	18.8	4.5	35.5	5.8	20.2	4.3	*		8.2	1.8	1.0	1.5	11.3	6.8	4.6	2.0
	70	20.1	8.2	39.1	4.1	32.6	8.1	7.3	1.5	9.4	4.8	0.5	0.7	12.1	7.6	2.5	1.0
8	50	33.6	5.2	42.2	2.5	17.8	3.7	6.4	1.4	10.4	2.3	1.6	1.5	3.7	2.0	**	
	60	22.8	5.7	41.7	4.7	23.9	6.9	*		10.0	2.0	0.6	0.8	3.7	2.4	4.7	3.1
	70	21.1	4.4	39.1	3.2	32.3	6.4	7.6	1.3	10.4	2.5	0.6	0.8	5.7	3.4	3.7	1.6

**Data unavailable

Table 5.33. Mean Rates, 1950-1970, Selected Socioeconomic Variables, Transitional High Crime Areas, 1970, Los Angeles County

Cluster	Year	Prof. Occupations M	Prof. Occupations SD	Skilled Occupations M	Skilled Occupations SD	Semi-and Unskilled M	Semi-and Unskilled SD	Unemployment M	Unemployment SD	Pop.Adv. Education M	Pop.Adv. Education SD	Hsg. Lack. Plumbing M	Hsg. Lack. Plumbing SD	Housing Overcrowded M	Housing Overcrowded SD	Housing Turnover M	Housing Turnover SD
4	50	17.9	4.2	37.9	5.9	35.7	8.4	8.4	1.8	8.5	2.9	10.4	8.3	8.4	3.0	**	
	60	11.5	4.3	27.2	4.3	39.6	6.3	*		7.5	3.9	4.7	4.7	9.6	2.9	6.3	3.0
	70	11.8	5.7	30.1	4.2	49.5	8.1	8.6	2.3	6.5	5.1	2.6	3.1	13.4	5.7	6.1	2.5
5	50	18.6	3.9	45.7	1.6	29.6	4.0	6.1	1.2	5.5	2.2	3.1	2.2	5.4	1.4	**	
	60	9.7	3.3	31.1	5.7	42.5	6.6	*		4.7	1.3	1.2	1.3	8.9	3.3	3.1	0.9
	70	9.7	2.7	32.1	4.0	48.3	5.6	9.9	1.9	3.8	1.1	0.7	0.9	12.7	3.5	4.7	1.4
6	50	18.9	9.9	43.0	6.0	31.4	10.1	6.7	1.9	5.7	3.9	4.2	4.3	7.7	4.5	**	
	60	13.6	9.9	32.9	10.3	38.0	13.0	*		5.4	4.9	0.8	0.8	10.4	7.6	4.8	2.3
	70	11.9	7.5	33.3	6.5	45.1	9.5	9.7	3.9	5.7	5.6	0.6	0.7	14.2	6.5	5.8	2.9
	50	20.0	13.6	37.5	10.3	34.1	11.3	5.8	2.0	5.3	3.0	5.5	5.8	14.1	8.1	**	
	60	15.8	7.9	38.1	8.7	34.3	10.1	*		5.6	3.6	0.9	1.8	14.3	11.4	3.2	2.2
	70	17.1	7.7	38.8	6.4	36.7	10.5	7.4	2.4	7.9	4.4	0.4	0.5	13.3	9.1	3.4	2.6

**Data unavailable

Table 5.34. Percent Change in Mean Rate, 1950-1970, Selected Socioeconomic Variables, by Stages of Development as High Crime Areas, Los Angeles County

Stage	No. of Census Tracts	Prof. Occups.	Skilled Occups.	Semi-and Unskilled	Unemploy-ment	Pop. Adv. Education	Housing Lack. Plumbing	Housing Overcrowded	Housing Turnover
Emerging	26	-3.5	-2.7	4.9	1.1	2.7	- 4.1	0.7	-1.1*
Trans.	112	-5.1	-5.2	9.9	1.7	0.0	- 5.3	3.3	0.4*
Enduring	76	-2.3	1.8	0.5	0.0	-0.7	-15.1	1.4	1.0*

*1960-1970 change; 1950 data unavailable

Table 5.35. Percent Change in Mean Density, 1950-1970, Selected Socioeconomic Variables, by Stages of Development as High Crime Areas, Los Angeles County

Stage	No. of Census Tracts	Prof. Occups.	Skilled Occups.	Semi-and Unskilled	Unemploy-ment	Pop. Adv. Education	Housing Lack. Plumbing	Housing Overcrowded	Housing Turnover
Emerging	26	5.8	29.3	76.6	56.2	39.6	-80.5	31.3	-15.3
Trans.	112	-23.3	-12.1	38.5	20.8	-18.7	-80.0	86.5	14.7
Enduring	76	-47.3	-21.1	-30.1	-38.7	-48.5	-90.0	3.2	16.7

5. Subculture variables. Percentage increases in these variables in both concentration and distribution measures between 1950 and 1970 were greater in the emerging high crime area clusters for virtually all of these variables than in clusters at either of the other two stages of development (Tables 5.42 and 5.43). (See Tables 5.36 through 5.41 for detail of measures.) The declining gradient in rate change percentages from the emerging through the transitional to the enduring high crime areas deviated in the case of Black population, where the 1950-1970 increase in the transitional high crime areas exceeded that in the emerging areas. However, the gradient was preserved in respect to density, or concentration, with the highest percentage increase occurring in the emerging areas, the lowest in the established or enduring areas. The ratio of females to males in the labor force of the two ethnic minority groups again shows the more rapid increase in the emerging areas and the least rapid in the enduring areas. This measure is taken as an indicator, in part, of the extent to which families are likely to be female-headed, with its implications for both poverty and control of the conduct of the young.

Similarly, the emerging areas witnessed the greatest percentage increase in the non-white child/woman fertility ratio over the 1950-1970 period, although most of the increase occurred in the 1950-1960 decade (Table 5.44). For clusters in the more advanced stage of development the largest part of the two-decade increase also occurred during its first half. But it was in the newest high crime areas that the rise in the ratio of children to women in the fertile ages was steepest. Notable also is the contrast between the emerging and the enduring high crime areas in their respective trends in both the rate and density of minority group members with advanced education. Very large percentage rises in Black and Spanish surname populations with advanced education characterized only the emerging high crime areas, suggesting a degree of heterogeneity with respect to an element of subculture absent in the older crime areas. Finally, the overall trend picture that emerges from these data able is one of very rapid change in the emerging areas contrasting sharply with the relative stabilization of subcultural elements in the enduring high crime areas.

B. Unit Share Measures

1. Crime. Since they reflect most directly the major shifts in ecological patterns associated with the spatial distribution of crime, separate treatment is here given to trends in unit share measures. Base data on the share or proportion of the County's court petitioned juvenile offenses in its ten highest crime density 1970 clusters are presented in Table 5.45.

By 1970 the ten clusters, containing 214 or approximately 19 percent of the County's 1142 census subareas, recorded over one-third of the juvenile prosecutable offenses (Table 5.46).

Table 5.36. Square Mile Density, 1950-1970, Selected Subculture Variables, Enduring High Crime Areas, 1970, Los Angeles County

		Black Population		Spansur Population		Non-Wh.Fem. in Lab.Force		Spansur Fem. in Lab.Force		Non-Wh.Adv. Education		Spansur Adv. Education		Mexican For.Born		Status Offenses	
Cluster	Year	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
	50	8,520	7197	1674	1552	1432	1429	153	162	149	166	7	11	430	384	10	9
1	60	11,175	6363	1785	1814	1526	939	170	168	101	74	8	16	402	437	5	7
	70	10,426	5096	1135	2142	1289	673	122	234	80	73	3	9	594	817	29	19
	50	494	624	6084	3744	194	276	685	444	51	75	21	20	1525	1059	9	7
2	60	571	985	10,318	4200	326	319	1145	508	67	60	45	25	2384	1151	6	6
	70	318	399	12,560	5568	300	295	1552	776	96	91	67	48	4549	2218	36	28
	50	348	618	8148	4963	169	181	909	535	39	46	27	19	2023	1327	9	7
9	60	583	1404	9610	5461	193	186	1066	636	40	45	32	31	2618	1668	3	3
	70	360	903	9699	4466	172	176	1173	568	38	38	47	35	3698	1779	24	13

Table 5.3 *Mean Square Mile Density, 1950-1970, Selected Subculture Variables, Emerging High Crime Areas, 1970, Los Angeles County*

Cluster	Year	Black Population M	Black Population SD	Spansur Population M	Spansur Population SD	Non-Wht Fem. in Lab. Force M	Non-Wht Fem. in Lab. Force SD	Spansur Fem. in Lab. Force M	Spansur Fem. in Lab. Force SD	Non-Wht Adv. Education M	Non-Wht Adv. Education SD	Spansur Education M	Spansur Education SD	Mexican For. Born M	Mexican For. Born SD	Status Offenses M	Status Offenses SD
3	50	549	828	159	222	93	144	192	26.6	5	7	0.2	0.7	53	36	5	3
	60	1596	3023	1566	1319	266	480	162	113	20	29	16	20	208	262	5	8
	70	1845	3462	2710	1585	390	596	346	147	51	52	45	43	774	697	29	24
7	50	15	10	126	139	15	16	9	10	1	1	0	0	37	19	0.7	1.1
	60	1696	3481	989	1070	467	859	90	90	148	253	15	16	150	175	2	3
	70	2161	4558	1758	1954	684	1072	228	253	102	99	18	29	377	396	17	18
8	50	32	23	0	0	0	0	0	0	0	0	0	0	39	23	3	2
	60	2549	3059	369	195	655	801	63	29	271	309	8	10	61	71	2	2
	70	7447	4226	0	0	1939	1050	0	0	493	245	0	0	129	172	14	12

Table 5.38. Square Mile Density, 1950-1970, Selected Subculture Variables, Transitional High Crime Areas, 1970, Los Angeles County

Cluster	Year	Black Population M	Black Population SD	Spansur Population M	Spansur Population SD	Non-Wht Fem. in Lab. Force M	Non-Wht Fem. in Lab. Force SD	Spansur Fem. in Lab. Force M	Spansur Fem. in Lab. Force SD	Non-Wht Adv. Education M	Non-Wht Adv. Education SD	Spansur Education M	Spansur Education SD	Mexican For. Born M	Mexican For. Born SD	Status Offenses M	Status Offenses SD
4	50	2887	3472	733	799	762	918	134	146	203	252	12	19	358	219	8	8
	60	7666	4387	1710	1708	1968	940	301	323	403	269	27	26	516	524	2	5
	70	9760	5201	1978	3467	2115	1082	366	641	326	221	28	64	924	1243	20	11
5	50	110	234	188	377	19	57	35	71	3	11	7	14	168	90	6	6
	60	6525	2642	1399	411	1342	587	229	63	197	88	14	15	358	162	2	3
	70	11858	1884	116	349	2039	328	15	46	209	49	0	0	179	158	24	10
6	50	551	1220	222	453	93	232	25	53	12	29	2	5	147	126	4	4
	60	4781	4417	1064	687	830	720	141	79	109	123	7	11	188	118	1	2
	70	11096	3600	22	111	2000	721	2	11	269	258	1	5	188	182	20	11
10	50	222	923	63	149	34	142	4	9	6	29	0.1	0.8	23	31	2	2
	60	1271	2635	561	589	166	332	50	48	34	64	5	6	58	81	1	2
	70	3475	4580	415	764	562	749	38	66	68	91	2	6	117	172	13	8

Table 5.39. Mean Rates, 1950-1970, Selected Subculture Variables, Enduring High Crime Areas, 1970, Los Angeles County

Cluster	Year	Black Population		Spansur Population		Non-Wht Fem. in Lab. Force		Spansur Fem. in Lab. Force		Non-Wht Adv. Education		Spansur Education		Mexican For. Born		Status Offenses	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1	50	52.1	34.6	12.0	9.3	34.3	15.6	20.2	12.8	2.5	1.6	0.7	1.2	2.9	2.1	.64	.43
	60	73.7	26.5	13.7	13.8	38.1	9.9	30.1	16.6	2.0	1.5	3.0	12.1	3.1	3.6	.22	.24
	70	80.2	22.4	9.1	16.0	33.7	6.8	10.4	16.0	2.1	2.8	0.3	1.2	4.9	6.4	1.20	.56
2	50	2.8	2.8	38.9	17.4	20.0	20.4	32.4	5.0	3.6	3.8	0.8	0.8	9.4	5.3	.54	.41
	60	2.9	4.6	66.7	10.2	48.1	14.4	34.6	5.6	9.8	10.2	1.2	0.5	14.9	4.3	.23	.20
	70	1.8	2.1	75.0	6.8	44.3	12.2	36.8	5.6	9.8	8.6	1.5	1.1	26.5	3.0	1.10	.46
9	50	3.4	6.2	51.0	21.0	28.6	20.8	28.8	8.6	4.6	4.6	0.7	0.5	13.2	5.2	.60	.51
	60	7.2	17.5	65.4	21.5	44.9	21.7	32.6	4.2	5.9	6.3	0.7	0.6	18.1	6.6	.17	.20
	70	4.1	10.5	71.8	22.2	45.9	23.0	32.6	4.2	12.5	15.8	1.2	1.0	29.2	5.9	1.10	.65

Table 5.40. Mean Rates, 1950-1970, Selected Subculture Variables, Emerging High Crime Areas, 1970, Los Angeles County

Cluster	Year	Black Population		Spansur Population		Non-Wht Fem. in Lab. Force		Spansur Fem. in Lab. Force		Non-Wht Adv. Education		Spansur Education		Mexican For. Born		Status Offenses	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
3	50	3.9	5.7	1.1	1.5	13.0	19.9	13.5	16.6	0.4	0.6	0.4	1.3	0.5	0.2	.45	.23
	60	14.0	23.6	7.4	9.8	38.2	26.9	41.3	12.9	7.4	7.7	4.6	4.7	1.2	1.2	.25	.27
	70	9.6	17.7	18.2	7.4	57.9	15.7	42.8	6.3	10.6	7.8	4.1	4.1	4.8	3.4	1.40	.59
7	50	0.3	0.1	3.1	2.7	23.4	20.3	12.9	11.1	0.8	0.7	0	0	0.8	0.5	.10	.14
	60	8.3	16.6	8.7	5.7	46.3	20.6	39.4	15.1	8.9	4.7	4.8	3.1	1.4	1.0	.08	.13
	70	14.6	30.3	12.9	11.3	52.2	13.1	29.6	18.7	12.9	8.8	3.0	3.1	2.8	2.2	.87	.50
8	50	0.3	0.2	0	0	0	0	0	0	0	0	0	0	0.3	0.2	.28	.50
	60	19.5	24.1	2.9	1.2	58.6	40.0	44.0	12.1	19.6	18.6	3.4	4.6	0.4	0.5	.15	.15
	70	57.2	25.5	0	0	60.3	5.8	0	0	12.4	4.4	0	0	1.2	1.7	.90	.52

Table 5.41. Mean Rates, 1950-1970, Selected Subculture Variables, Transitional High Crime Areas, 1970, Los Angeles County

Cluster	Year	Black Population		Spansur Population		Non-Wht Fem. in Lab. Force		Spansur Fem. in Lab. Force		Non-Wht Adv. Education		Spansur Education		Mexican For. Born		Status Offenses	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
4	50	17.0	21.6	4.4	4.5	34.5	23.7	23.0	21.7	5.8	5.4	1.7	0.3	2.1	1.1	.84	.71
	60	48.4	26.9	11.0	10.2	55.6	9.6	44.3	15.6	7.9	4.1	4.0	5.2	3.3	3.0	.16	.36
	70	61.4	31.0	11.1	19.0	50.8	8.0	17.8	25.0	6.6	4.8	1.1	1.8	5.8	7.3	.98	.47
5	50	0.8	1.6	1.3	2.5	5.6	16.9	8.5	17.0	0.7	2.2	1.4	2.7	1.2	0.5	.55	.59
	60	48.6	16.2	10.8	2.6	53.0	5.3	47.1	7.1	5.7	2.2	2.3	2.3	2.8	1.1	.11	.20
	70	86.9	5.2	0.8	2.3	45.8	4.6	4.1	12.4	3.6	1.0	0	0	1.3	1.1	1.0	.39
6	50	4.3	9.9	1.8	3.5	6.8	16.5	7.0	13.1	0.6	1.3	0.4	1.0	1.1	0.9	.40	.34
	60	35.3	29.7	8.5	5.6	53.8	17.5	37.9	2.4	8.5	11.1	2.0	3.5	1.5	0.9	.11	.15
	70	80.2	18.5	0.2	1.0	49.6	10.3	1.1	5.8	6.0	6.3	0.4	2.0	1.3	1.3	.94	.36
10	50	3.3	13.3	2.1	3.7	5.1	12.9	5.0	9.1	0.3	1.3	0.1	0.5	0.7	0.7	.30	.45
	60	15.4	30.4	7.3	6.7	51.7	81.5	33.3	15.3	8.1	17.1	5.2	13.1	0.8	1.0	.13	.18
	70	34.3	40.0	5.0	8.6	42.5	17.3	13.2	18.2	9.7	9.6	0.9	2.0	1.3	1.9	.81	.48

Table 5.42. Percent Change in Mean Rate, 1950-1970, Selected Subculture Variables by Stages of Development as High Crime Areas

Stage	Number of Cen. Tracts	Black Population	Spansur Population	Non-Wht Fem. in Lab. Force	Spansur Fem. in Lab. Force	Non-Wht Adv. Education	Spansur Adv. Education	Mexican For. Born	Status Offenses
Emerging	26	25.7	9.2	45.9	15.8	11.5	2.2	2.5	265.2
Trans.	112	50.6	2.5	31.5	-1.0	4.5	0.0	1.3	81.1
Enduring	76	18.1	8.4	7.2	-4.7	2.4	0.0	7.3	89.1

Table 5.43. Percent Changes in Mean Density, 1950-1970, Selected Subculture Variables, by Stages in Development as High Crime Areas, Los Angeles County

Stage	Number of Cen. Tracts	Black Population	Spansur Population	Non-Wht Fem. in Lab. Force	Spansur Fem. in Lab. Force	Non-Wht. Adv. Education	Spansur Adv. Education	Mexican For. Born	Status Offenses
Emerging	26	1610.0	1494.1	2401.2	155.0	9831.5	*	912.3	585.9
Trans.	112	646.3	143.5	482.3	147.0	219.5	97.0	129.2	288.0
Enduring	76	17.2	29.2	-7.4	46.0	-32.0	69.6	102.1	203.3

* Zero frequency in 1950

Table 5.44. Weighted Non-White Fertility Ratio by Stages in the Development of High Crime Areas, 1950-1970 and Percentage Changes, 1970 Areal Cohorts, Los Angeles County

Stage	No. of Census Tracts	1950	1960	1970	Percent Change 1950-60	1960-70	1950-70
Emerging	26	37.5	53.1	49.7	41.6	- 6.6	32.5
Transitional	112	45.4	54.9	58.8	20.9	7.1	29.5
Enduring	76	51.2	68.2	56.2	33.2	-17.4	9.8

Table 5.45. Unit Share of Juvenile Offenses, 1950-1970, Ten Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, Los Angeles County

	1			2			3			4			5		
Offense Type	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Total Pros. Offenses	8.98	8.71	9.85	2.16	1.99	1.58	0.98	1.30	1.15	2.69	2.80	3.73	0.78	1.48	1.96
Property	7.83	9.35	13.21	1.72	1.66	1.47	0.89	1.44	1.04	2.61	2.84	4.35	0.89	1.69	2.61
Person	9.93	11.11	18.64	2.94	2.78	1.41	0.00	0.93	1.30	2.57	5.56	6.56	0.74	2.78	2.87
Juv. Status Offenses	7.65	8.30	5.95	1.88	2.81	2.03	0.97	1.83	1.36	3.94	2.25	2.29	1.15	0.70	1.21

	6			7			8			9			10		
Offense Type	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Total Pros. Offenses	1.71	2.36	4.37	0.41	0.93	0.82	0.20	0.39	0.84	5.96	2.71	1.87	3.96	6.56	7.62
Property	1.79	2.16	5.59	0.60	1.00	0.65	0.15	0.47	0.92	4.55	2.06	1.72	4.62	7.16	8.84
Person	0.75	1.85	8.02	0.37	0.93	0.65	0.00	0.00	1.30	6.25	3.70	2.98	4.78	1.85	8.69
Juv. Status Offenses	2.37	1.69	2.69	0.18	0.70	0.91	0.49	0.70	0.62	3.52	2.81	2.24	3.82	6.61	7.05

Table 5.46. Twenty-Year Trend in Unit Share of Juvenile Prosecutable Offenses, Ten Highest Crime Census Tract Clusters, 1970 Areal Cohorts, Los Angeles County

Juvenile Offenses	1950	1960	1970	% Change
Total Prosecutable	27.83	29.23	33.84	21.6
Property	25.65	29.83	40.40	57.5
Person	28.32	31.49	52.40	85.0
Status	25.97	28.40	26.35	1.5

The rise from approximately one-quarter of such offenses in 1950 bespeaks the increasing concentration of crime in these areas over the two-decade period. The tendency toward growing concentration is even more apparent in the trends of property and person offenses. From approximately one-quarter for each in 1950, property offenses in the ten clusters in 1970 accounted for two-fifths of such juvenile offenses in the County, and over one-half of its juvenile offenses against persons. On the other hand, these clusters retained about one-quarter of the County's recorded juvenile status offenses all through the 20-year period.

However, trends in the crime measure differed for clusters at different stages in their development as high crime areas (Tables 5.47 and 5.48). The sharpest contrast is that between the emerging and the enduring areas. There occurred an increase in the former of 71 percent in unit share of total prosecutable offenses, and a decline of approximately five percent in the latter. This suggests that the unit share increase for the ten clusters had to occur principally in the clusters at the emerging and transitional stages of development. The percentage increases in both total prosecutable and property offenses were highest in the transitional stage areas, while the largest percentage rise in person offenses occurred in the emerging areas. Person offenses there increased almost tenfold over the two-decade period. In brief, maximum change in unit share of juvenile offenses overall took place in the emerging stage areas, and minimum change in the old and established high crime areas. This finding draws attention to the possible role of a sharp increase in person offenses as a distinctive characteristic of emerging high crime areas.

2. Land use. The main 1950-1970 trend in unit share measures of land use variables in the ten high crime clusters further documents the process noted earlier of general decline regarding residential desirability as well as economic viability (Table 5.49). The downward trend in owner-occupied housing may have been expected to be associated with a rising trend in renter-occupied housing, but this was not the case.

Renter-occupied housing declined steadily from a unit share of 22.9 percent in the County in 1950 to 16.9 percent in 1970 (Table 5.50). This can be understood in the light of the net decline of all types of residential dwellings, including multiplex and apartment as well as single family dwellings. The trend was thus one of a loss of housing structures over the 20-year period. Unit share declines were similarly true for commercial and industrial units and for all such units of over 25,000 square feet, here labeled traffic generators.

The dynamics of land use change may be discerned in differences in trends for clusters at the several stages of development as high crime areas (Table 5.51). The largest percentage reductions between 1950 and 1970 in unit share for all

Table 5.47. Unit Share of Juvenile Offenses, 1950-1970, Ten Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, by Stages of Development as High Crime Areas

	Stage								
	Emerging			Transitional			Enduring		
Offense Type	50	60	70	50	60	70	50	60	70
Total Pros. Offenses	1.59	2.62	2.81	9.14	13.20	17.73	17.10	13.41	13.30
Property	1.64	2.91	2.61	9.91	13.85	21.39	14.10	13.07	16.40
Person	0.37	1.86	3.25	8.83	12.04	26.12	19.12	17.59	23.03
Juv. Status Offenses	1.65	3.23	2.89	11.28	11.25	13.24	13.05	13.92	10.22

Table 5.48. Percent Change in Mean Unit Share, 1950-1970, Juvenile Offenses by Stages in Development as High Crime Areas, Los Angeles County

Stage	Total Prosecutable	Property Offenses	Person Offenses
Emerging	71.4	60.8	1029.3
Transitional	88.4	104.0	162.7
Enduring	-4.9	45.6	57.4

Table 5.49. Unit Share of Land Use Variables, 1950-1970, Ten Highest Density Census Tract Clusters, 1970 and Cohorts, Los Angeles County

	Cluster														
	1	(130.27)*		2	(74.35)		3	(67.30)		4	(86.05)		5	(99.59)	
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Owner Housing	3.55	2.19	1.71	.90	.60	.52	1.00	.76	.62	1.80	1.06	.82	1.05	.78	.66
Rental Housing	5.08	4.04	2.95	1.44	1.07	.88	1.19	1.34	1.20	5.50	3.93	2.99	1.22	.83	.68
Res. Dwellings	2.89	2.23	2.02	.73	.56	.51	.97	.74	.66	1.12	.79	.71	1.04	.71	.63
Multiplex Dwel.	4.08	5.24	2.96	1.66	2.30	1.12	1.32	1.84	1.53	4.76	6.40	2.99	1.31	1.18	.74
Apt. Dwellings	.94	.61	.34	.52	.30	.24	.77	.61	.66	6.47	4.38	2.43	.27	.18	.09
Comm. Activity	3.57	3.33	3.07	.84	.75	.73	.94	.83	.78	2.58	2.20	1.98	1.30	1.10	.96
Ind. Activity	6.85	5.59	4.88	.89	.78	.75	.35	.28	.23	1.75	1.31	1.10	.91	.66	.54
Traf. Generators	2.24	1.68	1.18	1.10	.84	.57	.04	.04	.09	1.29	1.01	.67	.26	.20	.14
Juv.Pros.Offenses	8.98	8.71	9.85	2.16	1.99	1.58	.98	1.30	1.15	2.69	2.80	3.78	.78	1.48	1.96

	Cluster														
	6	(84.27)		7	(50.19)		8	(48.05)		9	(50.84)		10	(39.47)	
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Owner Housing	2.88	2.01	1.65	.69	.66	.67	.87	.58	.46	1.07	.62	.51	4.34	5.62	6.12
Rental Housing	2.66	2.45	2.26	.47	.64	.86	1.02	.96	.84	2.28	1.56	1.16	2.02	2.73	3.04
Res. Dwellings	2.99	2.09	1.87	.77	.70	.71	.57	.39	.35	.56	.40	.36	5.15	5.66	6.25
Multiplex Dwel.	3.68	4.40	2.99	.47	.61	.69	1.06	1.18	.75	1.86	1.74	1.19	1.73	1.27	2.36
Apt. Dwellings	1.01	1.13	.98	.32	.44	.57	.22	.23	.17	.81	.43	.22	.40	1.35	1.61
Comm. Activity	3.65	3.23	2.93	.78	.74	.72	.96	.89	.81	1.50	1.42	1.38	3.23	3.21	3.20
Ind. Activity	1.11	.94	.78	2.11	1.76	1.50	.45	.41	.35	7.86	6.75	6.02	2.85	3.05	4.20
Traf. Generators	.37	.29	.29	.55	.53	.54	.15	.13	.10	12.03	9.06	5.61	1.95	3.11	4.47
Juv.Pros.Offenses	1.71	2.36	4.37	.41	.93	.82	.20	.39	.84	5.96	2.71	1.87	3.96	6.56	7.62

*( ) = Juvenile prosecutable offenses/square mile

Table 5.50. Twenty-Year Trend in Unit Share of Land Use Variables, Ten Highest Crime Census Tract Clusters, 1970, Los Angeles County

	1950	1960	1970	% Change
Owner Housing	18.15	14.88	13.46	-25.8
Rental Housing	22.88	19.55	16.86	-26.3
Single Family Dwellings	16.79	14.27	14.07	-16.2
Multiplex Dwellings	21.93	26.16	17.32	-18.2
Apartment Dwellings	11.73	9.66	7.21	-38.5
Commercial Units	19.35	17.70	16.56	-14.4
Industrial Units	25.13	21.53	20.35	-19.9
Traffic Generators	19.98	16.89	13.66	-15.5

CONTINUED

2 OF 5

Table 5.51. Percent Change in Unit Share, 1950-1960, Selected Land Use Variables, by Stages in Development as High Crime Areas, Los Angeles County.

Stage	Number of Census Tracts	Owner Occ. Housing	Renter Occ. Housing	Single Units	Multiplex Housing	Apt. Housing	Comm. Parcels	Indust. Parcels	Traffic Generators
Emerging	26	-33.7	5.0	-27.2	2.7	6.7	-14.3	28.5	- 0.4
Trans.	112	2.4	-15.2	- 0.1	-15.9	-31.6	-13.0	11.3	61.8
Enduring	76	-51.3	-42.6	-30.0	-28.9	-64.5	-13.3	-27.1	-51.0

of the land use variables occurred in the clusters at the enduring stage of development. Declines in unit share in the emerging high crime areas were most prominent for owner-occupied and single unit housing and for commercial and industrial units. These reductions in unit share may well be regarded as diagnostic for the onset of rising crime rates, indicating the conversion of owner housing to rental units and possibly of single units to multiplex units, and the slow but steady abandonment of these neighborhoods by commercial and industrial units.

It also seems apparent that, with respect to land use, the clusters at the transitional stage resemble the enduring high crime areas much more closely than they do the emerging areas. Unlike the latter, which increased their unit share of renter-occupied housing and multiplex and apartment dwellings, all these underwent a decline in unit share in clusters at the transitional stage of development. A fuller interpretation of these trends must wait on an examination of unit share trends in demographic variables.

3. Demographic variables. Unit share measures were feasible for all three time points for only five of the demographic variables: total population, unrelated individuals, non-intact families, residential stability, and residential mobility. The age structure of the population was assessable only with the concentration and distribution measures.

Overall trends in the ten high crime clusters between 1950 and 1970 for the variables available indicate above all a steady decline in their share of total population (Table 5.52 and Table 5.53). This was true for eight of the ten clusters. Their unit share of broken families also showed a 20-year decrease, but residential mobility rose precipitously.

However, percentage changes in unit share differed for clusters at different stages of development (Table 5.54). The differences that most sharply distinguished the emerging from the enduring areas was the large percentage increase in unrelated individuals and the moderate increase of separated families in the former in contrast to large reductions in both categories in the other two classes of crime areas. Rises in residential mobility characterized clusters at all of the stages of development, but notably in the emerging and transitional areas.

To complete the picture of demographic change in the three types of high crime areas, it is necessary to call attention to the trend data for distribution respecting age structure presented earlier. The trend in median age indicates that with 1950 and 1970 declined -5.8 in the emerging to -21.7 in the enduring areas. Correspondingly, the percentage increase in the maturation as high crime areas the percentage reduction between

Table 5.52. Unit Share of Demographic Variables by Ten Highest Crime Density Census Tract Clusters, 1950-1970, Los Angeles County

	CLUSTER														
	1			2			3			4			5		
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Total Population	4.82	3.51	2.70	1.37	.99	.91	1.10	.95	.81	3.17	2.06	1.82	1.11	.77	.71
Unrelated Indiv.	4.78	3.18	2.41	.81	.67	.49	.95	1.17	1.19	6.19	4.23	2.86	1.16	.92	.65
Wid. & Divorced	4.94	3.73	2.91	1.16	.85	.70	1.03	1.14	.95	5.10	3.31	2.45	1.50	1.09	.82
Res. Stability	4.89	6.49	2.74	1.50	1.80	.92	1.10	1.61	.78	3.17	3.32	1.65	1.23	1.37	.68
Res. Mobility	1.29	2.13	2.61	.28	.61	.90	.31	.66	.90	.93	1.51	2.26	.23	.52	.77

	6			7			8			9			10		
Variable	50	60	70	50	70	70	50	60	70	50	60	70	50	60	70
Total Population	2.84	2.03	1.96	.63	.70	.79	.91	.64	.55	2.04	1.32	1.07	3.72	4.93	5.25
Unrelated Indiv.	2.10	2.29	1.95	.39	.48	.86	.71	.77	.79	1.14	.81	.60	1.44	2.14	2.79
Wid. & Divorced	2.93	2.65	2.14	.48	.56	.93	.93	.90	.77	1.83	1.21	.95	2.23	3.19	3.62
Res. Stability	3.02	3.89	1.91	.65	1.23	.72	.97	1.18	.54	2.26	2.52	1.13	3.74	10.12	5.36
Res. Mobility	.67	1.32	2.09	.17	.45	.96	.21	.45	.59	.40	.77	.92	1.05	2.92	4.99

Table 5.53. Twenty Year Trend in Unit Share of Demographic Variables, Ten Highest Crime Density Census Tract Clusters, 1970, Los Angeles County

Variable	1950	1960	1970	% Change
Total Population	21.71	17.90	16.57	-23.7
Unrelated Indiv.	19.67	29.12	14.59	-25.8
Wid. & Divorced	22.13	18.63	16.24	-26.6
Res. Stability	22.53	17.45	16.43	-27.1
Res. Mobility	4.87	18.02	16.99	+248.8

Table 5.54. Percent Change in Mean Unit Share, 1950-1970, Selected Demographic Variables by Stages of Development as High Crime Areas, Los Angeles County

Stage	Total Population	Number of Census Tracts	Unrelated Individuals	Widowed & Divorced	Residential Stability	Residential Mobility
Emerging	-21.3	26	34.4	4.1	-27.1	240.3
Transitional	1.5	112	-17.6	-15.1	-4.1	268.3
Enduring	-43.7	76	-49.0	-41.7	-44.3	110.7

youth dependency ratio (proportion of those under 18 years of age to the population 18 to 65) was 21.4 in the emerging and 62.3 in the enduring areas. It would appear, then, that at a "first glance" level, the demographic variables most diagnostic for the onset of rising crime rates would be interannual increases in the number and proportion of unrelated individuals, families broken by parental separation, and in the youth dependency ratio.

4. Socioeconomic variables. The most striking feature of unit share trends in socioeconomic variables for the ten highest crime density census tract clusters presented in Table 5.55 is the downward movement from 1950 to 1970 in the semi-skilled and unskilled occupational categories. Detailed measures for the ten clusters appear in Table 5.56. Percentage reductions in the professional and skilled occupations, as well as the population with advanced education were not unexpected. The declining trend in unemployment is misleading, as noted earlier, since these data are based on an enumeration of those in the active labor force, i.e., those answering affirmatively the census question whether they are seeking employment. Again, as was suggested by the density measure, the reduction over this period in unit share of housing lacking plumbing is likely to have reflected the addition over two decades of public housing projects in the neighborhoods constituting the ten 1970 high crime census tract clusters.

Clusters at the three stages of development as high crime areas show distinct differences in unit share trends of socioeconomic variables (Tables 5.57 and 5.58). The decline in share of professional and skilled occupations is lowest in the emerging and transitional and highest in the enduring areas. Again, the very large percentage decline in the unskilled and labor group in the old and established high crime areas is likely to reflect an increase in the number of "discouraged" labor force leavers. That effect may explain as well the very high percentage decline of the unemployed in these areas. This was not evident in either the emerging or the transitional areas, where moderate increases of the share of the unskilled laboring groups occurred, as well as in the share of the unemployed.

While the unit share decline of population with advanced education was most prominent in the enduring high crime areas, the decline was not insubstantial in either of the other two types of clusters. With respect to those housing conditions here taken as socioeconomic indicators, the emerging areas were the only ones in which a percentage increase occurred in unit share of housing lacking plumbing. The percentage decline in this feature in both the transitional and enduring areas is seen as a likely effect of locating public housing in these areas, most notably in the latter. There, the percentage decline in overcrowding is also a likely reflection of the same development.

What remains distinctive, then, for the emerging high crime areas is their unit share loss of professional and skilled

Table 5.55. Twenty-Year Trend in Unit Share of Selected Socioeconomic variables, Ten Highest Crime Density Census Tract Clusters, 1970, Los Angeles County

Variable	1950	1960	1970	% Change
Professional Occupations	15.33	9.97	9.09	-.40.7
Skilled Occupations	20.91	14.86	13.26	-.36.6
Semi- and Unskilled	27.45	24.04	20.58	-.25.0
Unemployment	25.77	23.71	19.47	-24.4
Pop. Advanced Education	13.50	9.20	7.78	-42.4
Housing Lacking Plumbing	23.91	14.18	17.18	-28.1
Housing Overcrowded	26.43	27.19	26.94	2.0
Housing Turnover	---*	15.71	19.41	23.5

*Data for 1950 were not available

Table 5.56. Unit Share of Socioeconomic Variables by Ten Highest Crime Density Census Tract Clusters, 1950-1970, Los Angeles County

	Cluster															
	1			2			3			4			5			
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70	
Prof. Occupations	1.65	.68	.47	.80	.33	.25	.87	.69	.79	2.87	1.25	.85	.96	.36	.24	
Skilled Occup.	3.09	1.58	1.26	1.07	.65	.59	1.14	.98	.89	3.74	1.79	1.37	1.46	.68	.50	
Semi-Unskilled Occup.	8.67	5.70	3.40	1.71	1.41	1.29	1.11	1.22	.92	4.13	3.33	2.88	1.14	1.22	1.00	
Unemployment	7.71	6.12	3.64	1.84	1.27	.76	1.11	1.36	1.13	4.24	3.80	2.42	1.01	1.21	.97	
Pop. Adv. Educ.	1.50	.61	.33	.56	.26	.20	.76	.55	.78	3.41	1.69	.84	.77	.40	.19	
Housing Lack. Plumb.	8.10	4.02	3.54	1.63	.79	1.58	.96	.57	.79	4.46	4.46	5.35	.45	.44	.53	
Housing Overcrowded	8.26	7.92	5.93	2.24	2.12	2.49	1.08	1.23	.98	2.81	2.61	3.19	.63	.85	1.02	
Housing Turnover	.00	3.09	4.60	.00	.64	.44	.00	1.16	1.06	.00	3.05	3.32	.00	.53	.87	

	Cluster															
	6			7			8			9			10			
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70	
Prof. Occupations	2.58	1.48	1.01	.58	.61	.92	1.42	.77	.53	.75	.32	.23	2.85	3.48	3.80	
Skilled Occup.	3.50	2.02	1.62	.69	.69	.80	1.09	.84	.61	1.42	.77	.64	3.71	4.86	4.98	
Semi-Unskilled Occup.	2.87	2.72	2.59	.62	.74	.82	.53	.61	.67	2.99	1.94	1.44	3.59	5.15	5.57	
Unemployment	2.72	2.81	2.60	.61	.75	.84	.82	.76	.76	2.81	1.48	1.97	2.90	4.15	5.28	
Pop. Adv. Educ.	2.08	1.38	.95	.48	.54	.88	1.21	.78	.51	.51	.25	.16	2.22	2.74	2.94	
Housing Lack. Plumb.	1.43	.78	.99	.46	.48	.83	.17	.14	.31	3.46	1.08	1.68	2.59	1.42	1.58	
Housing Overcrowded	2.11	2.37	3.06	.63	.80	.93	.33	.32	.46	4.27	3.21	2.93	4.07	5.76	5.95	
Housing Turnover	.00	2.16	2.87	.00	.62	.62	.00	.68	.70	.00	.88	.57	.00	2.90	4.36	

Table 5.57. Percent Change in Weighted Mean Unit Share, 1950-1970, Selected Socioeconomic Variables, by Stages in Development as High Crime Areas, Los Angeles County

Stage	Prof. Occup.	Skilled Occup.	Semi- and Unskilled	Unemployment	Pop. Adv. Education	Housing Lack. Plumb.	Housing Overcrowded	Housing* Turnover
Emerging	-25.2	-23.2	4.0	6.0	-15.1	15.0	12.5	- 3.7
Transitional	-24.7	-20.0	9.6	11.8	-32.6	- 8.8	37.3	32.9
Enduring	-71.0	-64.3	-58.3	-51.1	-76.0	-53.3	-26.3	38.4

*1960-1970 trend. 1950 data unavailable.

Table 5.58. Trends in Unit Share of Socioeconomic Variables by Stage of Development as a High Crime Area, 1950-1970, Los Angeles County

Variable	Emerging 50	60	70	Transitional 50	60	70	Enduring 50	60	70	% Change 50-70 EM.	TR.	EN.
Prof. Occupations	2.87	2.07	2.24	11.64	6.57	5.90	3.20	1.33	.95	-22	-49	-70
Skilled Occup.	2.92	2.51	2.30	12.41	9.35	8.47	5.58	3.00	2.49	-22	-32	-53
Semi-Unskilled Occup.	2.26	2.57	2.41	11.73	12.42	12.04	13.37	9.05	6.13	+ 7	+ 3	-54
Unemployment	2.54	2.87	2.73	10.87	11.97	10.97	12.36	8.87	5.47	+ 7	00	-56
Pop. Adv. Educ.	2.45	1.87	2.17	8.48	6.21	4.92	2.57	1.12	.69	-14	-42	-73
Housing Lack. Plumb.	1.59	1.19	1.93	8.93	7.10	8.45	13.19	5.89	6.80	+21	- 5	-48
Housing Overcrowded	2.04	2.35	2.37	18.07	11.59	13.22	14.77	13.25	11.35	+16	-27	-23
Housing Turnover	.00	2.46	2.38	.00	8.64	11.32	.00	4.61	5.61	--	--	--

occupational groups and of population with advanced education, and an increase in share of unskilled laborers and unemployed persons in the active labor force combined with rising shares of the County's overcrowded housing and housing lacking plumbing.

5. Subculture variables. This set of eleven variables is keyed to the normative elements in behavior patterns that have had their source in both historic and contemporary group experience. Included are the variables of ethnicity (Black, Spanish surname, and Anglo populations); female participation in the labor force; and educational status. An attempt is made to capture the effect of variation in these variables on variation in juvenile status offenses, here assumed to be a precursor of disintegrating local social control.

As seen in Tables 5.59 and 5.60, the 20-year trend in unit share of Black population in the ten highest crime density clusters showed virtually no change. In 1950, these clusters were highly stable in this respect, containing approximately 65 percent of the County's Black population, and 67 percent in 1970. The fact that almost two-thirds of the County's Black population resided in its ten highest crime density census tract clusters in both 1950 and 1970 should also be seen in relation to a population growth in the county of almost 60 percent during the same period. Since some proportion of that increase included additions to the Black population, the stability in its unit share in the high crime areas suggests the continuing impact of their sharp residential segregation in the County's most crime-impacted areas.

This was notably not the case for the second main minority group. Over the same period, the Spanish surname population registered a 47 percent decline in unit share in these areas, a reduction exceeded only by the majority Anglo population. The unit share of female participants in the labor force (the ratio of females in the labor force to males in the labor force) showed a downward trend for all three, but most sharply for the Anglo and Spanish surname ethnic groups. For non-white females the decline was more moderate, but the magnitude of their unit share was highest in 1950 (63 percent) as well as in 1970 (52 percent). Specifically, this means that of the total number of non-white labor force participants in the county, over half were females residing in 1970 in the 214 census tracts encompassed by the ten highest crime density clusters.

Worth noting with respect to unit share trends for those with advanced education (four or more years of college in the population over 25 years of age) is the consistent high percentage reduction for all ethnic groups. However, among non-whites (principally Blacks) there occurred a substantial loss of this component in the population of these areas. Almost two-thirds of those with advanced education in their non-white population resided there in 1950, and only approximately one-quarter in 1970. These were decades of some relaxation of

Table 5.59. Twenty-Year Trend in Unit Share of Subculture Variables, Ten Highest Crime Density Census Tract Clusters, 1970, Los Angeles County

	1950	1960	1970	% Change 1950-1970
Black Population	64.74	72.49	67.03	3.5
Spansur Population	43.83	31.59	23.07	-47.4
Anglo Population	17.53	16.45	8.23	-54.1
Non-White Female Labor Force	63.47	62.43	51.73	-18.5
Spansur Female Labor Force	49.49	32.49	22.38	-54.8
Anglo Female Labor Force	18.34	10.02	7.81	-57.4
Non-White Advanced Education	63.66	48.00	28.17	-55.7
Spansur Advanced Education	43.78	13.95	14.57	-66.7
Anglo Advanced Education	11.97	6.73	5.42	-54.7
Mexican Foreign Born	44.16	19.31	31.85	-27.9
Status Offenses	25.97	28.40	26.35	1.5

Table 5..60. Unit Share of Subculture Variables by Ten Highest Crime Density Census Tract Clusters, 1950-1970, Los Angeles County

	Cluster 1			2			3			4			5		
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Black Population	47.56	33.41	19.50	.64	.35	.15	.55	.75	.54	9.54	13.13	10.32	.19	4.94	5.61
Spansur Pop.	9.88	5.03	2.56	8.94	6.83	6.10	.19	.88	1.15	2.51	2.39	2.07	.21	.88	.07
Anglo Pop.	1.93	.49	.33	.88	.25	.20	1.20	.89	.81	2.71	2.02	.44	1.24	.32	.10
Non-Wh. Fem. Lab. F.	42.27	22.37	10.86	1.10	1.07	.64	.46	.67	.58	12.81	16.51	9.82	.18	4.91	4.19
Spansur Fem. Lab. F.	9.72	4.37	2.11	10.01	6.83	5.85	.23	.89	1.29	4.76	3.89	3.01	.41	1.35	.07
Anglo Fem. Lab. F.	1.91	.39	.25	.83	.14	.17	1.09	1.13	.97	4.05	.71	.41	1.50	.35	.08
Non-Wh. Adv. Edu.	29.94	8.18	2.67	1.94	1.22	.88	.15	.35	.45	23.20	16.45	5.53	.25	3.56	1.58
Spansur Adv. Edu.	8.61	1.18	.45	6.83	2.24	2.96	.19	.81	2.25	9.26	2.91	2.38	1.68	.61	.00
Anglo Adv. Edu.	.68	.14	.06	.49	.15	.06	.78	.55	.79	2.84	.76	.30	.78	.20	.04
Mex. For. Born	9.14	1.08	4.49	7.98	1.48	7.79	.27	*	1.07	4.39	.71	3.60	.87	.23	.33
Status Offenses	7.65	8.30	5.95	1.88	2.81	2.03	.97	1.83	1.36	3.94	2.25	2.29	1.15	.70	1.21

	Cluster 6			7			8			9			10		
Variable	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Black Population	1.68	8.77	13.72	.02	.90	.76	.05	1.64	3.14	1.16	1.10	.37	3.35	7.50	12.92
Spansur Pop.	.82	1.86	.08	.20	.66	.84	.00	.20	.00	19.76	9.59	7.50	1.32	3.27	2.70
Anglo Pop.	3.07	1.29	.57	.69	.57	.72	1.03	.52	.25	.85	.28	.21	3.93	4.47	4.60
Non-Wh. Fem. Lab. F.	1.43	7.54	10.94	.13	1.41	1.21	.00	2.02	3.52	2.27	1.15	.57	2.82	4.78	9.40
Spansur Fem. Lab. F.	.96	2.27	.06	.13	.62	.83	.00	.29	.00	22.44	9.40	7.02	.83	2.58	2.14
Anglo Fem. Lab. F.	3.35	1.73	.56	.63	.64	.78	1.16	.72	.29	.90	.24	.19	2.92	4.20	4.11
Non-Wh. Adv. Edu.	1.20	5.82	6.34	.03	2.08	.90	.00	4.20	3.30	3.35	1.14	.58	3.60	5.00	5.94
Spansur Adv. Edu.	1.40	1.04	.29	.00	.76	1.35	.00	.29	.00	14.87	2.16	3.07	.94	1.95	1.82
Anglo Adv. Edu.	2.11	1.12	.39	.49	.45	.86	1.25	.59	.22	.37	.15	.05	2.18	2.62	2.64
Mex. For. Born	1.96	.31	.79	.31	.11	.70	.18	.03	.17	17.65	2.54	10.58	1.41	.35	2.34
Status Offenses	2.37	1.69	2.69	.18	.70	.91	.49	.70	.62	3.52	2.81	2.24	3.82	6.61	7.05

*Measure provisionally omitted.

residential segregation, and those with the income and acculturation advantages of a college education were probably among the first to abandon the high crime areas. These areas also appear to have undergone some loss of function as areas of first settlement by immigrants from Mexico. Finally, taken collectively, the ten areas held steady in their unit share of juvenile status offenders, producing about one-quarter of the County's total number in both 1950 and 1970.

When unit share trends are disaggregated by cluster groups at different stages of development as high crime areas, those at the emerging stage differ sharply from the others on virtually every one of the subculture variables (Tables 5.61 and 5.62). Table 5.62 presents the weighted means. With respect to ethnic composition, the percentage increase in unit share of both Black and Spanish surname population far exceeded that of clusters in the transitional stage, and contrasted with unit share decline of both in the enduring high crime areas. The emerging areas also experienced a precipitous percentage rise in its share of [non]-white and Spanish surname females in the labor force. Equally striking was its sharp upward trend over this period in unit share of non-white and Spanish surname population with advanced education, as well as in its share of Mexican foreign born persons. Such trends suggest that these components of minority groups may constitute a "leading edge" of movement into emerging high crime areas. Finally, the largest percentage increase in status offenses occurred in the emerging areas.

To be noted as well is the contrasting consistent percentage decline from 1950 to 1970 in unit shares of all subculture variables in the enduring high crime areas. The largest such declines occurred with respect to Anglo population, non-white and Anglo females in the labor force, all components of the ethnic groups with advanced education, and in status offenses. Speculative interpretation of the decline in unit share of non-white and Spanish surname females in the labor force might attribute this to a movement of female heads of households into welfare support programs. Again, speculatively, the decline in share of status offenders may be an artifact of police and court recording, as the high incidence of juvenile criminal offenses can well induce a tendency to attend only to those that are serious.

C. Summary

The descriptive historical data of this section may be summarized by the profile of unit share trends in crime and in each of the four sets of structural variables at each stage of development as high crime areas. Table 5.63 is based on a selection of three variables in each of the four structural domains, with each variable used as an indicator of one of the domains.

Table 5.61. Trends in Unit Share of Subculture Variables by Stage of Development as a High Crime Area, 1950-1970, Los Angeles County

Variable	Emerging 50	Emerging 60	Emerging 70	Transitional 50	Transitional 60	Transitional 70	Enduring 50	Enduring 60	Enduring 70	% Change 50-70 EM.	% Change 50-70 TR.	% Change 50-70 EN.
Black Population	.62	3.29	4.44	14.76	34.34	42.57	49.36	34.86	20.02	+616	+188	-59
Spansur Population	.39	1.74	1.99	4.86	8.40	4.92	20.14	15.13	11.36	+410	00	-44
Anglo Population	2.92	2.35	1.78	10.95	9.95	5.71	3.66	4.15	.74	- 39	- 48	-80
Non-Wh.Fem. Lab. F.	.59	4.10	5.31	17.24	33.74	34.35	45.64	24.69	12.07	+800	+ 99	-74
Spansur Fem. Lab. F.	.36	1.80	2.12	6.96	10.09	5.28	42.17	20.60	14.98	+488	- 24	-64
Anglo Fem. Lab. F.	2.88	2.49	2.04	11.82	6.99	5.16	3.64	.54	.61	- 29	- 56	-83
Non-Wh. Adv. Edu.	.18	6.63	4.65	28.25	30.86	19.39	35.23	10.54	4.13	+248	- 31	-88
Spansur Adv. Edu.	.19	1.86	3.60	13.28	6.51	4.49	30.31	5.58	6.43	+179	- 66	-79
Anglo Adv. Edu.	2.52	1.59	1.87	7.91	4.70	3.85	1.54	.44	.18	- 26	- 51	-88
Mex. Foreign Born	.76	*	1.94	8.63	*	7.06	34.77	*	22.86	+155	*	-34
Status Offenses	1.64	3.23	2.89	11.28	11.25	13.24	13.05	13.92	10.22	+ 76	+17	-27

*Measure provisionally omitted.

Table 5.62. Percent Change in Weighted Mean Unit Share, 1950-1970, Selected Subculture Variables, by Stages in Development as High Crime Areas, Los Angeles County

	Stage		
	Emerging	Transitional	Enduring
Number of Census Tracts	26	112	76
Black Population	540.0	164.3	-59.1
Spansur Population	426.6	14.8	-64.5
Anglo Population	-41.1	-35.0	-81.5
Non-White Females in Labor Force	733.9	84.7	-74.1
Spansur Females in Labor Force	482.8	-12.6	-69.7
Anglo Females in Labor Force	-31.0	-43.0	-89.1
Non-White Advanced Education	2268.4	-35.6	-90.0
Spansur Advanced Education	1581.5	-58.5	-85.4
Anglo Advanced Education	-29.3	-46.2	-89.9
Mexican Foreign Born	163.9	- 8.5	-41.1
Status Offenses	66.2	26.1	-22.2

Table 5.63. Percent Change in Mean Unit Share, 1950-1970, Selected Crime and Structural Variables, by Stages of Development as High Crime Areas, Los Angeles County

Variables	Stage of Development: Emerging	Transitional	Enduring
Crime			
Prosecutable Juv. Offenses	71.4	88.4	- 4.9
Property Offenses	60.8	104.0	45.6
Person	1029.3	162.7	57.4
Land Use			
Owner Housing	-33.7	2.4	-51.3
Apartment Housing	1.7	-31.6	-64.5
Commercial Parcels	-14.3	-13.0	-13.3
Demographic			
Total Population	-21.3	1.5	-43.7
Unrelated Individuals	34.4	-17.6	-49.0
Residential Mobility	240.3	268.3	110.7
Socioeconomic			
Skilled Occupations	-23.2	-20.0	-64.3
Pop. Adv. Education	-15.1	-32.6	-76.0
Overcrowded Housing	12.5	37.3	-26.3
Subculture			
Black Population	540.0	164.3	-59.1
Non-White Females, Labor Force	733.9	84.7	-74.1
Non-White Advanced Education	2268.4	-35.6	-90.0

1. Crime. While unit share trends for all juvenile misdemeanor and felony offenses rose sharply between 1950 and 1970 in the emerging and transitional high crime areas, they fell slightly in the enduring areas. Its downward unit share trend is likely to have been a complement of the sharp unit share rise in the two early stage areas. Perhaps most striking is the extremely sharp, tenfold, rise in unit share of person offenses (assault and robbery) in the emerging areas relative to increases in the other two types of areas.

2. Land use variables. Land use changes in the emerging areas involved substantial percentage declines in unit share of owner housing and a downward trend in share of commercial parcels. In the transitional and enduring high crime areas, there occurred a decline in share of apartment housing and commercial parcels. The enduring areas were heavily impacted over the two-decade period by declines in share of home ownership, apartment dwellings and commercial parcels. Generally, in the course of their development as high crime areas, urban neighborhoods undergo with respect to land use a loss in unit share of home ownership and apartment dwellings, and continue steadily to lose commercial parcels.

3. Demographic variables. Downward trends in unit share of population were significant in the emerging, and substantial in the enduring areas. The emerging areas were characterized by a rising trend in share of unrelated individuals, suggesting a relative rise in numbers of defamilized persons, in contrast to a declining trend in unit share of this feature in both the transitional and the enduring areas. Relative stabilization of population attributes in the enduring areas is indicated by the contrasting more steeply rising trend in share of residential mobility in both the emerging and the transitional areas. In the light of the unit share measure, the major demographic shifts accompanying the development of high crime areas are an increasing loss of population, and progressive reduction in their share of the County's defamilized persons and of residential mobility.

4. Socioeconomic variables. The occupational and educational dimensions of this structural domain show consistent and progressive downward trends in unit share at each succeeding stage of development as a high crime area. Overcrowded housing as an added dimension exhibits a rising trend in unit share through the emerging and transitional stage, but was found to decline abruptly at the enduring stage.

5. Subculture variables. Trends in unit share for clusters at the three stages differ distinctively in major subculture pattern. The emerging areas are characterized by the sharpest rises in unit share trends for Black population, non-white females in the labor force and, above all, for non-white population with advanced education. Trends in the first two of

these indicators are less sharply upward in the transitional areas, and show a declining trend for non-white with advanced education. In the enduring high crime areas, there were large percentage reductions in all three of these variables.

Finally, a selection of the descriptive data introduced in this chapter, including concentration, distribution, and unit share measures, are presented in Table 5.64. The measures are arranged by developmental stages and provide an opportunity to examine comparative two-decade trends at each stage for each measure. The arrangement is designed to invite examination of changes from the perspective of residents (density and rate trends) and from an external, regional perspective (unit share trends).

Table 5.64. Percent Change in Mean Concentration, Distribution, and Unit Share, 1950-1970, Selected Crime and Structural Variables, by Stages of Development as High Crime Areas, Los Angeles County

Variables	Emerging			Transitional			Enduring		
	Sq.Mile Density	Rate	Unit Share	Sq.Mile Density	Rate	Unit Share	Sq.Mile Density	Rate	Unit Share
Crime									
Pros.Juv.Offenses	1651.0	705.7	71.4	1283	405	88.4	538.0	287.7	- 4.9
Property	594.5	377.7	60.8	896	303	104.0	535.9	270.9	45.6
Person	*	*	1029.3	1975	663	162.7	836.0	470.7	57.4
Land Use									
Owner Housing	-11.5	-23.2	-33.7	.01	-4.8	2.4	-29.2	-11.4	-51.3
Apt.Dwellings	278.1	7.1	1.7	85.2	4.1	-31.6	69.9	0.6	-64.5
Comm.Parcels	21.4	0.2	-14.3	16.1	-0.7	-13.0	25.2	1.7	-13.3
Demographic									
Total Population	- 8.2	**	-21.3	20.7	**	1.5	- 8.0	**	-43.7
Unrelated Ind.	173.2	124.8	34.4	17.3	31.9	-17.6	- 1.9	31.6	-49.0
Res.Mobility	305.4	31.1	240.3	292.1	4.4	268.3	266.9	16.1	110.7
Socioeconomic									
Skilled Occup.	29.3	- 2.7	-23.2	-12.1	-5.2	-20.0	-21.1	1.8	-64.3
Pop.Adv.Educ.	39.6	2.7	-15.1	-18.7	0.0	-32.6	-48.5	-0.7	-76.0
Overcrowded Hsg.	31.3	0.7	12.5	86.5	3.3	37.3	3.2	1.4	-26.3
Subculture									
Black Population	1610.0	25.7	540.0	646.3	50.6	164.3	17.2	18.1	-59.1
Non-Wh.Fem.Lab.Force	2401.2	45.9	733.9	482.3	31.5	84.7	- 7.4	7.2	-74.1
Non-Wh.Adv.Educ.	9831.5	11.5	2268.4	219.5	4.5	-35.6	-32.6	2.4	-90.0

* Zero person offenses for 1950. Mean weighted density for 1970 was 7.48; mean weighted rate was .38

** Measure inapplicable

CHAPTER VI

NEIGHBORHOOD CHANGE AND CRIME: ANALYTIC MEASURES

To this point, operational terminology and data analysis have been relatively simple. The discussion has centered around either the technique of delineating crime areas as spatial enclaves or the statistical procedures designed to identify and measure the elements of crime and of social structure. In general, the procedures have provided a descriptive summary of the spatial distribution of crime and the elements of social structure among subareas differentiated by their crime levels. The aim was mainly to provide cross-sectional "snapshots" of differential magnitudes of structural and crime variables at three points in time and to explicate the rationale for viewing the ten designated high crime areas as homogeneous with respect to both crime and neighborhood social structure.

The procedures thus far have furnished only limited information relevant to one of the central questions of the study: Do changes in structural variables indexing neighborhood deterioration precede rising crime rates, or do rising crime rates "drive" neighborhood deterioration? The general hypothesis guiding the investigation held that structural change is in all likelihood the temporally prior change, but this proposition is, of course, open to empirical test. A test of this proposition requires the introduction of the temporal dimension in order to determine the pattern of sequence between changes in the structural and changes in the crime variables. While each of the high crime areas was treated as a homogeneous unit with respect to measures of both crime and structural attributes, each was in fact operationally defined as homogeneous only on the basis of a statistical criterion that clustered subareas similar in their crime measures.

The proposition that neighborhood deterioration is a function of the differential velocity of change in structural variables, and therefore occurs prior to the rise in the crime level of a neighborhood, can be tested only by focusing on the degree of co-variation between crime and the elements of social structure within each high crime area. Thus, the question of concern is the relationship between variation in change in crime measures on both cross-sectional and longitudinal analysis within the ten high crime areas, and variation in change in structural variables, both cross-sectionally and longitudinally.

This chapter, then, attempts to answer this question through the use of special applications of simple and multiple regression and correlation analysis. In order to include important facets of multidimensionality which measure change over time, particular attention is paid to the use of cross-lagged, interannual, and deviational correlation techniques. The logical progressive

relationships among these special applications of linear regression and correlation are diagrammed in Figure 6.1. For presentation purposes, the schematic shown is restricted to two points in time and two variables. However, as will be apparent in the course of the presentation that follows, the logic can be expanded to include multiple time points and variables.

First to be presented is an adaptation of simple bivariate cross-lagged correlation analysis designed to ascertain the existence of patterned lead-lag relationships between a selected set of structural variables and crime. This is followed by multivariate regression analysis in order to identify those structural variables which, on both cross-sectional and cross-lagged estimates, account most fully for variance in the crime variable. The data are then subjected to a preliminary form of cross-lagged correlation of deviational change analysis in order to assess the relationship of change velocity in structural variables to the velocity of change in the crime measure. A final section examines the relative strength of the relationship between variables in each of the several categories of neighborhood social structure and crime.

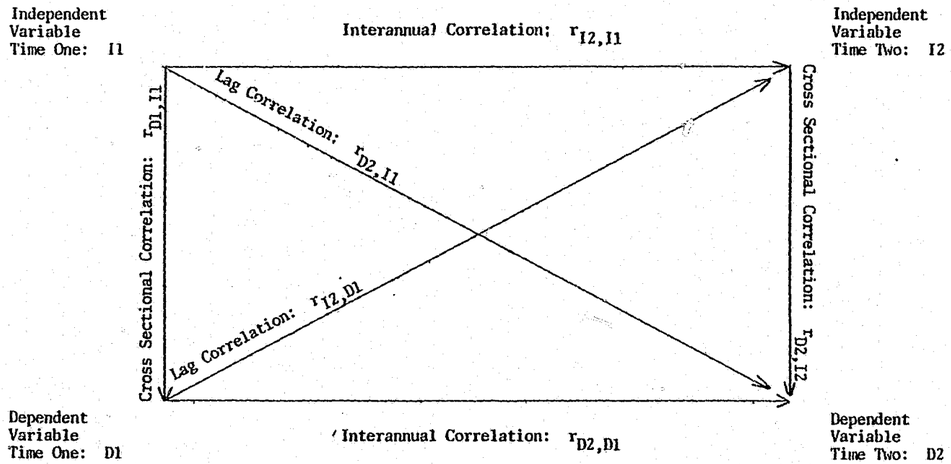
A. Illustrative Use of Cross-Lagged Correlation Analysis: Lead-Lag Issue

Cross-lagged correlational analysis (Pelz and Andrews, 1964) addresses the problem of causality in a time series context. With an independent and dependent variable measured at successive time points, the size and direction of the zero order correlation between the independent variable at Time 1 and the dependent variable at Time 2 is compared to the size and direction of the correlation between the dependent variable at Time 1 and the independent variable at Time 2. Only if the former is larger than the latter can the inference be drawn that, being temporally prior, the independent variable is causally related to the dependent variable.

However, three assumptions must be met if the inference is to be accepted as valid. First, the rate of change in the independent variable between Time 1 and Time 2 must be constant. Second, the causal effect of the independent on the dependent variable occurs not instantaneously but over a time interval. The third assumption is that both the independent and the dependent variables change at a comparable and stable velocity. That the last assumption is not met would be indicated by a Time 2 cross-sectional correlation larger than the cross-lagged correlation obtained by regressing the Time 1 independent on the Time 2 dependent variable.

It is crucially important that these assumptions be met in time series analyses that are sharply focused on determining causal priorities among a small set of candidate independent variables. In the present test case, however, employing 28

Figure 6.1. Flow Diagram Showing Sequential and Dynamic Relation Between Cross Sectional, Interannual, and Cross Lag Correlations for Correlation of Deviational Change



$$\text{Deviational Correlation } (r_{\mu D,\mu I}) = \frac{r_{D2,I2} - r_{D1,I2} \cdot r_{D2,D1} - r_{D2,I1} \cdot r_{I2,I1} + r_{D1,I1} \cdot r_{I2,I1} \cdot r_{D2,D1}}{\sqrt{(1 - r^2_{I2,I1})\,(1 - r^2_{D2,D1})}}$$

variables representative of those used in ecological studies of crime, we are dealing with a very large number of structural variables for the limited purpose of ascertaining whether they present a pattern of temporal priority in relation to crime. If they do, it would then be reasonable to assume that structural variables can be treated as the independent variable and crime as the dependent variable. Presented in Appendix C are the cross-lagged, interannual, and cross-sectional correlations between selected land use, demographic, socioeconomic, and subculture variables and the crime density measure for the ten 1970 high crime census tract clusters, with the data of the clusters disaggregated by the three stages of development as high crime areas.

Table 6.1 displays the distribution of time priority of cross-lagged correlations indicating time priorities between structural variables and crime for the 1950-1960 and the 1960-1970 decades. Of the 405 cross-lagged correlation measures which were neither ties nor zeros, some 61 percent show structural variables to be prior to crime variables. Conversely, 40 percent of the crime variables demonstrate a time priority to structural variables. It is important to note, however, that the priority sequences differed dramatically for the different classes of structural variables. The proportion of structural variables whose lagged correlations suggest a time priority to neighborhood crime are summarized by class of variables and stage of development as a high crime area. The range of these time priorities for all ten of the high crime clusters starts at 45.3 percent for the variables of land use to 58.5 percent for the demographics to 60.6 percent for socioeconomic variables to 73.6 percent for those of subculture.

In terms of developmental crime stages, a visible pattern emerges (Table 6.2). The lagged correlations indicate that the highest percentage of structural variables with a time priority to crime are found in the emerging high crime areas (67.8 percent). This is followed by the transitional areas which have 63.5 percent of the cross-lagged correlations showing changes in structural variables preceding change in crime. The least earlier structural change occurs in the enduring crime areas, with only 49.6 percent of the cross-lagged correlations showing a time priority in favor of structural variables. In brief, the findings presented in Table 6.2 suggest that the "driving" force of structural variables may be lowest for land use and highest for subcultural variables, and that taken as a whole they are most prominent as a determinant of rising crime in the high crime areas that have most recently arrived at that condition and least prominent in the long established high crime areas. The greater prominence of crime as the prior effect variable on subsequent changes in structural variables suggests that crime in the enduring high crime areas may feed back on neighborhood social structure to foster its further deterioration.

Table 6.1. Distribution of Time Priority Between Structural Variables and Crime, by Category of Structural Variable, Ten Highest Density Crime Clusters, 1970, Los Angeles County

Structural Domain	Structural Variable Prior		Crime Variable Prior		Total	
	Number	Percent	Number	Percent	Number	Percent
Land Use	43	45.3	52	54.7	95	100.0
Demographic	48	58.5	34	41.5	82	100.0
Socioeconomic	60	60.6	39	39.4	99	100.0
Subculture	95	73.6	34	26.4	129	100.0
Total	246	60.7	157	39.3	405	100.0

Table 6.2. Number and Percent of Structural Variables Whose Lagged Correlations Indicate Time Priority, by Class of Variable and Stage of Development as High Crime Areas, Ten Highest Density Crime Clusters, 1970, Los Angeles County

Structural Domain	Emerging			Transitional			Enduring			Grand Total		
	N	Percent	Total	N	Percent	Total	N	Percent	Total	N	Percent	Total
Land Use	12	46.2	26	20	46.5	43	11	42.3	26	43	45.3	95
Demographic	15	65.2	23	21	60.0	35	12	50.0	24	48	58.5	82
Socioeconomic	21	70.0	30	26	65.0	42	13	48.1	27	60	60.6	99
Subculture	30	83.3	36	44	80.0	55	21	55.3	38	95	73.6	129
Total	78	67.8	115	111	63.5	175	57	49.6	115	246	60.7	405

Tables 6.1 and 6.2 are based on 405 cross-lagged correlations without respect to their statistical significance in order to search out the pattern of time priority as between structural variables and the crime measure. Of this number, 138 cross-lagged correlations were at the .05 level of significance or better. These are presented in Table 6.3, and indicate very high proportions of time priority in structural variables for all but land use. Further partitioning of these data by stage of development as high crime areas as well was deemed unfeasible because of very small cell frequencies.

The distributions in Tables 6.1 through 6.3 suggest that it is not unreasonable to treat a wide range of structural factors as the independent variables. However, although the lagged correlations of Time 1 structural variables with the Time 2 crime measure are overall far more frequent than those of Time 1 crime measures lagged on Time 2 structural variables, it remains possible that the latter correlations show significantly higher values. This possibility is examined in Table 6.4. Here, again, except for land use variables, Time 1 structural-Time 2 crime correlations show a very much greater proportion of higher values than are the Time 1 crime-Time 2 structural correlations. For this test, only those cross-lagged correlations were used in which one of the two in the comparison was at least at the .05 level. Unlike the case in the earlier history of the American city, changes during the more recent period in neighborhood demographic, socioeconomic, and subcultural factors may have relatively greater effect on changes in neighborhood crime levels than do changes in land use.

These tests furnished the basis for the decision to treat structural factors as the independent variables in the multivariate regression analyses that follow.

B. Multivariate Regression Analysis

In the previous section an effort was made to assess the lead-lag relationships between features of neighborhood social structure and crime. These, of course, were bivariate relationships between each in a set of structural variables and crime. This form of analysis affords some information with respect to likely sequences between neighborhood deterioration and crime over decades-long periods. However, bivariate correlation is limited by its inability to detect additive effects among the large number of structural variables, among which a high degree of multicollinearity exists. Lost as a result is the capacity to control for the effects of each structural variable in order to identify those that, net of all the others, contribute most to variation in the crime measure. This is what multivariate regression analysis accomplishes.

In addition, multivariate procedures address more adequately the aim of formulating social constructs, of which any single

Table 6.3. Distribution of Time Priority Between Structural Variables and Crime ($p < .05$) by Category of Structural Variable, Ten Highest Crime Density Clusters, 1970, Los Angeles County

Structural Domain	Structural Variable Prior		Crime Variable Prior		Total	
	Number	Percent	Number	Percent	Number	Percent
Land Use	7	30.4	16	69.6	23	100.0
Demographic	31	79.5	8	20.5	39	100.0
Socioeconomic	28	73.7	10	26.3	38	100.0
Subculture	29	76.3	9	23.7	38	99.7
Total	95	69.6	43	30.4	138	100.0

Table 6.4. Distribution of Comparative Magnitudes of Cross-lagged Correlations ($p < .05$) by Classes of Structural Variables, Ten Highest Crime Density Clusters, 1970, Los Angeles County

Structural Domain	$rXt_1Yt_2 > rYt_1Xt_2$*		$rYt_1Xt_2 > rXt_1Yt_2$		Total
	N	Percent	N	Percent	
Land Use	7	30.4	16	69.6	23
Demographic	34	81.0	8	19.0	42
Socioeconomic	28	73.7	10	26.3	38
Subcluture	30	78.9	8	21.1	38
Total	99	70.2	42	29.8	141

* X = Structural Variable

Y = Crime Variable

t_1 = 1950 or 1960

t_2 = 1960 or 1970

structural variable is an imperfect reflection. In essence, this approach assumes that it is highly unlikely that any single operational specification for any of the four structural domains can stand as its primary measure. Needed as well is a form of statistical analysis which assesses interaction effects. For purposes of a complete analysis, it is in any event awkward and perhaps not always illuminating to base it on the very large number of variables considered here. In the next chapter, therefore, the set of variables in each of the four structural domains (land use, demographics, etc.) are reduced to a factor score, yielding four variables, whose interaction effects on crime variation will be analyzed and presented.

In this section, then, multivariate regression analysis is employed to begin identifying those independent variables which, net of the total set, account for a high proportion of the variance in the crime variable that can be "explained" with the full set of independent variables utilized. Three measures are provided. Cross-sectional relationships (structural variables regressed on crime at each of the single time points of 1950, 1960, and 1970) are first presented. Cross-lagged relationships (1950 structural variables regressed on the 1960 crime measure, etc.) are then examined. The third measure assessed is that of deviational change. To be explained below, this measure provides an estimate of the relative velocity of change among independent (structural) variables across time points and the relative velocity of change between independent and dependent variables. For all of these methods of measurement, standardized regression coefficients are shown for each variable and the adjusted R^2 for individual clusters, for all clusters at each time point, and for groups of clusters at various stages of development as high crime areas. It should be noted that the measurements shown are those only of independent variables whose regression coefficients were at least at the .05 level of statistical significance. Hence, for each cluster or for each group of clusters at different stages of development, the number of variables contributing to explained variance in neighborhood crime levels should vary.

1. Cross-sectional relationships. Viewed separately for 1950, 1960, and 1970, the ten high crime density census tract clusters vary substantially in the specific structural variables and the size of the standardized regression coefficients, and in the proportion of total variance in crime accounted for at each of these time points (Table 6.5). However, a general pattern is discernable in the proportion of total variance in crime explained by whatever the effect variables may be. In seven of the ten clusters, the R^2 of structural variables increases in size on a regular gradient between 1950, 1960, and 1970. Furthermore, when all ten clusters are treated as a single data set, the generally regular increase in R^2 with the passage of time is altered (Table 6.6). Instead, there emerges a sharp distinction in this respect between both of the earlier time points (R^2 = .55 and .53, respectively) and 1970, with an R^2 of

Table 6.5. Cross-sectional Regression Coefficients and Explained Variance (Adjusted R^2) Structural Variables and Crime, 1970, 1960, and 1950, by Census Tract Clusters Areal Cohorts, Los Angeles County

Cluster	1950 Variable	Reg.* Coeff.	1960 Variable	Reg.* Coeff.	1970 Variable	Reg.* Coeff.
1 (48)	Mexican Foreign Born	.46	Overcrowded Housing	.50	Black Population	.90
	Anglo Population	-.37	Spansur Advanced Ed.	.38	Youth Dependency	.38
	Non-White/Spansur Ratio	-.29	Housing Turnover	-.23	Non-White Female Lab. For.	-.34
	Status Offenses	.26			Anglo Advanced Education	.11
R^2		.44		.54		.90
2 (15)	Spansur Advanced Ed.	.64	Youth Dependency	.98	Status Offenses	.64
			Multiplex Dwellings	.38	Youth Dependency	.42
R^2		.36		.87		.91
3 (10)	Mexican Foreign Born	.52	Median Rent	-2.27	Black Population	.97
			Renter/Owner Ratio	-1.10		
			Residential Stability	-.77		
			Non-Wht. Fem. Lab. For	.31		
R^2		.17		.95		.93
4 (32)	Unemployment	.65	Black Population	.41	Status Offenses	.40
	Median Age	-.50	Anglo Fertility Ratio	.34	Black Population	.35
	Anglo Fem. Lab. Force	-.26			Multiplex Dwellings	.34
R^2		.74		.25		.74
5 (10)	Average Rent	-.85	Renter/Owner Ratio	.69	Non-White Population	.57
	Spansur Advanced Ed.	-.50	Spansur Fertility Ratio	.45	Unrelated Individuals	.44
	Youth Dependency	.29				
	Residential Stability	.29				
R^2		.95		.66		.74
6 (27)	Spansur/Anglo Pop Ratio	.72	Anglo Fertility Ratio	.64	Median Age	-.36
			Commercial Parcels	.38	Status Offenses	-.36
					Anglo Population	-.29
					Anglo Fertility Ratio	.22
R^2		.50		.60		.81

* Regression Coefficients are Standardized

Table 6.5. (contd.)

Cluster	1950 Variable	Reg.* Coeff.	1960 Variable	Reg.* Coeff.	1970 Variable	Reg.* Coeff.
7 (7)	Non-White/Anglo Pop Ratio	-1.10	Renter/Owner Ratio	.62	Status Offenses	.85
	Status Offenses	-.50	Multiplex Dwellings	.48	Housing Turnover	.35
R^2		.99		.94		.99
8 (9)	Overcrowded Housing	-.09	Spansur Fem/Male Lab F	-.72	Overcrowded Housing	.92
			Spansur Fem. Lab. For	-.41	Open Land	-.26
			Renter/Owner Ratio	-.22		
R^2		.36		.95		.96
9 (15)	Spansur Population	1.15	Overcrowded Housing	.60	Status Offenses	.90
	Median Rent	-.56				
	Non-Wht. Advanced Ed.	-.55				
	Commercial Parcels	-.46				
R^2		.71		.31		.80
10 (43)	Professional Occ.	1.69	Median Family Income	-.67	Overcrowded Housing	.67
	Anglo Fem. Lab. Force	-1.50	Non-Wht. Advanced Ed.	-.60	Multiplex Dwellings	-.53
	Status Offenses	.60	Median Rent	.59	Rental Housing	.52
	Traffic Generators	.58	Overcrowded Housing	.58	Status Offenses	.16
			Anglo Fem/Male Lab For	-.32		
			Open Land	-.28		
			Status Offenses	.27		
R^2		.70		.66		.90

* Regression Coefficients are Standardized

Table 6.6. Cross-sectional Regression Coefficients and Explained Variance (Adjusted R^2), Structural Variables and Crime, 1970, 1960, and 1950, Ten Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, Los Angeles County

Variable 1950	Reg. * Coeff.	Variable 1960	Reg.* Coeff.	Variable 1970	Reg.* Coeff.
Overcrowded Housing	.37	Overcrowded Housing	.40	Black Pop./sq.mi.	.77
Spansur/Anglo Pop. Ratio	.31	Black Pop./sq.mi.	.24	Status Offenses	.33
Non-Wht. Advanced Education	.16	Youth Dependency	.22	Semi & Unskill Occ.	-.29
Spansur. Advanced Education	.15	Spansur Fem/Male Labor F.	.20	Population/sq.mi.	.21
		Anglo Fertility Ratio	-.11	Spansur Fem. Labor Force	.21
				Non-Wht. Fem. Labor Force	-.21
				Spansur/Anglo Pop. Ratio	-.15
				Youth Dependency	.15
				Non-Wht./Span Pop. Ratio	-.14
				Median Family Income	-.12
				Commercial Parcels	-.10
R^2	.55		.53		.88

* Regression Coefficients are Standardized

.88. Suggested is that over the 20-year period, neighborhood conditions associated with crime increased in number and type, with some form of "critical mass" of these conditions occurring in the 1960-1970 period. Further, inspection of transformations in specific variables across time points reveals changes in their importance as correlates of crime. For example, the variable, Black Population/sq. mi. with statistical controls instituted, showed no relationship to crime in 1950, but became the second and first in importance in 1960 and 1970, respectively. Similarly, the Spansur/Anglo Population Ratio, with a positive regression coefficient of .31 in 1950 was changed by 1970 to a negative coefficient of -.15. And the independent effect of Overcrowded Housing, with the highest positive regression coefficients in both 1950 and 1960 does not enter the list in 1970.

The history of census tract clusters at different stages of their development as high crime areas in 1970 shows similar heterogeneity in effect variables both between stages at the same time point and in the same 1970 stage at prior time points. But the pattern of distribution of measures of explained variance generally accords with the expectation that the longer the period as a high crime area, the greater the variance in the crime measure explained by structural variables (Table 6.7). Structural variables for clusters at each stage of development explained increasing proportions of crime variance at each successive time point. On the other hand, only in 1960 were increasing proportions of variance explained as among the emerging, transitional, and enduring high crime areas. In 1970, on the other hand, structural variables exhibited less effect in the transitional high crime areas (R^2 = .79) than in either the emerging or enduring areas (.94 and .91, respectively), and in 1950 structural variables had the highest effect in the transitional areas. The clearest pattern reflecting the escalating effect of structural variables in accounting for variation in crime density is visible in an historical comparison of the cross-sectional measures. On the basis of the developmental cycle postulated, we may assume that the emerging high crime areas in 1950 became the transitional areas of 1960, and moved into the enduring stage in 1970. Viewed on the diagonal of the matrix represented in Table 6.7, the proportion of variance in the crime measure accounted for by structural variables increased decisively from .22 in the 1950 emerging areas to .54 in the 1960 transitional areas to .91 in the 1970 enduring areas. Further, the fact that the effect variable sets differ in composition at each stage at each time point would indicate that the specific mix of neighborhood conditions differs in generating high crime areas that are at different stages of development.

2. Cross-lagged relationships. In this procedure, the dependent crime variable for 1960 was regressed on the entire set of independent structural variables for 1950, crime in 1970 on

Table 6.7. Cross-Sectional Regression Coefficients and Explained Variance (Adjusted R^2), Structural Variable and Crime, 1970, 1960, and 1950, by Stages of Development as High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Stage	1950 Variable	Reg. Coeff.**	1960 Variable	Reg. Coeff.**	1970 Variable	Reg. Coeff.**
Emerging (26)*	Status Offenses	.50	Overcrowded Housing	.57	Status Offenses	.83
			Spansur Female/ Male Labor Force	-.32	Non-Wht Population	.28
R^2		.22		.51		.94
Transitional (112)	Semi- & Unskilled Occ.	.87	Semi- & Unskilled Occ.	.96	Black Population	.45
	Aged Dependency	-.27	Anglo Fertility Ratio	.41	Status Offenses	.39
			Apt. Dwellings	-.34	Overcrowded Housing	.19
			Mexican Foreign Born	-.33		
			Anglo Adv. Education	.27		
			Traffic Generators	.21		
			Spansur Female/ Male Labor Force	.19		
R^2		.56		.54		.79
Enduring (76)	Spansur/Anglo Population Ratio	.56	Overcrowded Housing	.67	Non-Wht Population	.89
	Median Rent	-.27	Single Family Housing/sq. mile	.60	Non-Wht Female Labor Force	-.39
			Owner Occ. Housing	-.52	Status Offenses	.23
			Median Home Value	.28	Total Pop./sq. mile	.23
			Spansur Female/ Male Labor Force	.24	Multiplex Dwellings	-.16
			Anglo Fertility Ratio	-.21	Youth Dependency	.15
			Anglo Female Labor Force	-.15		
R^2		.32		.64		.91

* Values in ( ) refer to the number of census tracts at each stage of development
** Regression Coefficients are Standardized

structural variables for 1960, and crime in 1970 on structural variables for 1950.

In eight of the ten high crime density census tract clusters, the 1960 independent variables accounted for a larger proportion of the 1970 crime measure variance than did the 1950 independent variables for the 1960 crime variance (Table 6.8). Again, for each cluster at each decade period, the specific effect variables differed extensively, suggesting that the neighborhood conditions implicated in "driving" the crime measure across time differ widely in their specific elements. At the descriptive level, it is likely that just these differences in the composition of crime related neighborhood characteristics define the social climate unique to each. Further, the fact that the assemblage of structural variables is distinctive for each of the clusters confirms the appropriateness of the algorithm used to identify distinctive neighborhoods despite its having been based solely on the crime measure.

When the ten high crime clusters as a unit are subjected to cross-lagged multiple regression analysis, not unexpectedly the proportion of explained variance for each of the time lag periods is reduced below the mean explained variance for the ten clusters individually. This is to say that each of the clusters taken separately is more homogeneous, i.e., its structural variables account on the average for a greater proportion of the variance in the crime measure, than are the ten high crime clusters collectively treated as the unit of analysis.

Distinctions among clusters at different stages of development as high crime areas generally confirm the findings of the cross-sectional analysis (Table 6.9). Where the structural variables of 1950 at each developmental stage accounted for a relatively modest proportion of the variance in the crime measure for 1960, the 1960 structural variables accounted for a very much increased proportion of crime variance in 1970. Indicated, then, is a very large increase in the effect on crime of neighborhood conditions indexed by structural variables during the second decade of the 20-year period. Moreover, the intensification of structural variable effect on crime in the second decade occurred uniformly for clusters whatever their stage of development in 1970. This occurred even in the enduring stage clusters, which were already established as high crime areas in 1950, where the R^2 measure for the 1950-1960 cross-lag increased from .41 to .92 for the 1960-1970 cross-lag.

The 20-year multiple regression, 1950-1970, exhibits less lead-lag structural effects on crime than does the ten-year analysis, 1960-1970. This finding may indicate no more than the averaging effect of combining the lower variance measure of the earlier decade with the higher measure of the later decade.

Table 6.8 *Cross-lagged Regression Coefficients and Explained Variance (Adjusted R^2), Variables with Crime Dependent, 1950-1960, 1960-1970, and 1950-1970, 1970 Areal Cohorts, Los Angeles County*

Cluster	1950-1960 Variable	Reg.* Coeff.	1960-1970 Variable	Reg.* Coeff.	1950-1970 Variable	Reg.* Coeff.
	Spansur/Anglo Pop.Rates	.55	Black Pop/sq.mi.	.79	Industrial Parcels	-.42
1 (48)	Traffic Generators	-.29	Non-Wh.Fem.Lab.Force	-.58	Youth Dependency	.38
			Residential Mobility	.42	Rental/Owner Ratio	.34
			Industrial Parcels	-.14	Median Rent	-.32
R^2		.36		.93		.62
	Anglo Fertility Rate	.83	Overcrowded Housing	1.22	Status Offenses	.84
2 (13)	Median Home Value	-.76	Median Family Income	.46	Spansur/Anglo Pop.Ratio	-.57
	Spansur Population	-.58				
R^2		.75		.89		.47
	Median Rent	-.87	Non-Wh.Fem.Lab.Force	1.18	Non-Wh/Spansur Pop.Ratio	.87
3_2(10)			Span.Fem/Male Lab.Force	.29		
R^2		.72		.97		.73
	Median Home Value	-.53	Black Pop/sq.mi.	.63	Multiplex Dwellings	.60
4 (32)			Semi-G Unskilled Occu.	.39	Owner Housing	.47
			Anglo Fem/Male Ratio	.36	Commercial Parcels	-.28
			Median Home Value	-.24	Non-Wh/Spansur Ratio	.23
R^2		.25		.81		.70
	Multiplex Dwellings	1.15	Unrelated Individuals	.83	Non-Wh.Fertility Ratio	.76
5 (0)	Non-Wh.Fertility Ratio	-.82	Skilled Occupations	.58		
	Anglo Pop/sq.mi.	.28	Mexican Foreign Born	-.43		
R^2		.96		.94		.52
	Semi-G Unskilled Occu.	1.65	Overcrowded Housing	.70	Median Education	-.90
	Skilled Occupations	-1.08	Spansur/Anglo Pop.Ratio	.24	Traffic Generators	-.29
6 (27)	Spansur Adv. Education	-.64	Non-Wh.Pop/sq.mi.	-.23	Median Age	.25
	Prof. Occupations	.64				
	Non-Wh.Fem/Male Lab.Force	-.46				
	Non-Wh.Fertility Ratio	.21				
	Open Land	-.20				
R^2		.92		.87		.77

* Regression Coefficients are Standardized

Table 8.8 (cont.) Cross-Lagged Regression Coefficients and Explained Variance (Adjusted R^2), Variables with Crime Dependent, 1950-1960, 1960-1970, and 1950-1970, 1970 Areal Cohorts, Los Angeles County

Cluster	1950-1960 Variable	Reg.* Coeff.	1960-1970 Variable	Reg.* Coeff.	1950-1970 Variable	Reg.* Coeff.
7_2(7)	Non-White Pop./sq.mi.	.67	Residential Mobility	1.06	Black Pop./sq.mi.	3.01
			Anglo Fem. Lab.Force	-.41		
R^2		.36		.95		.33
8 (9)	Commercial Parcels	-.72	Median Family Income	-.95	Mex. Foreign Born	.72
			Commercial Parcels	-.80	Commercial Parcels	-.47
			Traffic Generators	.71	Unemployment	-.34
			Span. Fem./Male Lab F	-.33		
R^2		.45		.93		.85
9 (15)	Residential Stability	.64	Median Age	-.80	Renter/Owner Ratio	.96
			House Lack. Plumbing	.40	Residential Mobility	.73
					Traffic Generators	-.41
					Spansur Fertility Ratio	-.30
R^2		.36		.65		.92
10 (43)	Median Home Value	-.36	Semi & Unskill Occ.	.99	Renter Occupied Housing	.98
			Multiplex Dwellings	-.53	Multiplex Dwelling	-.58
			Mex. Foreign Born	.47	Span. Female Labor Force	.22
			Single Family Housing	-.46		
R^2		.11		.74		.58
Total (214)	Mex. Foreign Born	-.96	Black Pop/sq.mi.	.73	Black Pop/sq.mi.	1.38
	Span. Female Labor Force	.73	Overcrowded Housing	.30	Non-Wht. Fem. Labor Force	-1.02
	Span/Anglo Pop. Ratio	.64	Youth Dependency	.28	Anglo Pop/sq.mi.	.82
	Median Home Value	-.32	Anglo Fem. Labor Force	.21	Professional Occupations	-.56
	Non-Wht Fem/Male Labor For.	.31	Aged Dependency	.18	Housing Lacking Plumbing	-.34
	Anglo Pop/sq.mi.	.22	Span Fertility Ratio	.11	Non-Whit Advanced Ed.	-.34
	Span. Advanced Education	-.22	Industrial Parcels	-.11	Span Fertility Ratio	.25
			Anglo Fem/Male Lab For.	.09	Spansur/Anglo Pop. Ratio	.24
					Non White/Anglo Pop. Ratio	.16
					Renter/Owner Ratio	.15
					Industrial Parcels	-.13
R^2		.40		.84		.59

* Regression Coefficients are Standardized

Table 6.9 Cross-lagged Multiple Regression Coefficients (.05) and Explained Variance (Adjusted R^2), Structural Variables with Crime Dependent, 1950-1960, 1960-1970, and 1950-1970, by Stages of Development as High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Stage	1950-1960 Variable	Reg. Coeff.	1960-1970 Variable	Reg. Coeff.	1950-1970 Variable	Reg. Coeff.
	Overcrowded Housing	.71	Black Pop/sq.mi.	1.25	Mexican Foreign Born	.75
			Non-Wh.Fem.Lab.Force	-.77		
Emerging (26)			Residential Mobility	.56		
			Housing Turnover	-.43		
			Median Rent	-.25		
R^2		.46		.92		.52
	Widowed and Divorced	.59	Renter/Owner Ratio	-.68	Residential Stability	.95
	Hsg. Lack. Plumbing	-.39	Semi & Unskilled Occu.	.55	Professional Occu.	-.94
Transitional (112)	Median Home Value	-.38	Median Family Income	-.30	Widowed & Divorced	.52
	Spansur Adv. Edu.	-.32	Housing Turnover	.29	Anglo Adv. Edu.	.41
	Non-Wh.Fem/Male Lab.Force	.19			Traffic Generators	-.22
R^2		.40		.76		.61
	Spansur/Anglo Pop.Ratio	.72	Anglo Pop/sq.mi.	1.01	Spansur Pop/sq.mi.	-.63
	Median Rent	-.46	Non-Wh.Fem.Lab.Force	-.53	Youth Dependency	.58
Enduring (76)	Spansur Adv. Edu.	-.46	Youth Dependency	.22	Residential Stability	.34
	Hsg. Lack. Plumbing	-.27	Anglo Fem.Lab. Force	-.18	Status Offenses	.22
			Industrial Parcels	-.13	Traffic Generators	-.20
			Status Offenses	.11		
R^2		.41		.92		.57

3. Deviational change correlation measures. The aim of this measure is to identify those structural variables whose change velocities over the 1950, 1960, and 1970 period account for the variance in crime change velocities during this 20-year period. Essentially, deviational change correlation assesses the relationship of changes in one dependent variable to the change in one or more independent variables by utilizing differences obtained from the values predicted by the interannual regressions for the variable (Myers, 1967:158). In effect, then, the interannual correlation of the residuals from the regression expresses the comparative velocity and direction of change in the two variables.

This procedure has a number of additional useful features. First, unlike other measures of change that rest on scales using an arbitrary zero point, the correlation of deviational change is measured on a rate scale with an absolute zero point and truly equal intervals (Duncan et al., 1961:162). Second, it simultaneously accounts for estimates of cross-sectional and lag relationships as well as comparative interannual change rates. The relationships among these correlations are shown in Figure 6.10. In view of its capacity to account for these three types of correlations, the use of this measure is especially appropriate in the present study. While reflecting the velocity of change between points in time, the procedure accounts at the same time for any "natural" influences on stability and change that may occur. For example, if median family money income tends to rise over time, there is no need to correct for the inflation factor when calculating deviational correlations. Any such variable decay or shift is accounted for automatically. And third, it addresses the question of temporal and therefore causal priority in a more sensitive manner than is provided solely by the method of bivariate cross-lagged correlation. Instead of simply noting which variables in a time series analysis changed before which other variables, the correlation of deviational change method adds to such information the comparative rate or velocity of change in the prior changing variables. This is a crucial addition to the information required in this study in view of its theoretically important assumption regarding the nexus between the rapidity of structural change in neighborhoods and their crime trends.

The logic of the deviational correlation measure was expanded here into a multiple regression analysis. The residuals obtained from the correlation of the 1950 and 1960 on the 1970 structural variables, were regressed on the residuals obtained from correlation of the 1950 and 1960 on the 1970 crime variable. This technique produces a single correlation and a set regression coerficients. The measures estimate the extent to which the velocity of change in structural variables are associated with the velocity of crime change. It will be recalled that the more general statement of the hypothesis held that it is not merely

social change that reduces the capacity for effective social control, but rapid social change.

However, the model must be further specified to discriminate those elements or variables indexing social change that are in fact related in a reasonably proximate way to the altered capacity for social control. It is possible, for example, that some structural variables may undergo rapid rates of change with their impact on crime control either marginal or so highly delayed as to give them only the most general theoretical relevance. This is the case, typically, of that aspect of the cultural component of social structure represented by short lived expressive fashions. At the opposite extreme would be the case of rapid transformations in technology whose effects ultimately come to pervade all institutional arrangements, including those having direct social control functions. It is just this "ultimacy" of effect that is at issue at the moment. The concern here has been with a method of analysis capable of identifying those neighborhood conditions rendered as structural variables whose change velocities over the reasonably short period of 20 years have exhibited the highest association with change velocities in crime. This is accomplished by deviational change analysis.

Table 6.10 displays for each of the ten high crime density census tract clusters the structural variables identified as those with statistically significant regression coefficients and whose change velocities account for the greatest proportion of variance in the change velocities of the crime measure. The variables surfaced by the procedure vary widely across clusters, and explain very high proportions of the variance in change rates of the crime variable, ranging from .82 in Cluster 2 to .95 in Clusters 1 and 5. Again, as noted with respect to cross-lagged multiple regression, when the ten clusters are treated as the unit of analysis the increased heterogeneity was reflected in a very much reduced R^2 measure (Table 6.11). In any event, the use of a procedure that clustered census tracts on the basis of similarity of crime measure did produce clusters of census tracts relatively homogeneous with respect to their structural features.

Finally, relative change velocities between structural variables and crime are not uniform in clusters more or less advanced in the cycle of their development as high crime areas (Table 6.12). In the emerging areas in 1970, change rates were highly similar (R^2 = .85) over the preceding two decades. In those at the transitional and enduring stage in 1970, change rates were substantially less synchronous over the 1950-1970 period. This difference may indicate that as crime areas mature, changes in neighborhood conditions no longer have the immediacy of impact on their crime problem that characterizes the early stage areas. Put otherwise, the suggestion is that with time, criminal activity in these areas may stabilize at a level determined by the availability of criminal opportunity and the

Table 6.10 Regression Coefficients and Explained Variance (R^2 Adjusted) of Deviational Change, 1950- 1960 Structural Variables with Crime 1970, Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, Los Angeles County.

Cluster		Reg. Coeff.
1 (48)	Youth Dependency	.79
	Anglo Fem.Labor Force	.53
	Anglo Pop/sq.mi.	-.35
	Anglo Adv. Edu.	.17
	Spansur Adv. Edu.	.14
	Median Home Value	-.13
	Open Land	-.11
	R^2	.95
2 (13)	Anglo Fem.Lab.Force	.61
	Traffic Generators	-.45
	R^2	.82
3 (10)	Residential Stability	1.15
	Anglo Fertility Ratio	-.36
	R^2	.94
4 (32)	Youth Dependency	.98
	Anglo Pop/sq.mi.	-.71
	Anglo Fem.Lab.Force	.45
	Residential Stability	.35
	Skilled Occupations	-.15
	R^2	.90
5 (10)	Residential Stability	.98
	Mexican Foreign Born	.34
	Widowed and Divorced	.22
	R^2	.95
6 (27)	Youth Dependence	1.26
	Anglo Pop/sq.mil	-.87
	Anglo Fem.Lab.Force	.55
	Skilled Occupations	-.32
	Unrelated Individuals	.23
	Anglo Adv. Edu.	.18
	R^2	.92
7 (7)	Median Education	-.83
	Anglo Pop/sq.mi.	.51
	R^2	.92
8 (9)	Residential Mobility	.77
	Non-Wh.Fertility Ratio	.33
	R^2	.93
9 (15)	Residential Mobility	.99
	Non-Wh./sq.mi.	-.16
	R^2	.92
10 (43)	Residential Stability	.96
	R^2	.92

Table 6.11. Regression Coefficients and Explained Variance (R^2 Adjusted) of Deviational Change, 1950-1960 Structural Variables with 1970 Crime, Ten Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, Los Angeles County

Variable	Regression Coefficient
Youth Dependency	.80
Anglo Population/Sq. Mi.	-.40
Anglo Female Labor Force	.32
Residential Mobility	.14
	R^2 .65

Table 6.12. Regression Coefficients and Explained Variance (R^2) of Deviational Change, 1950-1960 Structural Variables with Crime 1970, by Stage of Development as High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Stages of Development								
Emerging (26)*			Transitional (112)			Enduring (76)		
Variable	Reg. Coeff.		Variable	Reg. Coeff.		Variable	Reg. Coeff.	
Residential Stability	.70		Youth Dependency	.82		Youth Dependency	.72	
Owner Occupied Housing	-.28		Anglo Pop/sq.mi.	-.59		Residential Mobility	.22	
Anglo Adv. Education	.22		Anglo Fem. Labor Force	.34		R^2	.71	
Multiplex Dwellings	-.17		Residential Stability	.26				
R^2	.85		Open Land	.22				
			R^2	.65				

*Values in ( ) refer to the number of census tracts.

increasingly fixed character of their demographic, socioeconomic, and subcultural composition.

4. Interannual stability in structural variables. A very limited test of this possibility is provided by the comparative magnitudes of the interannual correlations of the structural variables displaying the highest regression coefficients at the emerging stage of development. The larger the correlations of the same variable between any two of the time points, the less the change across time in that variable; the smaller the correlation, the less the relationship between the values for Time 1 and Time 2, the greater the change. It is evident in the data of Table 6.13 that generally for the test variables, the earlier the stage of development as a high crime area the greater the change between 1950 and 1970. Similarly, for clusters at each stage in 1970, with the exception of multiplex dwellings, there was greater change during the earlier 1950-1960 decade than during the later 1960-1970 period. The exception may suggest no more than that as neighborhood social conditions change, effects on the character of housing structures tend to be delayed.

In connection with all of the multiple regression measures, we have noted in passing that the specific sets of the structural determinants of crime densities vary substantially for individual census tract clusters at different time periods and, across time, for groups of clusters at different stages of development as high crime areas. The varied sets of structural determinants are, moreover, differentially constituted with respect to their membership in the four domains, or dimensions, of social structure. It would appear, then, that as is true of all urban neighborhoods, not all high crime areas are alike in their social composition. Their differences with respect to the relative prominence of variables representing the four dimensions of neighborhood social structure are examined in the following section.

5. Variation in structural domain prominence. Presented here is an assessment of this issue, to be based only on a simple numerical distribution of types of variables. A more definitive analysis is offered in the next chapter, where the variables in each structural domain will be reduced to a single indicator score.

To be noted first is that the number and types of structural variables associated with crime change in all of the 1970 high crime areas are quite similar, whether cross-sectional or cross-lagged measures are used, but differ sharply with the use of the deviational change measure (Table 6.14). Second, in none of the measures do land use variables appear as prominent determinants. And third, while the largest number of variables are those of the subcultural domain in both the cross-sectional and the cross-lagged measures, these are drastically reduced in the measure of deviational change.

Table 6.13. Weighted Mean Interannual Correlations, Variables with Statistically Significant Multiple Regression Coefficients at the Emerging Stage of Development, by Stages of Development, 1970 Areal Cohorts, Los Angeles County

Residential Stability			
Stage	50-60	60-70	50-70
Emerging	.45	.58	.29
Transitional	.54	.63	.53
Enduring	.59	.62	.50
Owner Occupied Housing			
Stage	50-60	60-70	50-70
Emerging	.77	.83	.47
Transitional	.68	.94	.36
Enduring	.53	.89	.17
Anglo Advanced Education			
Stage	50-60	60-70	50-70
Emerging	.00	-.03	.00
Transitional	-.04	-.29	-.11
Enduring	-.09	.00	-.07
Multiplex Dwellings			
Stage	50-60	60-70	50-70
Emerging	.92	.81	.73
Transitional	.93	.98	.92
Enduring	.99	.99	.98

Table 6.14. Number and Type of Structural Variables, Statistically Significant Multiple Regression Coefficients with Crimes, by Method of Measurement, Ten Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, Los Angeles County

Structural Domain	Cross Sectional				Cross-lagged				Deviational Change
	50	60	70	Total	50	60	70	Total	50-60
Land Use	-	-	1	1	-	1	1	2	-
Demographic	-	1	2	3	-	2	1	3	2
Socioeconomic	1	1	2	4	1	1	2	4	-
Subcultural	3	3	6	12	6	4	7	17	2
Total	4	5	11	20	7	8	11	26	4
R^2	.55	.53	.88		.40	.84	.59		.65

Although admittedly crude, this way of "scoring" the distribution of types of structural variables has suggestive implications for the comparative impact of these types on variation in neighborhood crime. Evident in the cross-sectional and cross-lagged measures is a rank order of an increasing number of variables from land use through demographic and socioeconomic to subcultural variables. This would suggest the possibility of a developmental process in which variables in each prior type of structural domain functions as a condition for the emergence of variables of the succeeding type, ending in a relative profusion of subcultural variables. Put more concretely, initial limited changes in land use induce a larger number of demographic changes, in turn fostering a still larger number of changes in the socioeconomic features of the resident population and, as the capstone, proliferating in ethnic, occupational, and educational patterns representing adaptive behavior to the set of background conditioning factors.

On the other hand, the velocity of change in only the demographic and subcultural structural variables exhibit statistically significant regression coefficients with the velocity of change in the crime measure over the long run period of 1950-1970. They account for almost two-thirds of the variance in the changes in crime. This relationship is clearly shown in Table 6.15. For example, by controlling all other structural variables, only youth dependency ratio, residential stability, Anglo population density, and Anglo females in labor force exhibit the larger regression coefficients.

Finally, distinctions respecting the associations of change velocities among high crime clusters at their three stages of development are apparent in the data of Table 6.15. Prominent there again is the significance of the associations between change rates in land use and demographic variables and change rates in the crime measure. To be noted is the fact that in the emerging stage areas in 1970, change velocities in land use and demographic variables alone account for a very high proportion of the variance (.85) in change rates in crime. In the enduring areas of long established high crime status, the association of land use change rates with change rates in crime disappears, and only two demographic variables retain this association. Change velocities in several subcultural variables are related to rates of crime change only in the transitional stage areas. The somewhat surprising fact is, then, that almost irrespective of the stage of development in which high crime neighborhoods may find themselves, the rate at which its crime measure changes would seem to be function of change velocities primarily in their residential stability and their youth dependency ratio.

C. Summary

The question addressed to this point concerned the lead-lag relationships between multiple measures of neighborhood structure

Table 6.15. Statistically Significant (.05) Multiple Regression Coefficients of Deviational Change by Stages of Development as High Crime Areas, 1970 Areal Cohorts, Los Angeles County

Structural Domain	Stage		
	Emerging	Transitional	Enduring
Land Use	Owner Occupied Housing -.28 Multiplex Dwellings -.17	Open Land .22	-
Demographic	Residential Stability .70	Youth Dependency .82 Residential Stability .26	Youth Dependency .72 Residential Mobility .22
Socioeconomic	-	-	-
Subcultural	-	Anglo Pop./ Square Mile -.59 Anglo Female in Labor Force .34	-
R^2	.85	.65	.71

and the crime variable. Use was made of three types of measures: bivariate cross-lagged correlational analysis, multivariate regression analysis, and the method of deviational change correlation.

Bivariate cross-lagged correlational analysis, the least definitive of these measures for the lead-lag issue, revealed that as high crime areas move through a developmental cycle from the emerging to the enduring stage, the temporal precedence of structural variables starts at a high level, increases through the transitional stage, and declines as the crime measure stabilizes at their highest level in the enduring stage. Suggested is that it is no longer the physical and social features of pervasively and chronically deteriorated neighborhoods that continue to drive the crime measure up, but that the high crime condition itself feeds back to produce further deterioration. In addition, this analysis provided evidence that changes in structural variables are generally temporally prior to changes in crime measures of subsequent time periods and can reasonably be treated as the independent variables in relation to crime measures. Furthermore, among the variables of the four structural domains, those of land use are the least in evidence as precursors of rises in neighborhood crime levels.

Cross-sectional, interannual, and cross-lagged multivariate regression analysis was then used to provide a more precise assessment of the differential impact of change in neighborhood conditions on change in the crime measure at various stages in the development of high crime areas. The findings from simple cross-lagged correlational analysis were generally supported, with some amplification of detail. Cross-sectional measures revealed that for all high crime areas at whatever stage of development, the effect of structural variables, in terms of variance proportion explained, showed little or no increase between 1950 and 1960, and then increased very sharply between 1960 and 1970. On the other hand, when the cross-sectional measures were disaggregated by stage of development it was found that the longer the period as a high crime area, the greater the proportion of variance in the crime measure explained by structural variables. Thus, structural variable effects on crime were lowest in the emerging areas in 1950, higher in the transitional areas in 1960, and highest in the enduring areas in 1970.

Focusing more directly on temporal relationships, multivariate cross-lagged correlation measures also reveal the priority of structural change to change in crime. In addition, this analysis showed that in almost all the high crime clusters, whatever their stage of development, structural variables in 1960 had greater effect on the increase in the 1970 crime measure than did the 1950 structurals on the 1960 crime measure. This was true as well when the cross-lagged measures were disaggregated by

stage of development. The difference in structural effect on crimes between the two decades may indicate that in Los Angeles County, because it is a relatively young metropolis, a cumulative process was under way which attained a "critical mass" only by 1960.

The final set of measures used to assess the temporal priority issue was that of deviational change correlation. This method measures not merely the relationship of change in one set of variables to change in a second set, but the comparative velocities of change in both. The use of this statistical procedure was deemed important from the standpoint of theory building. It is possible that it is not merely the advancing deterioration of urban neighborhoods that has the effect of driving up crime, but the velocity or rate at which deterioration advances. This form of the analysis also has the capacity of identifying, net of all structural variables, those variables whose prior change velocities are related to the subsequent change velocity of crime. Here, deviational change correlations between structural and crime variables were derived for the 1950, 1960, and 1970 structural variables and provide a look at another dimension of the temporal priority issue. On the whole, the speed of change for the specified structural variables for 1950, 1960, and 1970 explained very high proportions of the variance in change in the crime measure. But the relevant finding here was that while the degree of change in structural variables was highly synchronous with change in crime in the emerging high crime areas, in the transitional and enduring stage areas these changes in the two sets of variables were substantially less synchronous. The distinction may be interpreted to mean that as crime areas mature, changes in neighborhood conditions lose their earlier immediacy of impact on changes in their crime measures.

Finally, in the analysis presented thus far, the specific sets of structural variables that emerged as being related to crime measures, with the statistical controls instituted by the method of multivariate regression, varied widely. They varied by individual high crime clusters as well as by clusters at the several stages of development. Further, when these were collapsed into the structural domain categories of land use, demographic. socioeconomic, and subcultural variables, there was high similarity in both the cross-sectional and the cross-lagged multivariate analyses.

Most striking was the fact that the smallest number of structural variables showing an effect relationship to the crime measure was obtained from the deviational change correlation analysis. The finding in this analysis strongly supports the theoretically postulated argument that the crucial determinant of change is the velocity of the change. For example, for the study's ten high crime clusters, changes mainly in demographic and subcultural variables during the 1950-1960 decade accounted for the highest proportion of the variance in the change in the

crime measure. The likely meaning of this finding is that, other things equal, the more rapid the change in variables of this type, the more rapid the change in the crime measure. This introduces the interesting modification of the earlier finding from cross-lagged multivariate correlation that with increasing maturity of high crime areas, the number of effect variables increases with progression from the land use through the subcultural domain. If the crucial relationship is in fact that between the comparative velocities of change in structural variables and of change in the crime measure, the correlation of deviational change discloses that, net, the velocity of prior demographic and the subcultural changes are those that appear to have the strongest relationship to the velocity with which the crime measure of a neighborhood increases. It is possible, then, that whatever the rate of change of other structural variables implicated in the relationship of neighborhood deterioration to their increases in crime, rapid change in certain features of the demographic composition of their populations and in subcultural factors represent the critical elements. Change velocities in neither land use nor socioeconomic variables appear to have the same effect in emerging high crime areas.

CHAPTER VII

COMPOSITE INDICATOR SCORES AND THE ANALYSIS OF NEIGHBORHOOD TRANSFORMATION

A. The Development of Composite Scores

Crime related neighborhood characteristics were selected first for their theoretically postulated relevance to the problem of social control and, second, for the availability of statistical series yielding reasonably stable measures across time. Neighborhood features of interest were those descriptive of the functional uses made of its physical space; the composition of its population with respect to age and sex distribution and to the distribution of household types; the position of its population in the economic and status order of the wider metropolitan region; and elements of neighborhood subculture assumed to affect perceptions of the legitimacy of the criminal law. These were conceptualized as the components or dimensions of neighborhood social structure constituting the relatively independent and enduring conditions residents recurrently confront in their effort to organize and maintain a social existence.

For purposes of summary measurement and analysis, each of the dimensions of neighborhood structure has been treated as a composite indicator through procedures similar to those used in the development of social indicators. The latter term has been used to refer to some measurable condition having direct and intuitive significance for the quality of community life, such as health, crime, welfare, and the like. It is common for a social indicator to be composed of many quantifiable variables. It should be understood that the "indicator" concept as used in this study refers not to the usual type of functional area but to the specific elements of structure as defined above. The feature of the "indicator" concept that has been deemed useful is its capacity to summarize and reflect measures yielded by the many variables of which it is constituted. More specifically, then, we deal here with indicators of structural components, terming them <u>composite indicators</u> to denote their source in the measurement of multiple constitutive variables.

The aim in summarizing multiple measures into a composite indicator is to derive a single score representing the value of the structural component for any given spatial unit: a census tract cluster, or a set of clusters defined by a specific range of its crime measure or by its stage of development as a high crime area. The construction of the composite indicator score necessarily requires the use of a method of weighting the contribution of each of its constituent variables. Needed, therefore, is a model capable of measuring differences in the weights of the separate measures. The model equation should,

then, treat the individual measures as independent variables, intercorrelating them so that the dependent variable is represented by the underlying structural dimension.

One of the most efficient method of developing composite indicator scores is through the use of factor analytic techniques. Since the factors to be extracted are in this instance predefined, the method of choice is that of one-factor factor analysis (Schuessler, 1971:47-60). The procedural steps in the application of a one-factor model may be briefly indicated:

1. Measures of the variable composing the structural element are subjected to a principal component solution for a single factor extraction. In the single factor model, there can be only one set of final factor loadings which can reproduce the original input correlation matrix. Therefore, the factor loadings are not subject to adjustment by any of the rotation techniques.

2. A best estimate is obtained of the proportion of the variance (i.e., commonality) due to the factor in the case of each variable. Refactoring iterations are performed until the recomputed commonality estimates stabilize, reached when there is no change in the commonality estimates beyond, say, .001 (Harman, 1967:84-88; Schuessler, 1971:89-91).

3. Coefficients thus obtained are the final factor loadings and adjustment rotation techniques are unwarranted. The factor loadings represent the correlations of each variable with the factor. Since there is only one factor, the square of the loading expresses the obtained commonality of each variable. Each final commonality obtained reflects the amount of variance in the variable accounted for by the factor.

4. Multiple regression methods are then applied to the variables to obtain regression coefficients as optimal weights, maximizing each factor loading to form a composite with the factor (Guilford, 1954:350-354). With the factor as the dependent variable, a multiple coefficient can be calculated, and from this equation, the expected factor's values for each subarea can be obtained. The general format of the regression equation provides for the standardization of the input variables to Z-score form, permitting the resultant output for the equation to be in standardized factor scores for each subarea. Standard score values are used as independent variables in order to locate the intercept value at zero, thus excluding the intercept from the calculation.

Hence, the weights produced by carrying the conceptualized factor loadings through a least squares multiple regression format yield a maximum correlation between each dimension of social structure and the individual measures selected as conceptually relevant to the given dimension. The output of the procedure was a set of composite indicator score values of structural components and crime for 1950, 1960, and 1970, expressed as the proportion of the variance explained in each indicator at each of the time points.

Finally, the question of whether the one factor model is in fact the method of choice for deriving composite indicator scores was tested by conducting a more traditional factor analysis whereby all variables were subjected to factor analysis at once and not separately for each factor. The usual purpose of traditional factor analysis is the reduction of a large set of variables to a small number of underlying or "hidden" factors that are both interpretable and theoretically relevant. In the current test, however, no meaningful conceptual factors emerged or could be identified by any degree of orthogonality, (see Table 7.1).

This finding was altogether predictable, given the ecological context of the variables employed. The processes of neighborhood segregation and specialization have the effect of clustering urban space attributes within delimited units whose measures are highly and uniformly intercorrelated. In statistical terms, the degrees of freedom are undefinable, restricted due to the bias introduced vis-a-vis the segregation of the variables within spatial ecology. As such, the variables must mathematically cluster through factor analysis techniques due to spatial clustering of variables and not necessarily because of an underlying factorial dimension. For example, census tract clusters with high densities of multiple family dwellings are highly likely to contain high proportions of unrelated individuals, high youth dependency ratios, high concentration measures of the labor force in unskilled occupations, and high concentration measures of ethnic minority groups. The test consequently confirmed the appropriateness of the one-factor model for purposes of calculating composite indicator scores.

For Los Angeles County, the contribution of individual variables in the determination of the composite indicator scores represented by the proportion of the total variance in each indicator at each time point may be examined in Tables 7.2 through 7.6. The variables used as indexes of each composite indicator were selected from the U.S. Census reports or local assessor files as most likely to measure elements of structure related to neighborhood deterioration. Of the land use variables in 1950, five of the nine (rental housing, multiplex dwellings, apartment dwellings, commercial parcels, and household stability indexed by the renter/owner ratio) correlated with land use at a .50 or higher magnitude in 1950 and 1970 (Table 7.2). In 1960 the same variables with the exception of household stability

Table 7.1. Rotated Factor Loadings and Variance Scores for a Six Factor Analysis, Los Angeles County, 1970[1]

Variable Description	Factor Pattern 1	2	3	4	5	6
Study Demographic Measures:						
1. Population	n/a[2]	n/a	n/a	n/a	n/a	n/a
2. Unrelated Individuals	.94	.06	.08	-.03	-.11	.21
3. Non-intact Individuals	.88	.08	.17	-.14	.06	.36
4. Residential Stability	.61	.33	.34	-.21	.57	.10
5. Residential Mobility	.88	.21	.17	-.30	.09	-.07
6. Youth Dependency (0-18/19-65 years)	-.50	.22	.19	-.40	.10	-.43
7. Aged Dependency (65+/19-65 yrs)	.31	-.08	-.04	-.03	-.06	.82
8. Median Age	.34	-.25	-.14	.33	-.03	.74
Study Socioeconomic Measures:						
1. Professional Occupations	.80	-.14	-.07	.39	.24	.03
2. Skilled Occupations	.90	.07	.03	.13	.31	.00
3. Semi-skilled and Unskilled	.54	.48	.42	-.34	.21	-.00
4. Unemployment	.73	.17	.32	-.33	.18	.06
5. Population with Advanced Education	n/a	n/a	n/a	n/a	n/a	n/a
6. Housing Lacking Basic Plumbing	.28	.12	-.02	-.26	-.26	.31
7. Housing with Overcrowded Conditions	.33	.65	.37	-.49	.11	-.10
8. Housing Turnover	.79	.04	.22	-.25	-.15	.18
9. Median Family Income	-.35	-.21	-.25	.53	.12	-.22
10. Median Home Value	.01	-.19	-.14	.62	.11	-.04
11. Median Rent	-.05	-.29	-.29	.49	.19	-.20
12. Median Education	.10	-.59	-.15	.53	.07	-.13

[1] All variables are concentration measures (i.e., χ/square) except where noted.

[2] Noted allowed in the course of factor analytic procedures.

Table 7.1 continued

Variable Description	Factor Pattern 1	2	3	4	5	6
Study Land Use Measures:						
1. Owner Housing	.03	.03	.10	.07	.84	.05
2. Renter Housing	.94	.15	.15	-.07	-.02	.15
3. Residential Dwellings	.00	-.04	.08	.03	.45	-.08
4. Multiplex (2 to 10 units)	.62	.14	.14	-.09	.12	.20
5. Apartment (11 and over units)	.83	.03	-.01	.13	-.17	.01
6. Commercial Property	.42	.10	.10	-.27	-.12	.42
7. Industrial Property	-.02	.03	.02	-.23	-.21	.06
8. Open Land	-.03	.01	.08	-.02	-.04	.02
9. Buildings with more than 25,000 square feet	.45	-.03	-.06	-.01	-.28	.15
10. Renter Occupied to Owner Occupied	.65	.09	.06	-.06	-.23	.14
Study Subculture Measures:						
1. Juvenile Status Offenses	.02	.39	.39	-.53	.25	-.15
2. Black Population	.03	-.10	.91	-.36	.10	-.04
3. Spanish Surname Population	.09	.99	-.05	-.08	.05	.02
4. Anglo Population	.77	-.16	-.49	.02	.37	.08
5. Non-White Population	.12	-.04	.94	-.31	.10	-.05
6. Non-White Females in Labor Force	.21	-.02	.93	-.13	.07	-.04
7. Spanish Surname Females in Labor Force	.21	.94	-.01	-.03	-.00	.02
8. Anglo Females in Labor Force	.83	-.13	-.35	.18	.24	.05
9. Non-White with Advanced Education	.50	.08	.59	.25	-.04	-.07
10. Spanish Surname with Advanced Education	.50	.43	.04	.13	-.13	-.08
11. Anglo with Advanced Education	.64	-.21	-.23	.38	.18	.13
12. Mexican Foreign-Born	.08	.94	.03	-.12	.03	.09
13. Non-White Child/Woman Ratio	-.08	-.02	-.01	-.09	.03	.10
14. Spanish Surname Child/Woman Ratio	.01	.51	-.21	-.19	-.09	-.20
15. Anglo Child/Woman Ratio	-.02	.05	.06	-.11	-.00	-.04
16. Non-White/Anglo Population Ratio	-.03	-.03	.16	-.14	.07	-.04
17. Spanish Surname/Anglo Population Ratio	-.08	.48	.02	-.04	-.03	.04

Table 7.1 continued

Variable Description	Factor Pattern 1	2	3	4	5	6
Study Subculture Measures:						
18. Non-White/Spanish Surname Population Ratio	-.01	-.18	.77	-.18	.07	-.04
19. Non-White Female/Non-White Male Labor Force Ratio	-.02	.01	-.01	.09	.01	.04
20. Spanish Surname Female/ Spanish Surname Male Labor Force Ratio	.12	.52	-.15	-.08	-.10	-.16
21. Anglo Female/Anglo Male Labor Force Ratio	.07	.00	.14	.04	.04	.07

Table 7.2. Factor Loadings and Variance Scores for Land Use, Los Angeles County, 1950, 1960, and 1970.

Variable	1950	1960	1970
Rental Housing	1.0	.98	1.0
Residential Dwellings	.05	-.09	-.05
Multiplex Dwellings	.65	.61	.69
Apartment Dwellings	.78	.77	.77
Commercial Activity	.58	.47	.60
Industrial Activity	.15	.10	.01
Open Land	.02	.01	-.01
Traffic Generator	.31	.45	.37
Household Stability	.54	.35	.71
Explained Variance	2.8	2.7	2.9

CONTINUED

3 OF 5

Table 7.3. Factor Loadings and Variance Scores for Subculture, Los Angeles County, 1950, 1960, and 1970

Variable	1950	1960	1970
Status Offense	.43	.26	.35
Black Population	.16	.90	-.10
Spansur Population	1.0	.09	.96
NW Female in Labor Force	.17	1.0	.01
SS Female in Labor Force	.97	.12	1.0
NW College Plus	.13	.75	.17
SS College Plus	.69	.06	.58
NW Fertility Ratio	.07	.01	-.03
SS Fertility Ratio	.30	-.05	.48
NW/Anglo Ratio	.05	.22	-.02
SS/Anglo Ratio	.66	.20	.42
NW/SS Ratio	.13	.50	-.20
Explained Variance	3.2	2.8	2.8

Table 7.4. Factor Loadings and Variance Scores for Demographic Characteristics, Los Angeles County, 1950, 1960, and 1970

Variable	1950	1960	1970
Population	1.0	.80	1.0
Unrelated Individuals	.73	.93	.73
Non-intact Individuals	.88	1.0	.82
Residential Stability	.99	.65	.96
Aged Dependency	.34	.66	.21
Average Age	.29	.59	.07
Explained Variance	3.4	3.7	3.2

Table 7.5. Factor Loadings and Variance Scores for Socioeconomic Characteristics, Los Angeles County, 1950, 1960, and 1970

Variable	1950	1960	1970
Semi & Unskilled	.97	.98	.99
Unemployment	.86	.85	.79
No Plumbing	.74	.31	.31
Overcrowded	.89	.77	.84
Explained Variance	3.0	2.4	2.4

Table 7.6. Factor Loadings and Variance Scores, Crime[1], Los Angeles County, 1950, 1960 and 1970

Variable	1950	1960	1970
Homicide	.165	.152	.362
Robbery	.164	.563	.868
Burglary	.424	.758	.915
Grand Theft	.265	.446	.661
Grand Theft Auto	.220	.651	n/a[2]
Auto Theft, Joy Riding	n/a	n/a	.886
Petty Theft	.502	.704	.849
Forgery	.036	.067	.153
Other Theft	.175	.276	n/a
Statutory Rape	.040	.274	-.017
Illegal Sex (prostitution, bigamy, incest)	.049	.620	n/a
Prostitution	n/a	n/a	.129
Other Sex (indecent exposure, molesting infants)	.070	.120	.162
Forcible Rape	.235	.339	.076
Drunk	n/a	n/a	.543
Drunk Driving	.130	.093	.056
Hit and Run	.045	.211	.096
Carrying Concealed Weapon	-.012	.447	n/a
Dangerous Weapons	n/a	n/a	.415
Arson	.176	.100	.474
Vagrancy	.557	.086	n/a
Violation of Liquor Law	.308	.319	-.006
Malicious Mischief	.365	.244	.607
Disorderly Conduct	.172	.482	n/a
Assault/Battery, and Aggravated Assault	.415	.518	n/a
Assault, Assault/Weapon, Battery	n/a	n/a	.853
Narcotics Possession and Association with Users	.319	.337	n/a
Disturbing Peace/Disorderly Conduct	n/a	n/a	.559
Receiving Stolen Property and Tampering W/ Auto	n/a	n/a	.684

Table 7.6 continued

Variable	1950	1960	1970
Miscellaneous Narcotics Use	n/a	n/a	.586
Explained Variance	1.032	3.750	6.662

1. Prosecutable juvenile offenses
2. N/A: Data not recorded for this item

exhibit the same high correlations. In 1970 the prominence of household stability recurs, but the correlation of commercial parcels with land use falls below the .50 level. The proportion of explained variance is virtually identical at all three time points.

Demographic variables similarly load highly and stably on population characteristics related to neighborhood deterioration across the three time points (Table 7.3). Five of the six, all six, and four of the six variables show loadings above .50 in 1950, 1960, and 1970, respectively.

Four variables were selected as indexes of the socioeconomic component of neighborhood social structure: semi- and unskilled persons in the labor force, unemployment, housing lacking plumbing, and overcrowded housing. Loadings of these variables on the SES composite indicator are consistently very high for all three time points (Table 7.4). The single exception is housing lacking plumbing, whose correlation with the indicator declined from .74 in 1950 to .31 in both 1960 and 1970. As noted in a previous section of the report, the reduction is probably attributable to the post-1950 growth of public housing in Los Angeles County. Explained variance fell from .76 in 1950 to .60 in 1970.

Strikingly less stable over the 1950-1970 period are the loadings of variables indexing elements of subculture related to crime in Los Angeles County (Table 7.5). The instability is a likely reflection, first, of a high volume of in-migration into the metropolitan region, with rapid transitory shifts of ethnic population groups among neighborhoods (Van Arsdol] and Schuerman, 1977). Second, there is an artifactual element in the census report data utilized such, for instance, that the breakpoint under which Spanish surname population would not be counted in a census tract shifted between decennial periods. Third, and perhaps equally important, the subcultural construct is itself marginally resistive to definition. For example, as an element of neighborhood structure, subculture is represented in this study as a single construct. Yet in an urban environment such as the Los Angeles metropolitan area, this component may include many divergent life styles indicative of the different racial/ethnic groups. If the neighborhood representation of any ethnic subcategory has substantive change over time, there may be marked vacillation in factor scores over time, reflecting the replacement patterns of individual ethnic subcategories. In Los Angeles County, of course, the Black and Spanish represent the largest racial/ethnic groups during the time periods in this study.

Nevertheless, as has been noted earlier, the subcultural construct constitutes a dimension of social structure whose omission would neglect a demonstrably significant determinant of neighborhood crime levels. Nonetheless, and despite these

demurrers, it is notable that, taken together and however the loadings of individual variables shifted across time points, explained variance in the composite indicator varied by only .4 percentage points between 1950 and 1970. Further, the proportion of total variance across the two decade period differed by only three percent.

As to the composite indicator of the dependent variable of prosecutable offenses petitioned to the juvenile court (the surrogate measure of crime used in this analysis), all of the serious, or Part I, offenses show high loadings (Table 7.6). Their notable feature respecting decennial shifts is that their loadings either increased steadily from 1950 to 1970 or, if earlier data were missing, were high during the later periods. These include homicide, robbery, aggravated assault, burglary, grand theft, and auto theft. The single exception is forcible rape, possibly a reflection of its low incidence among juveniles. The rising trend in prosecutable juvenile offenses is further reflected in the rise in total variance explained by the factor from 1.03 in 1950 to 3.75 in 1960 to 6.66 in 1970.

The utility of the variables employed in the construction of each composite indicator is indicated in Table 7.7. Presented there is the proportion of total variance (i.e., R^2) in the composite indicators explained by the variables utilized. When examined over time, trends in the proportion of total variance explained are also evident in Table 7.7. These measures indicate relatively satisfactory levels of both validity and reliability for the demographic and socioeconomic factors between 1950 and 1970. There is some sacrifice of validity respecting the land use factor, and only moderate reliability can be claimed for the subcultural factor.

But as noted, the subculture concept poses measurement difficulties, particularly with the use of variables provided by census data and when different race/ethnic groups are combined into a single composite measure. As might be expected, the one-factor model has imposed some sacrifice of "statistical" validity in favor of increased construct validity respecting the theoretical utility of the factors postulated. For example, the degree to which the inclusion of both Black and Spanish subcategories under the rubric of subculture may distort the reliability of the factor scores is summarized in Table 7.7. When factor scores of the subcultural variables were obtained separately for the Black and Spanish groups, with their interannual correlations for 1950, 1960, and 1970 two distinct patterns emerged (Table 7.8). First, there is a high degree of relationship over time (ranging from .51 to .87) within both the Black and Spanish subcategories. The strongest interannual correlations, of course, occur between adjacent decades. The second evident pattern is the overall diminishing relationships between the Black and Spanish factor scores over time. The highest correlation was only .20 in 1950, and was reduced to a -.02 relationship in 1970.

Table 7.7. Trends in Proportion of Total Variance Explained (R^2) of Composite Indicators, Structural Components and Crime, Los Angeles County, 1950, 1960, and 1970

	1950	1960	1970
Land Use	.31	.30	.32
Demographics	.58	.62	.53
Low SES	.76	.59	.60
Subculture	.27	.23	.24
Crime	.07	.17	.30

Table 7.8. Pearson Cross-Sectional and Interannual Correlations Between Black and Spanish Subculture Factor Scores, Los Angeles County, 1950, 1960, and 1970

	Black			Spanish		
Black	1950	1960	1970	1950	1960	1970
1950	--					
1960	.72	--				
1970	.51	.86	--			
Spanish						
1950	.20	.17	.10	--		
1960	.07	.10	.08	.84	--	
1970	.02	.01	-.02	.64	.87	-

These relationships notwithstanding, an alternative approach of creating a set of separate "subcultural" factor scores for each racial/ethnic group or utilizing traditional factor analytic procedure may well have generated obfuscated factors of much greater statistical validity, but this would have been at a fatal cost of conceptual clarity, i.e., in the intelligibility and meaning of such factors in relation to the problem at hand (Guilford, 1965:480-483). For example, the unidentifiable factors are evident in the extensive variety of variables displayed in Table 7.1. The real value and utility that the subcultural construct has had for this study has been its explanatory power in relation to changes in crime levels for areas at different stages of development. This becomes fully evident when, in later sections of the analysis, note is taken of the growing prominence of the subcultural dimension of neighborhood social structure as neighborhoods advance toward their full development as high crime areas.

B. Trends in Composite Indicator Scores

The development of composite scores for the County provided a standard against which to assess the two-decade trends in the County's 1970 high crime census tract clusters. Their scores were subjected to a Z-score transformation, permitting the use of standardized score values by setting at zero the County mean for each structural component and for crime. Data on standardized score values are presented in Tables 7.9 through 7.13, and include mean, maximum, and minimum values for the ten 1970 highest crime clusters and for those at the emerging, transitional, and enduring stages of development.

Trends in the two-decade mean scores for clusters at the three stages of development are most clearly disclosed in Table 7.14 and in Figure 7.1. Clusters at each stage of development in 1970 are consistently differentiated with respect to their 1950 initial positions on the scale. Mean score values for crime as well as for each of the structural components were lowest in the emerging, intermediate in the transitional, and highest in the enduring high crime clusters. Mean crime score trends were consistently upward for clusters at all three stages. However, trends in all structural components moved consistently upward only in the emerging neighborhoods. In the transitional clusters there was a rising trend only in their demographic and SES score values and a slightly declining trend in the subculture score.

Trends in structural component mean scores for the enduring high crime clusters were, on the other hand, consistently downward during the two decades. Since all score values are standardized to the County mean, trends in their structural features may be variously interpreted. Such indexes of land use as multiple dwellings and commercial and industrial parcels were likely already to have been at a high point in 1950; consequently, their concentration measures in relation to their

Table 7.9. Trends in Standardized Composite Indicator Scores for Crime, Mean, Maximum, and Minimum Values by Type of High Crime Clusters, Los Angeles County, 1970

	Mean			Maximum			Minimum		
	50	60	70	50	60	70	50	60	70
County	.00	.00	.00	8.14	12.88	12.01	-.59	-.68	-.57
1970 High Crime Clusters	.63	.97	1.26	5.69	12.88	12.01	-.56	-.68	-.56
Emerging	-.05	.27	.60	2.20	2.04	4.45	-.50	-.58	-.47
Transitional	.16	.56	1.00	3.06	6.73	3.48	-.56	-.68	-.56
Enduring	1.54	1.82	1.86	5.69	12.88	12.01	-.50	-.68	-.56

Table 7.10. Trends in Standardized Composite Indicator Scores for Land Use, Mean, Maximum, and Minimum Values by Types of High Crime Clusters, Los Angeles County, 1970

	Mean			Maximum			Minimum		
	50	60	70	50	60	70	50	60	70
County	.00	.00	.00	7.38	7.97	8.84	-.65	-.71	-.80
1970 High Crime Clusters	.35	.24	.18	3.87	2.96	2.31	-.65	-.69	-.80
Emerging	.12	.27	.38	1.80	1.64	1.80	-.61	-.64	-.62
Transitional	.30	.18	.14	3.87	2.96	2.31	-.65	-.69	-.80
Enduring	.51	.31	.16	2.21	1.64	1.63	-.64	-.66	-.80

Table 7.11. Trends in Standardized Composite Indicator Scores for Demographic Characteristics, Mean, Maximum, and Minimum Values by Type of High Crime Clusters, Los Angeles County, 1970

	Mean			Maximum			Minimum		
	50	60	70	50	60	70	50	60	70
County	.00	.00	.00	4.53	6.73	5.86	-1.12	-.87	-1.71
1970 High Crime Clusters	.73	.29	.66	3.10	2.48	3.64	-1.12	-.86	-1.70
Emerging	.47	.27	.66	1.44	1.67	2.30	-.95	-.77	-.94
Transitional	.50	.28	.60	2.41	2.48	2.97	-1.12	-.83	-1.22
Enduring	1.15	.32	.75	3.01	1.90	3.64	-1.09	-.86	-1.70

Table 7.12. Trends in Standardized Composite Indicator Scores for Socioeconomic Component, Mean, Maximum, and Minimum Values by Type of High Crime Clusters, Los Angeles County, 1970

	Mean			Maximum			Minimum		
	50	60	70	50	60	70	50	60	70
County	.00	.00	.00	7.50	4.76	5.69	-.78	-1.15	-1.31
1970 High Crime Clusters	.81	1.06	.91	5.25	4.76	4.84	-.78	-1.13	-1.31
Emerging	.08	.60	.72	1.33	3.57	2.56	-.64	-.89	-.84
Transitional	.38	.80	.90	2.63	3.74	4.04	-.78	-1.03	-1.03
Enduring	1.69	1.60	.98	5.25	4.76	4.84	-.75	-1.13	-1.31

Table 7.13. Trends in Standardized Composite Indicator Scores for Subcultural Component, Mean, Maximum, and Minimum Values by Type of High Crime Clusters, Los Angeles County, 1970

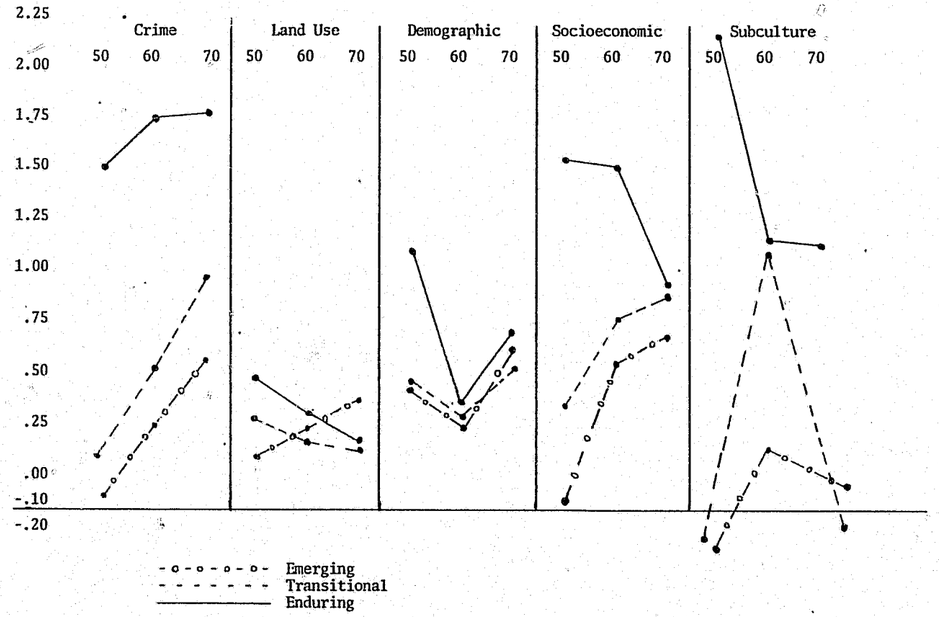
	Mean			Maximum			Minimum		
	50	60	70	50	60	70	50	60	70
County	.00	.00	.00	12.11	5.69	7.69	-.29	-.41	-.46
1970 High Crime Clusters	.70	1.08	.39	12.11	5.69	7.69	-.29	-.41	-.46
Emerging	-.23	.32	.11	.08	3.70	1.34	-.29	-.41	-.46
Transitional	-.09	1.11	-.11	1.47	5.52	6.15	-.29	-.41	-.46
Enduring	2.17	1.29	1.23	12.11	5.69	7.69	-.29	-.41	-.46

Table 7.14. Trends in Mean Composite Indicator Scores, Structural Components and Crime by Type of High Crime Clusters.

	Land Use			Demographics			Socioeconomic			Subculture			Crime[1]		
	50	60	70	50	60	70	50	60	70	50	60	70	50	60	70
Ten 1970 High Crime Clusters	.35	.24	.18	.73	.29	.66	.81	1.06	.91	.70	1.08	.39	.63	.99	1.26
Emerging	.12	.27	.38	.47	.27	.66	.08	.60	.72	-.23	.32	.11	-.05	.27	.60
Transitional	.30	.18	.14	.50	.28	.60	.38	.80	.90	-.19	1.11	-.11	.16	.56	1.00
Enduring	.51	.31	.16	1.15	.32	.75	1.69	1.60	.98	2.17	1.29	1.23	1.54	1.82	1.86

[1] Prosecutable Juvenile Offenses

Figure 7.1. Trends in Standardized Mean Composite Indicator Scores for Crime and Components of Neighborhood Structure by Stages in the Development of High Crime Areas, Los Angeles County, 1950-1970



general increase in the rest of the County were likely to decline by 1970. Similar considerations may also account for the decline in the scores for the demographic and the subcultural components. On the other hand, it is likely that the decline in score values for the SES component was an effect of changes in two indexes. First, there was probably a reduction over time in the number of persons in the active labor force, principally made up of semi- and unskilled workers, as a result in part of discouragement due to the persistence of high unemployment rates and, in part, of widespread participation in criminal activity as an alternative income producing means. Second, the housing quality variable indexing poverty (housing lacking plumbing) was likely to have yielded lower measures over the period because of the steady increase in the enduring stage clusters of public housing (Schuerman and Kobrin, 1981).

C. Crime Types and Neighborhood Change

One of the hypotheses investigated concerned shifts among crime types as high crime neighborhoods evolved from the emerging to the enduring stage (see Chapter II). It predicted that with the onset of rising crime there would first occur a relatively higher incidence of the expressive person offenses, including assault, homicide, and rape. With an increasing prevalence of criminal events, the balance in these neighborhoods was likely to shift to the instrumental property offenses of burglary, robbery, and theft. The hypothesis was based on the likelihood that the early stage of development would be marked by a relatively high level of population heterogeneity in respect to both ethnicity and social class, a decline in the consensus around standards of both public and private conduct, and an ensuing disorderliness reflected primarily in interpersonal conflict. As time went on, there would occur a rise in criminal sophistication in the population, and an increasing tendency to resort to crime as an alternative income producing means.

With the development of composite indicator scores it became possible to test the hypothesis. Using Z-score transformations as the composite values with the County mean set at zero for both instrumental and expressive offenses, the trend data over the 1950, 1960, and 1970 time points reveal a gradual increase in the predominance of instrumental offenses as the 1970 high crime clusters moved from the emerging to the enduring stage of development (Table 7.15). Further, as seen in Figure 7.2, the mean score value in 1970 for expressive offenses in the clusters that were then at the emerging stage exceeded the mean score value for instrumental offenses at that time point. This is not the case for the clusters at the later, transitional stage and for those at the latest, enduring stage. In both, by the end of the second decade, scores for instrumental offenses show higher values than those for expressive offenses. The same relationships are shown in Table 7.16 and Figure 7.3, charting trends in maximum score values for instrumental and expressive

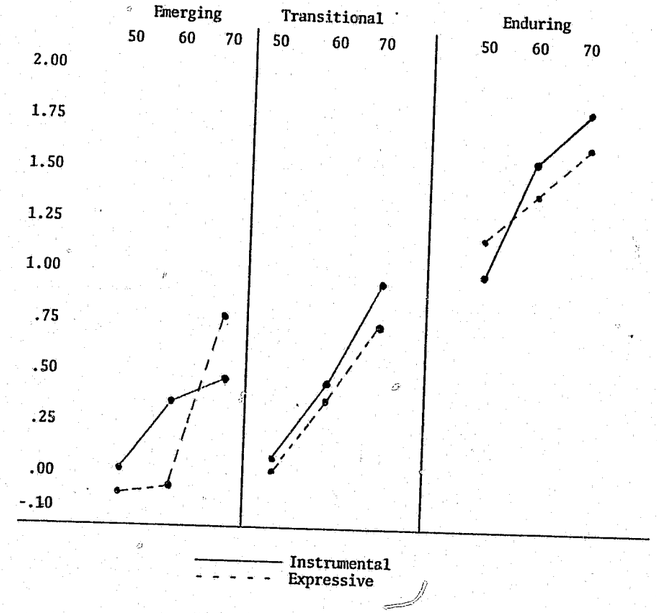
Table 7.15. Trends in Standardized Mean Composite Indicator Scores, Instrumental and Expressive Offenses by Type of High Crime Clusters, Los Angeles County.

	Instrumental[1]			Expressive[2]		
	50	60	70	50	60	70
Ten 1970 High Crime Clusters	.45	.90	1.22	.46	.72	1.12
Emerging	.04	.36	.53	-.09	-.02	.83
Transitional	.12	.50	.98	.08	.40	.84
Enduring	1.08	1.67	1.82	1.23	1.42	1.63

1 Includes burglary, robbery, theft, auto theft, and receiving stolen property and miscellaneous misdemeanors.

2 Includes homicide, aggravated assault, forcible rape, narcotics violations and miscellaneous misdemeanors.

Figure 7.2. *Trends in Standardized Composite Indicator Scores, Instrumental and Expressive Offenses, 1950, 1960, and 1970, Census Tract Clusters at Three Stages of Development as High Crime Areas in 1970, Los Angeles County*



offenses. These are most clearly shown by the contrast between the trends in the emerging and in the enduring clusters.

In brief, these data provide substantial evidence in support of the hypothesis. An important implication of the finding is its usefulness in helping to determine in the case of any urban subarea its location in the developmental cycle of progression toward a permanently established high crime area. Neighborhoods exhibiting a predominance of expressive offenses are likely to be at a relatively early point in the cycle.

D. Cross-Lagged Correlation Analysis

In the preceding chapter, cross-lagged correlation analysis was based on separate measures of the many index variables in each composite indicator. Here, the same form of analysis makes use of the composite indicator scores for each of the four dimensions of neighborhood social structure.

As the most general case, shifts in lead-lag relationships are most discernible when the entire County is treated as the unit of analysis. Suggested in the data presented in Table 7.17 are two reasonably distinguishable processes in the production of high crime neighborhoods: acceleration and transformation. The distinction is useful in furnishing one possible means (an identifying marker) of determining the stage at which an urban neighborhood may be found at any point in a time bound development and its likely direction of movement in subsequent moments of the change cycle. The distinction between acceleration and transformation parallels the more familiar distinction between quantitative and qualitative change. As used here, the acceleration concept denotes increase in the quantity of uniform elements having the character of exponential growth. Transformation is intended to denote the advent of a new stage in the developmental cycle for which additional quanta of the elements that have induced the transformation are without further important effect.

Cross-lagged correlation analysis indicates that in the initial stage of neighborhood change land use and population composition appear as precursors of impending change in neighborhood crime levels. The evidence for this is found in the comparative size of cross-lagged correlations between the variables of structure and crime. As described in Chapter VI, cross-lagged correlation analysis is designed to ascertain which of two related variables in a time series is most likely to have occurred prior to the other. If the correlation coefficient between the first variable at Time 1 and the second variable at Time 2 is greater than the coefficient for the second variable at Time 1 and the first variable at Time 2, the first is likely to have been causally related to the second. The converse is the case if the coefficient for the second variable at Time 1 and the first at Time 2 is the larger one.

Figure 7.3. Trends in Standardized Maximum Composite Indicator Scores, Instrumental and Expressive Offenses by Type of High Crime Clusters, Los Angeles County

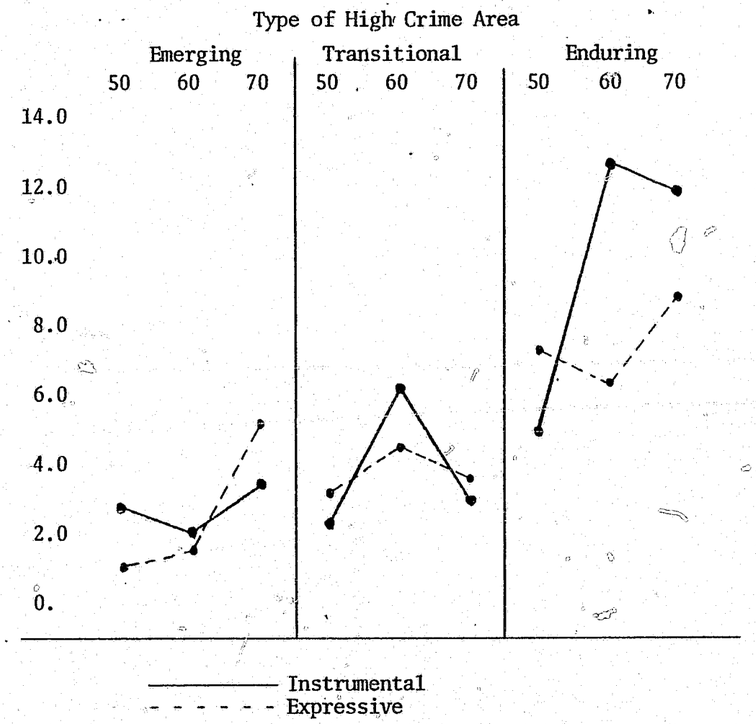


Table 7.17. Cross-lagged Correlations, Structural Component Composite Scores and Crime, 1950-1960 and 1960-1970, Los Angeles County.

	1950-1960		1960-1970	
	rXt_1Yt_2	rYt_1Xt_2	rXt_1Yt_2	rYt_1Xt_2
Land Use	.30	.27	.17	.21
Demographics	.47	.27	.18	.46
SES	.57	.42	.62	.50
Subculture	.35	.38	.65	.24

Turning to the data of Table 7.17, we note that in Los Angeles County the correlation of the Time 1 (1950) land use composite indicator score with the Time 2 (1960) prosecutable offense score (.30) is greater than the correlation between crime at Time 1 and land use at Time 2 (.27). Similarly, the correlation of demographic characteristics at Time 1 with crime at Time 2 (.47) exceeds that between demographic at Time 1 and crime at Time 2 (.27). While land use change was exerting a moderate effect in driving up crime via shifts from single to multiple dwellings and rising numbers of commercial parcels, changes in population composition was exercising a very strong effect. As has been presented in previous chapters, prominent among the latter changes in the first instance is a shift in population density together with increases in unrelated individuals, broken family units, and reduced mean age of the population. With these changes instituted and undergoing gradual acceleration during the early period, the stage is slowly set for neighborhood transformation as a high crime area. In brief, ecological change proceeds at an increasing rate to a point at which, in the typical case, the social and cultural character of a neighborhood is qualitatively altered. While the early change process tends to be purely ecological, in the sense of entailing adaptation to economic forces, these now serve to introduce and render salient elements at the level of social and institutional organization and culture.

The evidence that these then come to be causally prior to changes in neighborhood crime levels is found in the comparative correlation magnitudes for socioeconomic and subcultural composite indicators with crime during the earlier (1950-1960) and later (1960-1970) periods. During the earlier period in Los Angeles County there is an almost uniform time priority of all structural composite indicators with the exception of subculture. The exception may indicate simply that the brute fact of rising crime at the 1950 time point and beyond began to introduce changes in the course of the decade in the affected neighborhoods such that by 1960 they produced the first signs of their transformation. The 1960-1970 decade presents a quite different picture. During this period the ecological processes of land use and demographic change no longer exhibit a similar time priority. That effect is now taken over by the SES and subculture composite indicators, with substantial disparities in cross-lagged correlations. Both SES and subculture in the 1960-1970 decade show higher correlations for 1970 crime with 1960 SES and subculture than does 1970 SES and subculture with 1960 crime. Determinants of the crime measure thus shift through time from ecological to social and cultural forces, with the latter in turn inducing further neighborhood transformation.

Prominent among these is, first, the place of the population in the status order of the metropolitan region, as indexed by such socioeconomic variables as occupational prestige and associated income levels, with implications for transformation in

crucial social control institutions. Of these, the two most relevant to the crime problem are the family unit and the neighborhood as an associational network and as the locus for collective reinforcement of norms supportive of the legitimacy of the criminal law. Both institutional complexes come to be characterized by instability and normative ambiguity. Second, and expressive of institutional transformation, is the routinization of adaptive practices constituting a local subculture in the limited sense that the practices have been collectively elaborated as solutions to shared problem of economic and social survival. An important element of such local cultures is the historical experience of ethnic groups, as this has affected orientations to the legitimacy of political authority. While criminal behavior is hardly an imperative outcome, such institutional and cultural transformation of neighborhoods has the effect of accommodating a high level of crime as an inevitable if unwanted outcome. And, from the perspective of the public, crime becomes emblematic of the transformed neighborhoods because of its dramatic and anxiety provoking character.

Whether the trends apparent when the entire County of Los Angeles is taken as the unit of analysis are still discernable in an examination of historical developments in the County's highest crime areas remains to be assessed.

With some differences due to combining clusters at different stages of development as high crime areas, the same basic shift in causal priority from land use and demographic characteristics to those of SES and subculture is evident as well in the cross-lagged correlations for the two decades in the ten 1970 highest crime clusters (Table 7.18). During the 1950-1960 period, only the 1950 demographics-1960 crime correlation exceed that of the 1950 crime-1960 demographics. However, in the later 1960-1970 decade there occurs a distinct shift to a predominance of SES and subculture priority, although land use appears by that decade also to exert a causal effect (.37 vs. .28). But unlike the situation in the 1950-1960 period, when the two correlations for both SES and subculture were virtually identical, during the 1960-1970 decade the 1960 SES-1970 crime cross-lagged correlation was much larger than the obverse (.52 vs. .24). The same was true of subculture (.51 vs. .07). In brief, while rising neighborhood crime levels during the earlier period appear to follow land use and demographic changes, in the later period rising neighborhood crime levels follow SES and subculture changes. And, during the later 1960-1970 period, it is rising crime levels that are temporally and therefore presumably causally prior to changes in their demographic and land use features.

Similar relationships are apparent when the ten 1970 high crime clusters are disaggregated with reference to their crime status in the developmental process (Table 7.19). In those census tract clusters that were emerging as high crime areas in

Table 7.18. Cross-lagged Correlations, Structural Component Composite Indicator Scores and Crime, Ten 1970 Highest Crime Census Tract Clusters, Los Angeles County.

	1950-1960		1960-1970	
	rXt_1Yt_2	rYt_1Xt_2	rXt_1Yt_2	rYt_1Xt_2
Land Use	.27	.31	.37	.28
Demographics	.28	.25	.33	.44
SES	.47	.48	.52	.24
Subculture	.21	.21	.51	.07

Table 7.18. Cross-lagged Correlations, Structural Component Composite Scores and Crime, 1950-1960 and 1960-1970, Emerging, Transitional, and Enduring High Crime Areas, Los Angeles County.

	1950-1960		1960-1970	
	rXt_1Yt_2	rYt_1Xt_2	rXt_1Yt_2	rYt_1Xt_2
Emerging				
Land Use	.46	.26	.42	.50
Demographics	.36	.26	.33	.55
SES	.74	.36	.74	.51
Subculture	.56	-.13	.60	.70
Transitional				
Land Use	.38	.61	.49	.35
Demographics	.43	.57	.61	.43
SES	.46	.62	.77	.46
Subculture	.39	.52	.65	.06
Enduring				
Land Use	.06	.15	.34	.35
Demographics	.16	.12	.16	.47
SES	.22	.25	.25	.04
Subculture	-.11	.00	.44	-.22

1970, the early 1950-1960 decade exhibits uniform temporal priority for all of the structural composite indicators. However, in the following decade, with the exception of the SES indicator, further changes in structural components appear to have been driven by rising crime levels. In this respect, the emerging areas in the 1960-1970 decade resembled the next stage, transitional high crime areas, during the earlier 1950-1960 decade. There, also, rising crime appeared to be temporally prior to changes in their structural composite indicator measures. It is of interest to note, further, that in the 1970 transitional high crime areas the earlier 1950-1960 effects of rising crime would seem to have so transformed their structural components as to once again accord them temporal priority in relation to their crime level changes in the 1960-1970 decade. And, notably, the SES and subculture composite indicators come into prominence as precursors of rising crime.

In the enduring high crime areas, representing the terminal stage in the developmental process, the general shift through time from the temporal priority of the land use and demographic composite indicators to the temporal priority of SES and subculture is clearly apparent. During the earlier 1950-1960 decade neither structural nor crime variables exhibit strong temporal priority. By the later 1960-1970 decade it becomes apparent that while their high crime levels have effected further changes in their demographic characteristics, both the SES and subcultural composite indicators have become the important temporally prior forces in sustaining their high crime levels.

While less than conclusive with respect to the causal priority issue, cross-lagged correlation analysis does suggest a general developmental trend in which the earlier temporal priority of structural variables is taken over by a later shift to the temporal priority of socioeconomic and subcultural factors.

At this point in the cross-lagged correlation analysis a brief digression is taken in order to re-examine the utility in applying a single composite indicator as a conceptual representative of neighborhood subculture. As was pointed out earlier, there was some sacrifice of "statistical" validity in light of the fact that the variables measuring subculture exhibited widely disparate weights across the Black and Spanish ethnic groups (Table 7.7). To ascertain whether the reduced "statistical" validity of the subcultural construct materially undermined its construct validity, composite subcultural scores were constructed for the two ethnic groups and analyzed separately for each group with respect to their cross-lagged relationships with crime scores for the 1950-1960 and the 1960-1970 decades (Table 7.20). A comparison of the cross-lagged correlations in this table with those in Table 7.19 shows the same overall pattern of relationships. The fact that these relationships are reproduced for both ethnic groups at each stage

Table 7.20. Cross-lagged Regression Coefficients, Crime Regressed on Composite Structural Scores, Ten Highest 1970 Crime Clusters, Two Decades, Los Angeles County.

	1950-1960	1960-1970
Land Use	.06	.46
Demographics	.90	-.42
SES	-.21	.17
Subculture	-.14	.42
R^2	.30	.38

in the development of high crime areas is a clear indication of construct validity. This suggests, then, that the composite indicator of subculture as a unitary component of neighborhood structure is both statistically robust and conceptually useful.

In summary what is suggested thus far is that in the formation of urban high crime neighborhoods changes in ecological character introduced by accretions in changed land use and in the composition of their populations set the stage for their transformation through qualitative changes in social organization and subculture that sustain their continuing status as high crime areas.

A more definitive test of this possibility will be provided by a multivariate analysis of cross-lagged regression coefficients presented in the following two sections. The test is more definitive because in this form of analysis the contribution of each of the four structural components during Time 1 to crime in Time 2 is net of the effect of the remaining three. In the case of the effect of each component, that of each of the remaining three are controlled for.

E. Cross-lagged Regression Analysis

In this form of analysis standardized regression coefficients are derived expressing the relationship between composite structural scores as the independent variables at Time 1 and the crime measure as the dependent variable at Time 2. For purposes of assessing change over the 1950-1970 period, each of the two decades was analyzed separately. For the first, 1950-1960 decade, the Time 2, 1960, crime measure was regressed on the 1950, Time 1, structural measures; for the second, 1960-1970 decade, the Time 2, 1970 crime measure was regressed on the Time 1, 1960 structural measure. The proportion of variance explained (R^2) in the Time 2 crime measure was calculated for each decade.

Findings from this analysis offer generally supportive evidence for the findings from cross-lagged correlation analysis. As neighborhoods move from a low to a high crime state, there occurs an earlier change in the ecological factors of land use and population characteristics followed in a later stage by a predominance of change in their socioeconomic and subcultural character. This is partially confirmed by the data of Table 7.21, in which cross-lagged coefficients are presented for the ten 1970 high crime clusters. Although the expectation of a larger positive coefficient for the 1950-1960 than for the 1960-1970 cross-lag with respect to land use is not realized (due possibly to its relatively slower pace of change) it is met by the early and late comparative coefficients for the demographic component cross-lags. The high positive beta (.90) in the 1950-1960 period is followed by a moderately high negative (-.42) beta in the 1960-1970 period. The effect on crime of early Table

Table 7.21. Cross-lagged Regression Coefficients, Crime Regressed on Composite Structural Scores, Two Decades, Ten 1970 Highest Crime Clusters, by Stage of Development, Los Angeles County.

	1950-1960	1960-1970
Emerging		
Land Use	.45	-.25
Demographic	.98	--
SES	-.49	.82
Subculture	.29	.26
R^2	.60	.58
Transitional		
Land Use	.23	-.77
Demographic	1.48	.67
SES	-.67	.94
Subculture	.17	-.11
R^2	.31	.69
Enduring		
Land Use	-.08	.87
Demographic	.67	-.97
SES	-.12	.18
Subculture	-.22	.53
R^2	.12	.48

demographic change subsides sharply during the later period as the change stabilizes. This sequence is then sharply reversed in the case of SES and of subculture. While the earlier period cross-lag coefficient for SES is moderately low and negative (.-21), in the later 1960-1970 period it shifts to a positive (.17). Even more striking is a similar shift across time in the case of the subcultural component: from a cross-lag of -.14 for 1950-1960 to the moderately high and positive .42 for the 1960-1970 cross-lag. Excepting the qualifying case of land use the data thus offers substantial confirmation of the proposition respecting earlier ecological and later sociocultural effects in the development of high crime areas.

A further test of the robustness of these findings is provided by differences among cross-lagged coefficients among the 1970 high crime clusters in the early, intermediate, and late stages of development as high crime areas (Table 7.22). The size of the regression coefficient for 1950 land use--1960 crime declines from the emerging through the transitional to the enduring stage clusters. A similar reduction in the size of the same coefficient is evident for the demographic composite indicator, with the contrast sharpest between the emerging and the enduring stages (.98 vs. .67). While a shift from ecological to socioeconomic and subcultural predominance is not apparent in moving from the early to the late stage of development during the 1950-1960 period, it is quite evident within each stage across the two decades. In the emerging stage clusters, the coefficient for land use 1950-crime 1960 declines from .45 to a negative -.25 for 1960 land use-1970 crime. Similarly the high (.98) coefficient for the 1950-1960 demographic-crime cross-lag disappears entirely during the 1960-1970 decade (a partly artifactual (effect of the stepwise procedure employed). Their effect is replaced in the emerging stage clusters by a notable increase across the two decades in the SES cross-lagged coefficients (from a negative -.49 in 1950-1960 to a positive .82 in 1960-1970). On the other hand, the effect of subculture remains virtually unchanged across the two decades, presumably a reflection of the fact that as an emerging high crime area in 1970 there had not yet transpired the time required for the establishment of crime related subcultural practices.

Much the same pattern of shift from earlier ecological effects to later SES effects is also seen in the transitional high crime areas. The cross-lagged regression coefficient for land use 1950-crime 1960 (.23) is reduced to a negative (-.77) for the land use 1960-crime 1970. The same shift across the two decades is true as well for the composite demographic indicator--from 1.48 in 1950-1960 to .67 in 1960-1970. Again, their effect on the crime measure is replaced by SES. This moves from a negative cross-lagged regression coefficient of -.67 in the 1950-1960 decade to a high positive coefficient of .94 in the 1960-1970 decade.

Table 7.22. Standardized Regression Coefficients and Adjusted R^2, Multiple Deviational Correlations of Crime, 1950-1970, and Structural Components, 1950-1970, by 1970 High Crime Census Tract Clusters, Los Angeles County.

Structural Component	County	Ten 1970 Highest Crime Clusters	Stage of Development		
			Emerging	Transitional	Enduring
Land Use	-.09	-.20	.30	-.17	-.51
Demographics	.32	.37	.69	.24	.38
High SES[1]	-.10	-.04	-.58	-.15	-.07
Low SES[2]	-.10	--	-.18	-.12	-.05
Subculture	-.09	-.15	-.39	-.04	-.06
R^2	.08	.12	.48	.04	.30

1 Professional and managerial occupations; skilled occupations; 16 years or more of education; average income; average home value; average rent; average education.

2 Semi- and unskilled occupations; unemployment; housing lacking plumbing; overcrowded housing.

In the enduring stage high crime clusters it is the cross-lagged coefficient of 1950 demographics-1960 crime that exhibits a sharp "disappearing" effect when compared to that for the 1960-1970 period (from .67 to -.97). For reasons that are obscure, the same effect is not here evident with respect to land use. We can only suggest, speculatively, that given the delayed effect of land use change on crime, it is not until a high crime area reaches its maximum development, as in the case of the enduring high crime clusters, that the physical transformation of the area becomes fully established. In any event, the notable feature respecting the temporal shift from ecological to sociocultural forces in the creation of high crime areas is seen in the differences between the SES and the subcultural cross-lagged regression coefficients in the enduring stage clusters. Most striking of these is the rise in prominence of subculture effects across the two decades. While the 1950-1960 SES-crime cross-lagged coefficient moves from a modest and negative -.12 to a modest and positive .18 for the 1960-1970 decade, the change for subculture is from -.22 in 1950-1960 to .53 in 1960-1970. It would thus appear that as neighborhoods "mature" as high crime areas the most significant sustaining structural component becomes a set of adaptive practices, sufficiently collectively shared to support a relatively high level of law violation.

Cross-lagged regression analysis utilizing composite indicator scores illuminates the structural dynamics involved in the creation of urban high crime areas. The sequence in the transformation of urban neighborhoods from a crime-free to a crime-impacted state proceeds from its initial physical change to change in population composition to change in its socioeconomic character to change in prevailing normative controls. While more explicitly differentiated and founded on data not heretofore available (and on more definitive forms of analysis), this finding generally confirms the ecologically based theories of the spatial distribution of juvenile delinquency advanced some 40 years ago by Shaw and McKay (1942). However, in its earlier use a critical deficiency of ecological theory with respect to urban subareas was its failure to specify with precision sequences in the linkage between transformations of the physical environment and of the inhabiting populations on the one hand, and on the other, the related consequent transformations in their socioeconomic character and subculture. When viewed in a temporal and developmental frame, there appears to be a need to bring to the analysis the conceptual and theoretical apparatus of three distinct disciplines: that of ecology with its focus on the distributional aspects of social facts; of sociology with its concern with issues of social stratification and institutional organization; and of social psychology for an understanding of how the ecological and sociological forces at play come to be incorporated as diverse patterns of personal organization among the members of distinctive ecological enclaves. So far as the present limited analysis has gone, it is possible only to point to the likelihood that in their separate character the elements

involved in the transformation of urban subareas from a low to a high crime state function as a time bound sequence of the type disclosed in this analysis.

F. Deviational Correlation Analysis

The use of cross-lagged regression analysis in the preceding section attempted to answer the following questions: Among the several dimensions of neighborhood social structure at the 1950 and 1960 Time 1 points, what was the relative strength of their relationships to crime at the 1960 and 1970 Time 2 points? What was the pattern of sequence in shifts among these relationships as high crime areas moved during a two-decade period from an incipient to a permanent stage?

With the use of deviational correlation analysis, we move to the more complex question posed by the central hypothesis of this investigation. Based on the general proposition relating social control to social change, the claim of the hypothesis is that the rate at which social control declines in an urban subarea, operationally defined by rising crime measures, is more specifically a function of the velocity of social change. The testable prediction that follows is that the greater the velocity of prior structural change in a neighborhood the more precipitous will be the rise in its subsequent crime measure. Correspondingly, as structural change decelerates, so also will the rise in the crime measure.

As described in Chapter IV of this report, deviational change correlation is the appropriate statistic for the measurement of relative change velocities in an independent and dependent variable (Duncan et al. 1961; Myers, 1964). Briefly, the method of deviational change correlation assesses the comparative velocity of change in a dependent and independent variable by utilizing the differences between the actual values and those predicted by the interannual regressions for the variable i.e., the residuals. The interannual correlation of the residuals for the independent and the dependent variable then expresses their comparative change velocities and direction of the change. In Chapter VI, use was made only of the separate index variables drawn from the land use, demographic, socioeconomic, and subcultural components of neighborhood social structure. In that analysis, only those constitutive variables in each structural component were presented whose earlier change velocities showed substantial regression coefficients with later change in crime. In the analysis to be presented here, we employ the composite indicator score values for each structural component in order to derive their interannual velocity change measures. Composite indicator score values for both the independent structural variables and the dependent crime variable, which appropriately weight the contributions of the individual indexes in each structural component, provide more informative summary measures.

Two forms of deviational correlation analyses will be presented. In the first, comparative change velocity in the dependent composite crime score and in each of the independent composite structural component scores are examined for the 20-year period, 1950, 1960, and 1970. Multiple deviational correlations for the structural component scores are derived by comparing two or more sets of residuals, where a residual is the difference between a predicted and actual dependent value. Residuals are obtained from interannual correlations based on the relationship of 1950 and 1960 to 1970 values. From this, in turn, a net multiple deviational beta value for each structural component can be used to indicate the velocity or rate of change of 1950 and 1960 time points over the 1950-1970 period. The corresponding multiple deviational values for the 1950, 1960 on 1970 dependent crime score is then obtained in the same manner. The size and direction of the standardized regression coefficients then expresses the velocity of change in each variable. The comparative size and the sign of the coefficient indicates the relative change velocity in the independent and the dependent variable.

In the second form of deviational correlation analysis, attention is focused on the velocity of change in the dependent, or crime composite score during the 1960-1970 decade in relation to the change velocity in the independent, or structural, composite scores during the preceding 1950-1960 decade. This cross-lagged deviational change analysis is designed to detect those temporally prior structural components whose earlier rate of change affected the later rate of change in crime for census tract clusters at the several stages of development as high crime areas.

Comparative change velocities in composite structural components and crime over the 1950-1970 period are shown in the data of Table 7.23. Clearly apparent is the fact that change velocities in three of the four structural components exceeded those for crime principally in clusters at the emerging stage. The exception is provided by subculture at all three stages of development, whose change velocity was outstripped by that of crime. The largest coefficients indicating higher change velocities for the structural components are those for demographics (.69) and for high SES (-.58). With the exception of a higher rate of change in demographics than in crime, clusters in both later stages of development exhibit small but uniform indications of a more rapid change in crime than in structural components. As indicated earlier, this again suggests that in the course of their "maturation" the initial significant development in urban high crime areas is a relatively greater change velocity in their land use and demographic characteristics. The relationship is reversed in the later stages of the cycle, with the rate of change in crime overtaking the rate of change in the other structural features of these neighborhoods, again with the exception of the demographic component.

Table 7.23. Standardized Regression Coefficients and Adjusted R^2, Multiple Deviational Correlation of Crime 1960-1970 and Structural Variables, 1950-1960, by 1970 High Crime Census Tract Clusters, Los Angeles County.

Structural Component	County	Ten 1970 Highest Crime Clusters	Stage of Development		
			Emerging	Transitional	Enduring
Land Use	.14	.31	-.58	.31	.49
Demographics	-.17	-.19	-.12	-.09	-.41
High SES	-.07	-.15	-.19	-.41	-.23
Low SES	.14	.04	.96	.09	-.11
Subculture	.23	.18	.22	.24	.13
R^2	.14	.14	.66	.33	.17

The information provided by this analysis simply compared the velocity of change in the structural features of high crime areas over the 1950, 1960, and 1970 20-year period with the velocity of change in their crime measure during the same period. The idea may be captured in the picture of two vehicles racing on parallel tracks representing an identical time span, with interest centering on their relative rates of speed.

More to the point with reference to our basic concern is the extent to which the velocity of change in the components of neighborhood structure during the first 1950-1960 decade of the 20-year period impacted the velocity of change in crime during the second, 1960-1970 decade. The question was assessed in a cross-lagged multiple deviational correlation analysis. Its output is presented in Table 7.24.

The findings of this analysis provide the crucial test of the central hypothesis of the study, namely, that it is the speed of structural change rather than solely the fact of such change that initiates the transition of city neighborhoods from a low to a high crime status. In the statement of the hypothesis no predictions were hazarded respecting the specific structural components whose earlier change velocities might be most highly related to the velocity of later change in the crime measure. As has been seen, cross-lagged correlation analysis and cross-lagged regression analysis both suggest an initial precedence of change in the ecological factors of land use and demographics. Those analyses did not, however, deal with the change velocity issue. The present analysis does, and it provides empirical grounding for a more discriminating view of the dynamics of neighborhood transformation with respect to the crime problem.

Given that the velocity of land use change is constrained by cost problems of substantial magnitude, it is perhaps not surprising that in the emerging areas there was a strong inverse relationship between the change velocities of land use and crime. That is, there was a likely contrast between a low velocity of land use change and a high velocity of change in the crime measure, as indicated by the -.58 coefficient. It is important to bear in mind that the variable under discussion is not change itself, but the velocity or rate at which the change occurs. However, the effect of a probable slow acceleration in land use change may be seen in the later stage transitional and enduring high crime area areas (.31 and .49). Similarly, change velocity in demographics during the 1950-1960 decade cannot be seen as "driving" the velocity of crime change in the 1960-1970 decade: crime increased at a faster rate in the later period than did the demographics in the earlier period. Thus, for the emerging stage areas, earlier decade change velocity in neither of the ecological factors of land use and demographics exceeded the crime change velocity in the later decade. However, for the transitional and enduring stage areas, early decade land use change velocity does exhibit a "driving" force in relation to their later decade crime change rates.

Table 7.24. Interannual Correlations, Composite Indicator Scores, Total Crime and Structural Components, Los Angeles County.

	Ten 1970 Highest Crime Clusters		Emerging		Transitional		Enduring	
	50-60	60-70	50-60	60-70	50-60	60-70	50-60	60-70
Crime	.38	.72	.42	.57	.28	.56	.15	.76
Land Use	.90	.89	.82	.75	.95	.94	.82	.83
Demographics	.81	.70	.89	.50	.91	.85	.75	.55
High SES	.72	.83	.83	.48	.63	.83	.70	.77
Low SES	.81	.77	.85	.75	.85	.87	.77	.71
Subculture	-.12	-.20	.09	-.13	.35	.01	-.45	-.50

On the other hand, earlier change velocity in both the socioeconomic and subcultural components had substantial and sustained impact on later decade crime change velocity. The effect was most evident in the case of SES with respect to the emerging stage areas, as indicated by a coefficient of .96. Areas in the later two stages of development were less impacted by the 1950-1960 velocity of SES change during the 1960-1970 decade. In all likelihood SES velocity change for these areas had already occurred prior to 1950, with the relationship to their subsequent crime change velocity stabilized by the 1960-1970 decade. As to the subcultural component, change rates in the earlier decade exceeded those for crime in the later decade in areas at all three stages of development, with ultimate reduction in change velocity (.22, .24, and .13 respectively) as a persisting force in inducing the later rise in their crime measures.

Finally, the total effect of earlier change velocity in the components of neighborhood structure on later change rates in crime may be seen in the measures of explained variance (R^2). These declined in magnitude from the emerging to the transitional to the enduring stage areas, i.e., from .66 to .33 to .17. The emerging areas, however, demonstrate the most striking relationships. In these areas rapid change in neighborhood structure in the previous decade explains much of the variance in the subsequent decades of accelerated transformation into high crime areas. As the emerging areas are transformed over time to become permanently established high crime areas, earlier patterns of change in their structural features, having already had their effect, become less important in sustaining their high crime status.

G. Interannual Change in Composite Indicator Scores

Change magnitudes in components of neighborhood structure and in crime are also revealed in variations in the size of the coefficients yielded by their correlations across time points. The closer a correlation approaches unity in any measure between Time 1 and Time 2, the less it has changed during the interval. Conversely, a very low correlation signifies substantial change.

Interannual correlations among composite indicator scores for neighborhood structure and for crime between the 1950-1960 and the 1960-1970 decades are shown in Table 7.25. These are presented for the ten 1970 highest crime clusters and separately for clusters at the three stages of development as high crime areas. For the ten clusters as a unit as well as for those at each stage, change in the composite crime indicator score was substantially greater during the first than during the second of the two decades. However, this was not uniformly the case with respect to the composite structural indicator scores. Virtually all the coefficients for the 1960-1970 interannual correlations in the emerging early stage clusters were smaller than for the

Table 7.25. Interannual Correlations, Composite Indicator Scores for Total Crime, Instrumental Offenses, and Expressive Offenses, by Stage of Development as High Crime Areas, Los Angeles County.

	Ten 1970 Highest Crime Clusters		Emerging		Transitional		Enduring	
	50-60	60-70	50-60	60-70	50-60	60-70	50-60	60-70
Total Crime	.38	.72	.42	.57	.28	.56	.15	.76
Instrumental Offenses	.34	.70	.41	.51	.17	.49	.20	.76
Expressive Offenses	.34	.51	.12	.62	.18	.49	.18	.47

1950-1960 correlations, indicating that in the early stage clusters, components of neighborhood structure underwent their greatest change in the second decade of the 20-year period. This contrasts generally with the situation in the later stage transitional and enduring high crime clusters. In both, the differences in the size of correlation coefficients as between the early and late decade periods are much reduced. For many of the structural components the amount of change in each of the two decades was relatively uniform.

However, comparative subcultural component change magnitudes in the early and late decades exhibit unique features. It is the only component to show negative interannual correlation coefficients in the emerging and the enduring stage clusters. In the former, the coefficients are very small (.09 and -.13) and of questionable significance. But in the enduring stage clusters they are large in both the 1950-1960 interannual measure (-.45), and that for 1960-1970 (-.50). Composed of such indexes as density of minority ethnic groups, female participation in the labor force, and status offenses, the negative coefficients of interannual correlations in the composite indicator score suggests that the higher the measure in 1950, the lower it was in 1960. Similarly, the higher it was in 1960, the lower in 1970. A reasonable interpretation of these relationships would hold that there occurred over the 20-year period a decline in the concentration or density of the constitutive elements of the subcultural indicator in the enduring high crime clusters. This may well have been an effect of the relative diffusion of these elements into new areas between 1950 and 1970, a period of massive population growth in the County. However, the fact that the subcultural components concentration measure in the enduring stage areas underwent a relative decline does not necessarily indicate a 1950-1970 decline in its rate measure (see Table 5.39 for 1950-1970 trends in rates for subcultural index measures in Clusters 1, 2, and 9).

It seems likely that once they are established in the enduring stage clusters, their subcultural characteristics are likely to stabilize as a persisting feature of their neighborhoods. Moreover, there is evidence in the interannual correlation data that the subcultural character of high crime areas is first established during the transitional stage of development. In the transitional stage clusters, there occurred in the 1950-1960 decade a greater change i.e., a smaller correlation coefficient in subculture than in any of the other structural components (.35). But the 1960-1970 decade saw the most emphatic change, with a coefficient of .01 as compared to those for the remaining structural indicators, all of which lay in the .80 and .90 range.

H. Interannual Change in Crime Type

Presented earlier in the section headed, "Crime Types and Neighborhood Change," were the 20-year trends in instrumental and expressive offenses. These data were based on composite indicator scores standardized to the County mean for each offense type. Higher score values for expressive than for instrumental offenses were found to characterize the emerging high crime clusters, with the reverse the case for those at the enduring stage.

Further supportive evidence for this developmental sequence may be seen in the interannual correlations for the crime types. Evident in Table 7.26 is the fact that the largest interannual change in the measure of expressive offenses occurred in the emerging areas during the first, 1950-1960, decade of the 20-year period, as indicated by the smallest correlation coefficient (.12) in the array. The contrary case, at the opposite extreme of the developmental cycle, is seen in the enduring high crime areas during the second, 1960-1970, decade. Its coefficient of .76 for instrumental offenses indicates very little change during that decade, that is, virtual stabilization of high levels of property crime. At the same time, its coefficient of .47 for expressive offenses indicates that their increase rate exceeded that for the instrumental offenses.

I. Summary

The aim in this chapter was to transform to a single composite indicator score the multiple measures of each component of neighborhood social structure and of crime. The construction of composite indicator score values provided a summary measure of each of the independent structural variables and of the dependent crime variable. While this procedure sacrificed the detail presented in earlier chapters in the analysis of relationships between neighborhood change and crime, the reduction of diverse index measures to composite indicator values produces substantial gain in the clarity of these relationships. For example, with respect to the relationship between neighborhood socioeconomic status and crime, the fundamental concern is not with the bearing of such index measures of the concept as the occupational distribution of the population or the absence of housing amenities. The concern is, rather, with the need to derive a measure of the concept of socioeconomic status itself, utilizing available operational expressions of the concept.

A one-factor model of factor analysis was employed to create the composite indicator scores, and provided a means of weighting the contribution of individual measures to the indicator scores. The model accounted for high proportions of total explained variance in each of the preselected "factors," or components, of neighborhood structure and crime, despite some variation. The traditional form of factor analysis, while accounting for more of

the explained variance in the total set of index measures of the various structural components, yielded factors that were either uninterpretable or whose utility for the analytic problem was obscure. Composite indicator score values for neighborhood structural components and crime were consequently developed and employed in a further analysis of the relationship between neighborhood change and crime.

Dealt with first were the two-decade trends in mean composite indicator score values for the census tract clusters at early, intermediate, and late stages of development as high crime areas. While mean score trends for crime rose during the 1950-1970 period in clusters at all three stages, they increased more rapidly in the emerging than in clusters at the later stages of development. However, it was only in the emerging high crime areas that mean score values for all structural components moved sharply upward during this period. In clusters at the latest stage of development, structural component scores tended to decline. Since all score values were standardized to the County mean at the 1950, 1960, and 1970 time points, their decline in the enduring stage high crime clusters was accounted for as an effect of the gradual diffusion of their structural features into other areas of the County.

A reanalysis of the possible differential distribution of instrumental and expressive offenses in relation to the development of high crime areas was then undertaken with use of the composite indicator scores. The data indicate a predominance of such expressive type offenses as homicide and assault in the early stages of neighborhood transformation as high crime areas, shifting to a predominance of such instrumental type offenses as burglary, robbery, and theft during the later stages of the transformation.

Similarly, prior findings based on cross-lagged correlation, cross-lagged regression, and deviational correlation analyses utilizing the large number of index variables measuring crime and each structural component were re-examined with the use of composite indicator scores. Each of these analyses generally confirmed the earlier findings, adding in each case further clarification of the relationship between neighborhood change and crime. The main findings were:

(a) Cross-lagged correlation analysis based on composite indicator scores produced added evidence that neighborhood structural change tends on the whole to occur prior to change in crime levels. However, the use of composite indicators provided a clarifying addition to the earlier findings. Two of the four structural components, land use and population composition, exhibited a decisive effect on subsequent change in neighborhood crime levels. They were seen as having a cumulative and accelerating character, leading eventually to the establishment of a neighborhood as a high crime area. However, with the

transformation established, causal priority then appears to shift to the socioeconomic and subcultural components of structure. The "driving" force of land use and demographics in relation to crime change subsides markedly, to be taken over by SES and subculture. These then remain as the elements showing causal priority in relation to crime. In effect, then, causal priority among structural variables with respect to crime shifts through time from ecological to social and cultural forces, with the latter ultimately responsible for consolidating the transformation of neighborhoods from a low to a high crime condition.

(b) Cross-lagged regression analysis provided a more precise assessment of the issue raised by cross-lagged correlation analysis. This analysis also revealed the ecological factors of land use and population characteristics as having prominent effects on subsequent rises in crime measures only during the earlier stages of neighborhood transition to high crime status, followed during later stages by an increasing predominance of the SES and the subcultural components.

(c) Two forms of deviational correlation analysis were then used to determine the relationship of the velocity of structural change to the velocity of change in the crime measure for clusters at each of the three stages of development as high crime areas. In the first, the velocity of structural change over the 1950-1970, two-decade, period was compared to the velocity of crime change over the same period. For clusters at the emerging stage, change velocities in three of the four structural components exceeded the change velocity in crime. The one exception was the subcultural component. However, in clusters at both the transitional and enduring stages of development, the velocity of crime change slightly exceeded that of structural change. The initial important development in urban high crime areas is a higher rate of change in their ecological character than in their crime measure, with the relationship tending to reverse in later stages of the developmental cycle.

The second form of deviational correlation analysis cross-lagged structural and crime change velocities, comparing earlier decade structural change velocity with later decade crime change velocity. This analysis was viewed as providing a more adequate test of the hypothesis that it is a high velocity of neighborhood structural change rather than the fact of change itself that inaugurates the process of neighborhood transformation as a high crime area. Not specified in the hypothesis was a prediction respecting the specific structural variables whose earlier change velocity would have the most effect on subsequent crime change velocity, and the stage of development in which the effect would appear. As noted, both cross-lagged correlation and regression analyses generally suggested that the most likely candidates for this role would be the ecological factors of land use and demographics, and that the

impact of earlier high change velocities in these factors would be apparent in high change velocity for crime in the emerging stage high crime areas. However, the data did not support this expectation. The crucial earlier velocities for the emerging areas were primarily in the SES component and secondarily in the subculture component. This was the case as well for the latest stage enduring areas, although there the velocity effect of earlier SES was markedly diminished. Nonetheless, the prediction of the hypothesis in more general form respecting the role of velocity change in the structural components taken together is supported by the data. Earlier velocities of structural change explain the largest proportion of the variation of later crime change velocity in the emerging areas, and least in the enduring areas.

(d) A further analysis was restricted to the question of the relative magnitude of change in structural components and in crime between 1950 and 1960, and between 1960 and 1970. For all of the high crime clusters, irrespective of stage of development, there occurred greater change during the first than during the second decade. However, clusters in the earlier and later stages of development differed in structural change magnitudes for the first and second decades. In the emerging stage clusters, the amount of second decade change was greater than that in the first decade, a period when these areas were relatively crime-free. In both the transitional and enduring stage clusters the amount of change in their structural components was relatively uniform in both decades. Perhaps the most interesting finding of the analysis concerned the timing of change magnitudes in the subcultural component. The only point in the cycle of development at which it exhibited a very large change magnitude was in the later, 1960-1970, decade and only in the clusters at the transitional stage. The subcultural components were virtually unchanged in the emerging areas in both decades. And in the enduring stage areas, subculture appears as a stable and persisting feature across both decades.

(e) Finally, an analysis of interannual change magnitudes for instrumental and expressive offenses was conducted as a further test of the assumption of an earlier appearance of expressive offenses in the course of the development of high crime areas. Findings from the analysis confirmed the validity of the assumption.

CHAPTER VIII

CONTINUING TRENDS IN STRUCTURAL COMPONENTS AND CRIME

A. Introduction

To this point, the report has traced over a 20-year period the emergence and establishment of high crime areas in Los Angeles County. The association of crime with transformations in neighborhood conditions were also described. Four classes of conditions were selected for consideration on theoretical grounds. They included, first, elements of neighborhood physical environment as revealed in land use patterns; second, such characteristics of their populations as density, household composition, and age distribution; third, the occupational distribution of their populations and other indicators of socioeconomic status; and fourth, features likely to be associated with patterns of behavior relevant to their social control capacity, including traditions of law observance embedded in the history of ethnic groups, levels of assimilation to the "mainstream" culture as indexed by educational levels, and factors with more immediate impact on the socialization of the young as reflected in levels of juvenile status offenses and the participation of females in the labor force. Changes over the two-decade period of 1950-1970 in these elements of neighborhood social structure were found to be related to changes in their crime levels in a reasonably definable developmental pattern.

This chapter examines the extent to which the developmental processes found in long-term, 20-year, historical data remained evident into the near present. The time span selected was the six-year period between 1970 and 1976. Although this "compressed" time period is too brief to reveal developmental patterns clearly, it is chronologically an adjacent period to the two decades analyzed and offers an opportunity to test for trends in the County's high crime areas and in neighborhood structural patterns and to examine the robustness of the measurement methods used in the original historical data

Juvenile offenses were utilized as the surrogate measure for neighborhood crime levels. Two items of evidence had been introduced early on showing very high correlations between the residency patterns of juvenile and adult offenders in urban areas. One was drawn from a 1926 study in Chicago (Shaw et al. 1929); the other was a comparison of the distribution of juvenile and adult offenses in Los Angeles County in 1970. The 1926 Chicago findings were duplicated in the current study of Los Angeles (Tables 2.2 and 2.3). Another dimension of criminal activity, most commonly used as a direct measure of neighborhood desirability, is the number and type of reported crimes. However, as noted earlier, crime report data were not available

for the 1950-1970 long-term trend analysis. It became necessary therefore, to substitute as the basic measure of crime the residences of juveniles whose offenses would be prosecutable if committed by adults. To test further the usefulness of this surrogate measure, police crime reports as well as juvenile offenses, both by census tracts, were examined for the 1970-1976 to ascertain the degree of similarity in the areal distribution of the two measures. Unit shares of criminal offenses (proportion of the County's total number of serious offenses in each of the ten highest crime clusters) are summarized in Table 8.1.

Also summarized in this table for comparative purposes are juvenile offense unit share measures. Similar rates for 1950, 1960, and 1970 for juveniles were presented in Tables 5.46 through 5.48. It was noted in Chapter V that high crime areas accounted for one-third of the juvenile prosecutable offenses, yet these areas constitute only about 19 percent of the County census subareas. A review of Table 8.1 reveals a similar trend. Crime report unit share measures presented in the table also reveal the same pattern for the ten highest 1970 crime areas. However, the levels of unit share measures of crime reports in all categories of offenses tend to be lower than for comparable categories of juvenile offenses.

When the County's high areas are examined at the different stages in their development, an important distinction between the enduring and emerging crime areas is revealed. For each type of crime category (e.g., property, person) the enduring areas show a much higher County share of juvenile offenses than is the case for crime reports. In the emerging areas the opposite is true. Crime reports have higher unit share values than do unit share measures of juvenile offender. The 1970-1976 trend toward higher unit share values for crime reports than those for juvenile prosecutable offenses in the emerging high crime areas may reflect their growing desirability as a crime target and the infiltration of criminal activity from spatially adjacent enduring and transitonal high crime areas. For instance, while the enduring area's unit share of juvenile offenses is much higher than found in the emerging areas, only in the emerging areas does the unit share crime report level exceed the unit share levels of juvenile offenses.

In order to examine in greater detail the specific relationships between crimes reported and the concentration of juveniles living in the area who were charged with prosecutable offenses, a correlation analysis was performed. Here, however, the measurement was shifted from unit share to concentration, a measure more directly related to neighborhood change. As shown in Table 8.2, the very high positive associations between juvenile offenses and total crimes reported to police confirm the reliability of the juvenile offense measure as a surrogate for adult crime in the 1950-1970 period. Further, the association

Table 8.1. Six Year Trend in Unit Share of Part I Crime Reports and Juvenile Prosecutable Offenses, Ten Highest Crime Census Tract Clusters, 1970 Areal Cohorts, by Stages of Development as High Crime Areas, Los Angeles County

	Juvenile Offenses			Crime Reports		
Stage	Total Prosecutable	Property	Person	Total Part I	Property	Person
Total						
1970	33.84	40.40	52.40	30.08	28.95	35.34
1973	31.13	33.93	51.99	25.29	22.94	35.10
1976	28.28	28.76	37.84	19.27	17.89	27.08
Emerging						
1970	2.81	2.61	3.25	3.30	3.49	2.59
1973	1.94	1.88	2.78	2.74	2.66	3.08
1976	2.38	2.24	2.81	2.49	2.45	2.80
Transitional						
1970	17.73	21.39	26.12	16.67	16.17	18.89
1973	16.56	19.34	28.48	15.34	14.21	20.11
1976	15.12	16.04	20.91	11.01	10.41	14.84
Enduring						
1970	13.30	16.40	23.03	10.11	9.29	13.86
1973	12.63	12.71	20.73	7.21	6.07	11.91
1976	10.79	10.48	14.12	5.77	5.03	9.39

between the two measures of crime is most pronounced in the emerging crime areas.

In these areas, juvenile prosecutable offenses and Part I crimes for these areas show correlations of .79, .94, and .76 for 1970, 1973, and 1976, respectively. It should be noted also that the relation between juvenile person offense arrests and Part I person crime reports are highest in the emerging areas and generally become more pronounced during the initial two time points of the 1970 to 1976 time period. These results substantially corroborate earlier findings which suggest that a distinguishing feature of the emerging crime areas is a higher incidence of of person than of property crimes at the onset of neighborhood change. In comparing the two extreme types of crime areas (enduring and emerging), Table 8.2 consistently shows lower associations in the enduring areas between concentration of the residency of juveniles arrested for prosecutable offenses and crimes being reported in the area. And, as was noted with regard to the unit share patterns in Table 8.1, it might be speculated that this finding reflects the predatory invasion of both juvenile and adult offenders from the crime impacted areas into the surrounding communities, which may offer more favorable criminal opportunity targets. This suggests an added element accelerating the deterioration of the emerging high crime areas. This feature of the emerging areas is dealt with greater detail below.

In moving from the 1950-1970 historical analysis, a second reliability problem concerned the measurement of neighborhood structural components in the 1970-1976 period. The measurement of the structural dimensions of neighborhoods beyond 1970 required an entirely different set of indexes from those used with the 1950-1970 data. For the latter, variables were drawn mainly from the United States decennial census reports of 1950, 1960, and 1970. Only land use variables used data drawn from local data sources. Since decennial census information is not available on an annual basis, a substitute set of available data tapping the same structural components was used. With the exception of annual population component estimates, which were developed in-house on the basis of a well-tested set of equations, variables indexing elements of neighborhood social structure were constructed from existing administrative data files. These included the files of the County Assessor, those of County and State vital statistics records with their information respecting mortality and morbidity, the Voter Registration files as an aid in census tracting all information, the file of the California Savings and Loan Administration, and the Building Permit file for the County. Administrative data file sources, the constructed variables indexing social structure derived from them, and the factor loadings are presented in Table 8.3 through 8.6.

Table 8.2. Product Moment Correlations, Census Tracts in Highest Square Mile Density Clusters in 1970, 1973, 1976, between Type of Crime Reports and Juvenile Offense Concentration, Los Angeles County

		Total	Enduring	Transitional	Emerging
Part I Crime Reports	1970	.64	.73	.63	.79
vs	1973	.72	.85	.72	.94
Juvenile Prosecutable Crimes	1976	.69	.72	.74	.76
Crimes Against Property Reports	1970	.49	.60	.46	.74
vs	1973	.63	.83	.61	.85
Juvenile Property Offenses	1976	.59	.73	.58	.58
Crimes Against Person Reports	1970	.71	.74	.61	.87
vs	1973	.73	.77	.66	.91
Juvenile Person Offenses	1976	.69	.62	.74	.68

Table 8.3. Factor Loadings and Variance Scores for Land Use, Los Angeles County, 1970, 1973, and 1976

Variable	1970	1973	1976
Residential Dwellings Concentration	-.10	-.11	-.10
Multiplex Dwellings Concentration	.54	.37	.36
Apartment Dwellings Concentration	.68	.71	.70
Commercial Activity Concentration	.69	.62	.62
Industrial Activity Concentration	.22	.21	.21
Open Land Concentration	.02	.01	.01
Traffic Generator Concentration	.71	.84	.85
Explained Variance	1.80	1.77	1.78

Table 8.4. Factor Loadings and Variance Scores for Demographic Characteristics, Los Angeles County, 1970, 1973, and 1976

Variable	1970	1973	1976
Population Concentration	1.00	1.00	1.00
Aged Dependency Ratio	.22	.21	.14
Youth Dependency Ratio	-.12	-.17	-.12
Sex Ratio	-.10	-.06	-.07
Residential Mobility Concentration	.81	.79	.79
Explained Variance	1.72	1.69	1.66

Table 8.5. Factor Loadings and Variance Scores for Socioeconomic Characteristics, Los Angeles County, 1970, 1973, and 1976

Variable	1970	1973	1976
Registered Voters Concentration	.41	-.05	.10
Republican Voters Concentration	-.08	.21	.31
Democrat Voters Concentration	.60	-.26	n/a
Non-partisan Voters Concentration	.27	-.21	.11
Republican-Democrat Ratio	-.50	-.07	.45
Median Residential Property Value	-.45	.99	1.00
Median Residential Selling Price	-.47	.96	.99
Median Residential Loan Value	-.49	.99	.99
Residential Loan Concentration	-.04	.30	.27
Births in Public Hospitals Concentration	.82	-.45	-.41
Little or No Prenatal Care Concentration	.73	-.42	-.35
Birth Complications Concentration	.91	-.42	-.37
Low (5.55 lbs. or less) Birthweight Concentration	.93	-.43	-.43
Critical (T.B., Hepatitis) Diseases Concentration	.72	-.37	-.31
On Job Death Concentration	.07	-.09	-.04
Perinatal Death Concentration	.80	-.40	-.38
Public Hospital Death Concentration	.66	-.41	-.40
Previous Births Now Dead Concentration	.81	-.42	-.35
Explained Variance	6.68	4.52	4.50

Table 8.6. Factor Loadings and Variance Scores for Subculture, Los Angeles County, 1970, 1973, and 1976

Variable	1970	1973	1976
Black Population Concentration	.88	.93	.01
Black Birth Concentration	.92	.92	.02
Black Illegitimate Birth Concentration	.97	.96	.02
Black Mothers Under 18 Concentration	1.00	1.00	.03
Black Mothers Under 18 with Illegitimate Births Concentration	.99	1.00	.03
Black Parents Under 18 Years of Age Concentration	.91	.92	.04
Black Parents Under 18 Years of Age with Illegitimate Births Concentration	.91	.92	.03
Black Mothers with More Than Three Deliveries Concentration	.93	.91	.02
Spanish Population Concentration	-.04	-.03	.97
Spanish Birth Concentration	-.01	-.00	.99
Spanish Illegitimate Birth Concentration	.01	-.00	.96
Spanish Mothers Under 18 Concentration	-.00	.01	.88
Spanish Mothers Under 18 with Illegitimate Birth Concentration	.06	.01	.82
Spanish Parents Under 18 Concentration	.11	-.04	.47
Spanish Parents Under 18 with Illegitimate Birth Concentration	.13	-.02	.41
Spanish Mothers with More Than Three Deliveries Concentration	.05	.10	.91
Mothers Born in Latin America Countries Concentration	.03	.04	.98
Traffic, Deaths Under 18	.34	.31	.50

Table 8.6 continued

Variable	1970	1973	1976
Accidental Deaths Under 18	.40	.34	.33
Black-Spanish Ratio	.63	.67	-.16
Spanish-Anglo Ratio	-.05	.01	
Black-Anglo Ratio	-.03	.28	.03
Explained Variance	7.77	7.92	6.84

The congruence between the four 1950-1970 and the four 1970-1976 structural components was tested by correlating the 1970 factor scores for the respective data sets. It should be emphasized that the individual measures used to represent neighborhood structure between 1950-1970 generally were not derived from the same data sources as the 1970-1976 measures. However, the indexes developed to represent each of the four independent components of neighborhood structure were hypothesized to represent the same demographic, socioeconomic, land use, and subcultural dimensions. Since there was a common overlap in time at 1970, the two sets of 1970 factor scores for the 1142 census tracts were correlated to test the usefulness of different measures in representing the essential elements of common composite indicators. The product-moment (Pearson) and rank-order (Spearman) correlations for each of the four neighborhood domains are shown in Table 8.7. Except for subculture, the correlations reveal that there is indeed a high degree of similarity between the factor scores. And as noted in previous discussions, the ability to truly tap the meaning of subculture through the use of administrative data is especially elusive. Nevertheless, the seeming lack of statistical congruity between the overlap of the subcultural measurement in 1970 can be largely accounted for when subculture is disaggregated and the racial/ethnic components found in the composite indicator are bifurcated into variables representing Black and Spanish subcategories. Under these conditions the disparity between the different variables virtually disappear. For example, when Pearson correlations are calculated which compare factor scores derived from census-based variables used in 1970 with local based variables used in 1970-1976, the results were as follows:

	1970	1973	1976
Spanish 1970 census vs.			
Spanish local variables for:	.88	.90	.85
Black 1970 census vs.			
Black local variables for:	.85	.80	.79

Thus the results presented in Table 8.7 suggesting that in the case of subculture the measures may tap somewhat different facets of the neighborhood structural components in Los Angeles County reflect the fact that subculture is much more contextual in meaning than is implied in the other components of neighborhood structure. Nevertheless, as demonstrated in Chapter VII, the inclusion of this dimension of neighborhood structure was both conceptually and statistically important. Therefore the concept was retained in the examination of the high crime areas over the shorter period of 1970-1976.

B. Trends in Crime and Structural Components, 1970-1976

Uniformity in the pattern of neighborhood development from a relatively crime-free to a crime-impacted status disclosed in the 1950-1970 data is here subjected to a further test through

Table 8.7. Product-Moment and Rank-Order Correlations Between Two Sets of Composite Indicators (Factor Scores) Representing the Same Four Structural Components in 1142 Subareas, Los Angeles County, 1970

	Product-Moment	Rank-Order
Land Use	.73	.78
Demographic	.97	.98
SES	.87	.91
Subculture	.24	.45

examination of the 1970-1976 data (Table 8.8). Mean composite scores for crime and for each of the four dimensions of neighborhood social structure have been standardized to the County mean on each measure.

Trends over time that were quite evident over a period of two decades are, expectedly, very much less distinct for a number of crime and structural measures during the shorter span of one-half decade. The crime measure used in the analysis of the 1970-1976 data was identical with that used in the 1950-1970 data, namely, juvenile petitions to the court for felony and misdemeanor offenses. That is, in Chapters II through VI simple aggregate counts of prosecutable crimes divided by square miles for the relevant subareas were used. However, in Chapter VII the dependent variable, prosecutable crime, was a composite indicator. The indicator was generated by:

(1) dividing each offense type for a given subarea by the square miles of the subarea;
(2) the total set of indexes was subjected to a single factor, factor analyses, (in order to obtain relative weights for each type of offense);
(3) factor scores were then derived for each subarea in the County.

Since use was made of a concentration measure, the decline in crime between 1970 and 1976 is a likely reflection of the post-1970 reduction in the proportion of the under-18 age group, and therefore of reduced numbers per square mile. However, the same differences in the crime measure among high crime areas at the three stages of development seen in the 1950-1970 Table 8.8 data are also evident in 1973 and 1976. At each of the three time points of 1970, 1973, and 1976, the emerging high crime areas remained consistently below those at a more advanced stage of development.

The composite measure of land use indicates virtually no difference from the mean for the County in the enduring high crime clusters. In the transitional areas, even lower composite indicator scores of land use were found than the County mean. However, the emerging areas, with mean composite measures above the County mean remain distinguished from those at a more advanced stage of development as "better" in terms of the variables constituting the composite measure.

Composite indicator measures of the demographic features of the high crime areas at each of the three stages of development declined from 1970 to 1976. They did maintain a uniformly higher level in the enduring stage areas than in both the earlier stage areas. Nor did the socioeconomic composite indicator exhibit a similar decline. Speculatively, three variables undergoing reduction during the 1970s may have accounted for the pattern of decline in the demographic component: population density, residential mobility, and the youth dependency ratio.

Table 8.8. Trends in Standardized Mean Composite Indicator Scores, Structural Components and Crime, by Type of High Crime Clusters, Los Angeles County, 1970-1976

	Land Use			Demographics			Socioeconomics			Subculture			Crime		
	1970	1973	1976	1970	1973	1976	1970	1973	1976	1970	1973	1976	1970	1973	1976
Ten Highest Crime Clusters	-.01	-.02	-.02	.68	.57	.51	1.06	.98	1.06	1.29	1.15	1.16	1.26	1.18	1.16
Emerging	.04	.05	.05	.60	.56	.44	.50	.42	.50	.30	.23	.38	.77	.26	.70
Transitional	-.03	-.05	-.06	.60	.46	.41	.95	.79	.95	1.09	1.04	.99	1.00	.90	.90
Enduring	.00	.00	.01	.83	.72	.69	1.41	1.46	1.41	1.92	1.64	1.71	1.75	1.92	1.70

Earlier data indicated a declining population density in the high crime areas that were at a more advanced stage of development. This effect was becoming apparent in the emerging areas after 1970. Reduced residential mobility may have reflected a slowly growing housing shortage in the County as indicated by a shrinking vacancy rate in residential housing, known to be acute by 1980. Reduction in the youth dependency ratio in all likelihood resulted from the already noted falling numbers in the juvenile age group. The socioeconomic measure reflecting depressed economic status rose between 1960 and 1970 in both the emerging and transitional areas. But it declined in the enduring areas (i.e., its SES status improved) from the standardized (to the County mean) measure of 1.60 in 1960 to .98 in 1970, with these measures for both time points the highest among the three types of areas. For the enduring areas, this means that by 1970, while its measure differs most from the mean of low SES for the County (.98), it became less disparate from the County mean than it was in 1960 (Table 7.12).

After 1970, however, all three types of high crime areas appeared to stabilize in their low SES scores, while the distinction among them in score magnitude remained what it was in the preceding decade. Scores for SES in 1976 ranged from a high of 1.41 in the enduring areas, to .95 in the transitional and to a low of .50 in the emerging areas. On the other hand, trends in standardized scores for subculture moved downward between 1960 and 1970 in all three types of high crime areas (Table 7.13). This trend continued into the 1970s in the transitional and the enduring but not in the emerging high crime clusters. The subculture standardized score in the emerging areas rose between 1970 and 1976, increasing from .30 to .38. The difference in post-1970 trends in this respect, between the emerging and the later stage high crime areas, may have been related to the distinctiveness in the former in an upsurge of population displacement and succession along with an associated increase in its heterogeneity.

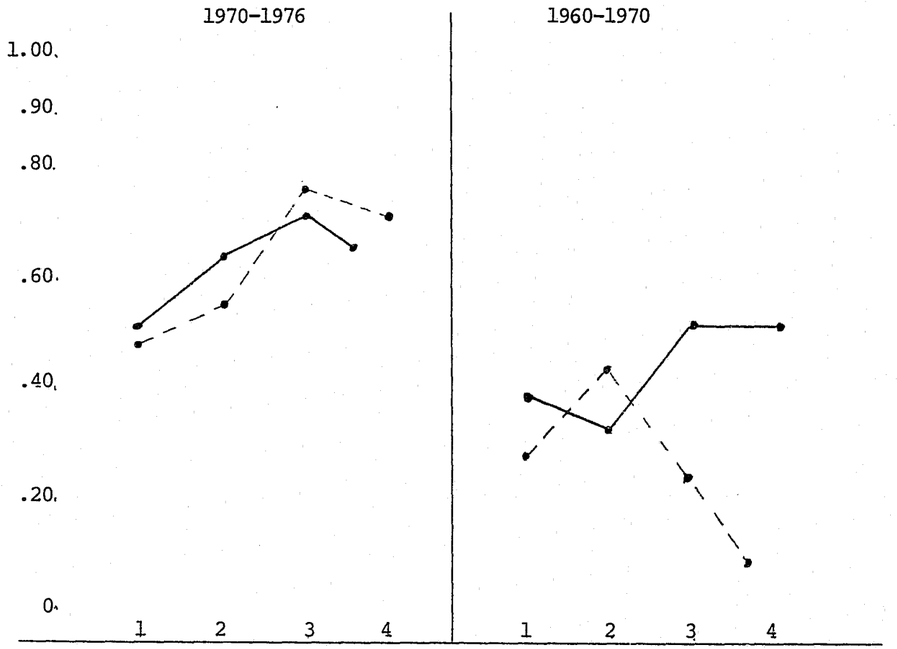
C. Cross-lagged Correlation and Lead-Lag Relationships

Among the structural components in the ten highest crime clusters taken as a unit, only the demographics exhibit a change prior to change in the crime measure (Xt1Yt2 = .64; Yt1Xt2 = .55). As was the case for the 1960-1970 period, change in crime during 1970-1976 appeared to precede change in both the socioeconomic and the subcultural structural components (.76 versus .72 and .72 versus .68). These data are presented in Table 8.9 and Figures 8.1 through 8.4. The emerging high crime areas differed distinctively from those at later stages of development. Change in the crime measure occurred prior to change in the demographic component (Yt1Xt2 = .83; Xt1Yt2 = .76), and in the socioeconomic component (Yt1Xt2 = .94; Xt1Yt2 = .87). In contrast, in both the transitional and the enduring stage clusters, demographic change preceded crime change, and in

Table 8.9. Cross-lagged Correlations, Standardized Mean Composite Indicator Scores, Structural Components (X) and Crime (Y), 1960 and 1970 (T_1), 1970 and 1976 (T_2), by Type of High Crime Area, Los Angeles County

Structural Component	1960-1970 rXt_1Yt_2	1960-1970 rYt_1Xt_2	1970-1976 rXt_1Yt_2	1970-1976 rYt_1Xt_2
Ten Highest Crime Clusters				
Land Use	.37	.28	.51	.47
Demographics	.33	.44	.64	.55
SES	.52	.24	.72	.76
Subculture	.51	.07	.68	.72
Emerging Areas				
Land Use	.42	.50	.55	.53
Demographics	.33	.55	.76	.83
SES	.74	.51	.87	.94
Subculture	.60	.70	.76	.70
Transitional Areas				
Land Use	.49	.35	.72	.70
Demographics	.61	.43	.71	.61
SES	.77	.46	.77	.79
Subculture	.65	.06	.74	.73
Enduring Areas				
Land Use	.34	.35	.13	.04
Demographics	.16	.47	.54	.39
SES	.25	.04	.70	.69
Subculture	.44	-.22	.78	.81

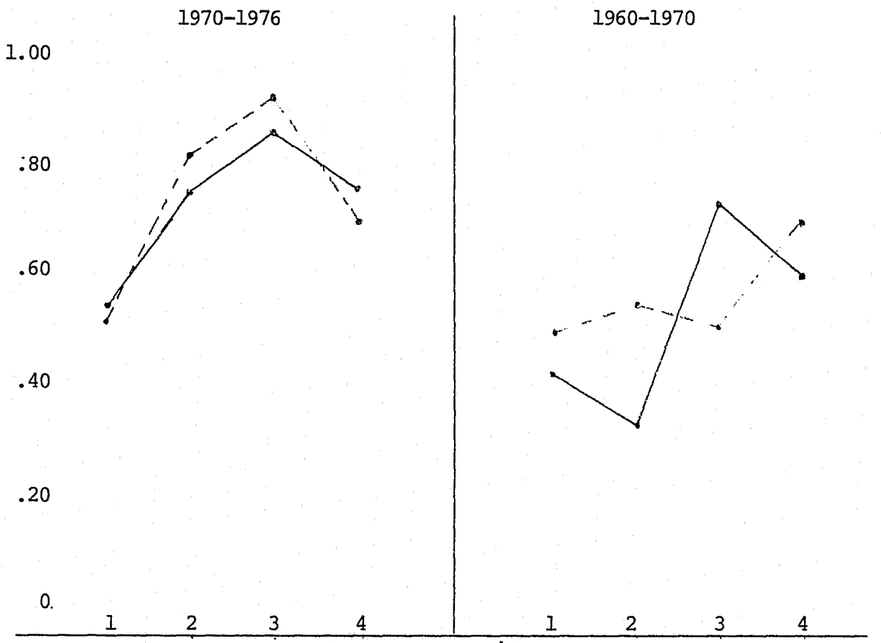
Figure 8.1. Shifts in Time Priority Relationships, 1960-1970 and 1970-1976 for Structural Components and Crime, Ten Highest Crime Clusters, Los Angeles County



1 = Land Use
2 = Demographics
3 = SES
4 = Subculture

———— Structure Time Priority
- - - - - Crime Time Priority

Figure 8.2. Shifts in Time Priority Relationships, 1960-1970 and 1970-1976 for Structural Components and Crime, Emerging High Crime Areas, Los Angeles County

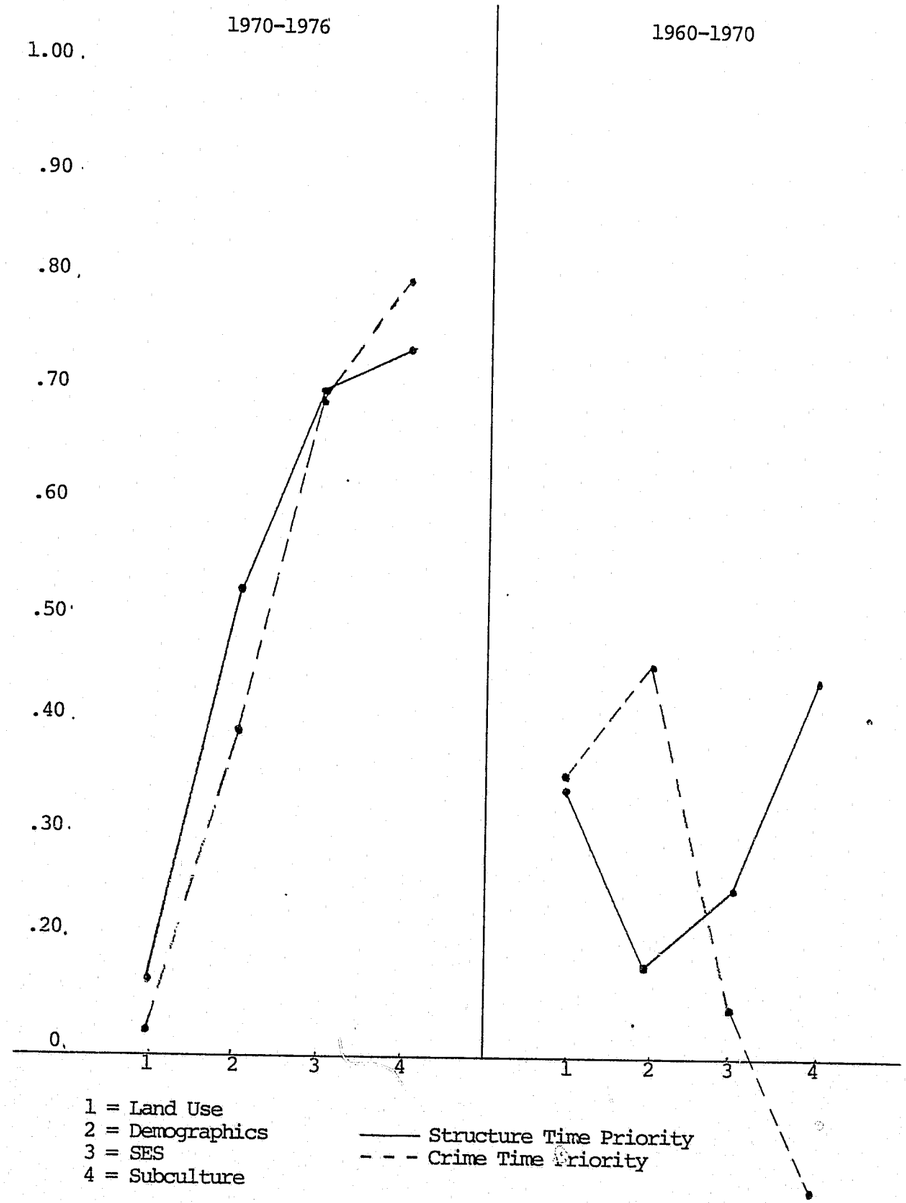


1 = Land Use
2 = Demographics
3 = SES
4 = Subculture

———— Structure Time Priority
- - - - - Crime Time Priority

Figure 8.3. Shifts in Time Priority Relationships, 1960-1970 and 1970-1976 for Structural Components and Crime, Transitional High Crime Areas, Los Angeles County

Figure 8.4. Shifts in Time Priority Relationships, 1960-1970 and 1970-1976 for Structural Components and Crime, Enduring High Crime Areas, Los Angeles County



neither did the socioeconomic component exhibit a leading effect. A comparison with lead-lag relationships in the preceding 1960-1970 period indicates continuity into the 1970-1976 period of the leading effect of demographic factors in transitional high crime areas (Table 7.17). There remains, however, a puzzling reversal in the enduring high crime areas. There, the earlier leading effect of crime on demographics is replaced in the 1970-1976 period by demographic factors exhibiting a leading effect. Whether this is an artifact of the data or reflects a real change in features of the enduring high crime areas is difficult to determine.

On the other hand, in both of the later stage high crime areas, the earlier 1960-1970 leading effect of the socioeconomic component disappears in the later 1970-1976 period, when both crime and this structural component exhibited approximate time parity. The same was true for the subcultural component. Its decisively leading effect in 1960-1970 was also replaced in the later period by virtual equivalence with crime change. These alterations in lead-lag relationships suggest that as high crime areas evolve, differentials in lead-lag roles between the socioeconomic and subcultural components, on the one hand, and crime, on the other, are reduced and come into stable and persisting balance with one another.

On the other hand, the period covered may have been too brief to permit observation of the time priority issue. For this purpose we attempted a further assessment of this issue through the use of cross-lagged regression analysis in which crime is treated as the dependent variable.

D. Cross-lagged Regression Analysis

Examined here is the relationship between earlier, Time 1, structural and the later, Time 2, crime measures. Cross-lagged regression analysis assesses the proportion of variance in the crime measure accounted for by each earlier structural component, as well as by the entire set of structural components. In order to observe continuity in the developmental process, the Time 2 crime measure is that for 1970 in the 1960-1970 decade and for 1976 in the 1970-1976 period; the Time 1 structural measures are those for 1960 and 1970. For the earlier period, the 1970 crime measure is regressed on the 1960 structural measures; for the later period, the 1976 crime measure is regressed on the 1970 structural measures.

With regard to the ten highest crime clusters taken as a unit, only the land use and subcultural measures show substantial effects on the later crime measures (Table 8.10). This was true for both the earlier and the later time periods, indicating continuity in the importance of these components into the 1970s for the entire set of high crime areas.

Table 8.10 Cross-lagged Standardized Regression Coefficients and Adjusted R^2, Standardized Mean Composite Structural Scores, 1970 Crime on 1960 Structural Components and 1976 Crime on 1970-1973 Structural Components, by Type of High Crime Area, Los Angeles County

Structural Component	Ten Highest Crime Clusters 1960-70	Ten Highest Crime Clusters 1970,73-1976	Stage of Development: Emerging 1960-70	Stage of Development: Emerging 1970,73-1976	Stage of Development: Transitional 1960-70	Stage of Development: Transitional 1970,73-1976	Stage of Development: Enduring 1960-70	Stage of Development: Enduring 1970,73-1976
Land Use	.46	.38	-.25	--	-.77	.45	.87	.29
Demographics	-.42	--	--	--	.67	--	-.97	--
SES	.17	--	.82	.87	.94	--	.18	--
Subculture	.42	.61	.26	--	-.11	.48	.53	.83
R^2	.38	.60	.58	.74	.69	.67	.48	.68

More revealing for an understanding of the development of high crime areas are the differences in cross-lagged regression coefficients among clusters at the three stages of development. The sole coefficient that survived the stepwise multiple regression procedure in the emerging stage area during the later, 1970-1976, period was that for the socioeconomic component (.87), exhibiting the same high magnitude as for the 1960-1970 period (.82). Neither demographics nor subculture measures for 1970-1973 had, in the emerging stage areas, measurable effect on 1976 crime. The trend respecting structural effects on crime in the emerging stage areas, while generally continuous with those of the preceding decade, still point to the socioeconomic component as exerting a major influence in their development as high crime neighborhoods.

In both the transitional and the enduring stage areas, the structural components of land use and subculture were the only ones to exhibit important post-1970 leading effects on crime. Of note in the transitional area is the coming into prominence of the earlier measures of land use in 1970-1973 in relation to its crime measure in 1976. The contrasting regression coefficient for this relationship during the 1960-1970 decade was a high and negative -.77, suggesting an acceleration in the transitional stage neighborhoods of land use change in the direction of sharply reduced residential desirability. A similar acceleration of change is evident as well for the effect of the 1970-1973 measure of the subcultural component on the 1976 crime measure, with a lagged regression coefficient of .48. This contrasts with a weak and negative coefficient of -.11 in the 1960-1970 period.

Unlike the case in the transitional stage area, both land use and subculture in the longest established, enduring stage, high crime area, continued to exhibit the lagged relationship to crime that obtained in the 1960-1970 period. Only moderate change was evident in each of these components. The coefficient between land use in 1960 and crime in 1970 was a substantial .87; the coefficient in the 1970-1976 period was the much reduced .29. The coefficient between subculture in 1960 and crime in 1970 in the enduring stage areas was .53. This increased in the 1970-1976 period to .83. These comparative measures suggest that between 1960 and 1970 there occurred a declining impact of land use on crime and a rising effect of subcultural factors. As noted in earlier sections of the report, this shift indicates that factors most proximately associated with social control processes tend in these neighborhoods to sustain their relatively strong impact on crime. More remote determinants, such as land use functions and the demographic and socioeconomic composition of their populations, tend to decline in their effect on crime as neighborhoods reach a terminal point in their development as high crime areas.

Finally to be noted is the distinction between the emerging areas and both the transitional and enduring stage areas in the magnitude of difference in the proportion of the variance in

later crime measures accounted for by earlier measures of all structural components. The R^2 of .74 for the emerging as compared to .67 and .68 for the transitional and enduring areas indicates that in general earlier structural measures tend more to affect later crime measures in neighborhoods least advanced in their development as high crime areas.

E. Interannual Correlations and Change Magnitudes

Evidence was offered in earlier chapters indicating that changes in neighborhood social structure tended generally to occur prior to changes in their crime status and were presumably causal in their effect. The two forms of cross-lagged analysis just presented answered affirmatively the question of whether the directionality of cause disclosed by the 1960-1970 data persisted beyond 1970.

However, these forms of analysis leave untouched an issue of interest. This concerns comparative magnitudes of change across time in the social structure of neighborhoods and in their crime problems. Is the amount of change for all or some elements of social structure across two time points similar to or disparate from change magnitudes in their crime measures? Are changes in structural components greater than those in crime in the earlier than in the later stages of neighborhood development as high crime areas? And, with reference to the general issue dealt with in this chapter, are the patterns of comparative change magnitudes that characterized the 1960-1970 decade confirmed by their persistence into the 1970s?

Answers to these questions were furnished in previous sections of the report by examining the correlations of structural and crime measures across time points. Large interannual correlations, that is, the same measure highly correlated at disparate time points, define little or no change; and conversely the smaller the correlation the greater the change.

We note in the data of Table 8.11 that during the 1960-1970 decade in the ten highest crime clusters the change magnitude with a correlation of .72 in the crime measure was greater than that in two structural components, land use and SES, but less thkan the change in demographic and subculture. The disparity persisted into the 1970-1976 period, but now including all structural components. Averaging over high crime areas at various stages of development, there is thus the suggestion that the magnitude of crime change came to outstrip by 1970-1976 the amount of change in structural components.

With one significant exception, a similar greater change in crime than in structural factors characterizes high crime areas at virtually each stage of development for both the 1960-1970 and the 1970-1976 periods. The exception was found in the emerging

Table 8.11. Interannual Correlations, Standardized Mean Composite Indicator Scores, Crime and Structural Components, 1960-1970 and 1970-1976, by Type of High Crime Area, Los Angeles County

Crime and Structural Components	Ten Highest Crime Clusters		Stage of Development: Emerging		Transitional		Enduring	
	1960-70	1970-76	1960-70	1970-76	1960-70	1970-76	1960-70	1970-76
Crime	.72	.77	.57	.93	.56	.76	.76	.79
Land Use	.89	.94	.75	.95	.94	.98	.83	.86
Demographics	.70	.92	.50	.97	.85	.89	.55	.93
SES	.77	.99	.75	.99	.87	.99	.71	.99
Subculture	-.20	.89	-.13	.94	.01	.81	-.50	.91

stage of crime development. During the 1960-1970 decade, the crime change magnitude in these areas exceeded only that of land use and SES; changes in both demographics and subculture were greater than in crime. As the emerging areas moved into the 1970s, the amount of change in the structural and crime components seemed sharply reduced. However, for the six-year period, 1970-1976, crime still registered a greater change by a slight margin than did the structural components.

To be noted also in both the transitional and enduring stage areas is the very large magnitude of change in the subcultural component over the 1960-1970 period. This suggests the likelihood that in areas in all three stages of development their subcultural transformation was completed by the beginning of the 1970s.

F. Cross-lagged-Multiple-Deviational-Correlation-Analysis

In this analysis attention shifts from the comparative magnitude of change over time in crime and structural components. The focus here is on the more crucial issue of the relationship between the velocity of change in neighborhood social structure in a prior period and the subsequent velocity of change in crime. Again, concern is with persistence in the earlier 1960-1970 pattern of these relationships into the decade of the 1970s. The method of deviational correlation analysis is designed specifically to measure comparative change velocities, in the present case lagged comparative velocities (see Chapters VI and VII for a full explanation of the method).

As seen in Table 8.12, the general proposition that may be inferred from this analysis is that whatever the relationships between the 1950-1960 change velocities in structural components, and crime change velocities in 1960-1970, they all but disappear in the 1970-1976 period. The only exception is found in the emerging high crime areas, where the inverse regression coefficient of -.54 indicates that the velocity of change in crime during the 1970-1976 period exceeded the velocity of change in the SES structural component. This contrasts sharply with the lagged velocity relationships of the prior 20-year period when, with a high positive regression coefficient of .96, change velocity in SES far exceeded that in crime. With the single exception of SES in the still emerging high crime areas, there was no detectable persistence of the earlier cross-lagged change velocity relationships into the 1970 decade. We recognize, of course, that failure to detect such relationships may be an effect of the very brief time span of six years. Be that as it may, on the basis of the composite measures of neighborhood social structure and crime available for this period, it is possible to note only that in the emerging high crime areas crime was increasing in the early 1970s at a higher rate than was the SES change, as well as change in the composition of their populations, and was therefore presumably "driving" the SES

Table 8.12. Standardized Regression Coefficients and Adjusted R^2 as Comparative Change Velocity Measures (Deviational Correlation Analysis), Standardized Mean Composite Indicator Scores, Crime on Structural Components, 1970 on 1950-60 and 1976 on 1970-73, by Types of High Crime Area, Los Angeles County*

Structural Component	Ten Highest Crime Clusters		Stage of Development: Emerging		Transitional		Enduring	
	60-70 on 50-60	76 on 70-73	60-70 on 50-60	76 on 70-73	60-70 on 50-60	76 on 70-73	60-70 on 50-60	76 on 70-73
Land Use	.31	--*	-.58	--	.31	--	.49	--
Demographics	-.19	--	-.12	--	-.09	--	-.41	--
SES	.04	--	.96	-.54	.09	--	-.11	--
Subculture	.18	--	.22	--	.24	--	.13	--
R^2	.14	--	.66	.26	.33	--	.17	--

* Empty cells indicate insufficient variance to compute

Y on X where:

Y = residue of 70 on 60 dependent
X = residue of 60 on 50 independent

Y on X, Z where:

Y = residue of Y_{76} on Y_{73}, Y_{70} dependent
X = residue of X_{76} on X_{73}, X_{70} independent
Z = residue of Z_{76} on Z_{73}, Z_{70} independent

measure. In general, this is indicated by the proportion of variance in velocity change in crime accounted for by prior velocity change in structural components during the 1950-1970 period. This is at its highest point of .66 in the emerging areas, declines to .33 in the transitional and to .17 in the enduring areas. This suggests that change velocity in all structural components taken together have their greatest effect on the rate of change in crime as the transformation of neighborhoods to crime areas is initiated and subsequently declines in effect in the course of their development. In other words with the passage of time, there is an increasing tendency for rapid increase in crime to affect the degree of change in elements of neighborhood social structure.

G. Summary

The 1960-1970 differences in crime levels for neighborhoods in the emerging, transitional, and enduring stage areas of development were unchanged in 1976. They were lowest in the first and highest in the last. Earlier trends in crime thus extended into the decade of the 1970s. Based on the findings of previous decades, however, it would be reasonable to predict that by the decade of the 1980s, crime in the emerging stage areas would reach the level found in the transitional stage areas in the 1970s, with the transitional areas reaching the 1960-1970 enduring stage crime levels, while those of the latter remained unchanged from their relative level in the 1970s. At the same time, it should be expected that there would be still additional neighborhoods transforming into "new" emerging crime areas.

A more complex picture is presented by trends in structural components beyond 1970. For the entire set of high crime clusters, the land use composite indicator score reflecting reduction in residential desirability moved downward between 1960 and 1970. Movement in the direction of the County mean on this measure suggests a relative deceleration over the decade in the physical deterioration of the high crime areas. However, decomposition of the aggregate measure of the score into the component clusters at the three stages of development revealed important differences. While declining in the transitional and enduring areas, the land use composite indicator score rose in the emerging high crime areas, indicating a decade-long advancing deterioration. This trend in the emerging areas was still evident through the first half of the 1970s. On the other hand, in both of the more advanced high crime areas virtually no further deterioration occurred after 1970.

Post-1970 trends in the demographic characteristics of the high crime areas show a sharp reversal from those of the preceding decade. They were consistently upward in all three types of high crime areas, but moved uniformly down between 1970 and 1976. This means that with the passage of time they were becoming less distinctive in respect to such features as

population density, household composition, and other demographic factors.

The decline in socioeconomic status afflicting the high crime areas, showing an overall downward trend between 1960 and 1970, seems to have stabilized by 1976. However, the enduring high crime areas preceded the other two in reaching the point of stability. Here, again, the 1960-1970 uniform gradient of differences among areas at the three stages of development was preserved post-1970: emerging areas were least characterized by indexes of low SES, the enduring areas most.

Trend data pre- and post-1970 indicate generally an ongoing decline in composite indicator scores for the subcultural component of neighborhood social structure. This was true for the ten highest crime clusters as a unit and within them for both the transitional and enduring high crime areas. However, in the emerging areas the 1960-1970 reduction in the measure was reversed, showing an upward trend between 1970 and 1976. The reversal is perhaps most reasonably interpreted as indicating a growing displacement of Anglo and Spanish surname population with Black population combined with a persistence of relatively high levels of heterogeneity respecting educational attainment and occupational distribution.

With advancing development as crime areas, trends in time priority respecting the precedence of change in structural or crime measures exhibit a discernible pattern. The pattern may perhaps best be summarized by describing temporal priorities as they shift through the three stages in the development of high crime areas during the 1970-1976 period, and adding as the fourth and fifth earlier stage the 1950-1960 and the 1960-1970 decades preceding the appearance in 1970 of the emerging stage areas. In this way, temporal priorities in structural and crime change for the 1970-1976 areas in their three stages of development are tracked back to the earlir periods for which there are data for the 1970 emerging stage areas, namely, the 1950-1960 decade and the 1960-1970 decade. Each Time 1 structural-Time 2 crime correlation is compared with each Time 1 crime-Time 2 structural correlation, with all correlations with less than a .05 difference excluded. In Figure 8.5, time priority of a structural component is designated by a plus sign, priority of crime by a minus, and temporal parity by zero. A more restricted set consisting of all of the cross-lagged correlation data is charted in Figures 8.1 through 8.4, confined to a comparison between the 1960-1970 decade and the 1970-1976 period in each of the three types of high crime areas.

As seen in Figure 8.5, in the earliest stage of development represented by the 1970 emerging high crime areas in their 1950-1960 condition, all of the structural components exhibited temporal priority. The only one retaining priority status in the Time 2 period of 1960-1970 is the socioeconomic component; crime

Figure 8.5. Distribution of Temporal Priority, Structural Components and Crime, High Crime Areas at Four Stages of Development, Los Angeles County

Structural Component	Time 1 Emerging Areas 1950-1960	Time 2 Emerging Areas 1960-1970	Time 3 Emerging Areas 1970-1976	Time 4 Transitional Areas 1970-1976	Time 5 Enduring Areas 1970-1976
Land Use	+	-	0	0	+
Demographics	+	-	-	-	+
SES	+	+	-	0	0
Subculture	+	-	+	0	0

+ = Structural priority

- = Crime priority

0 = Temporal equivalence

change in that decade precedes change in the remaining three structural components. However, beyond 1970 change in SES lags behind crime change, as does the demographic composition of the population. Neither land use nor crime change precedes the other, but subcultural change now moves into a priority position. The transitional high crime areas in 1970-1976, representing the fourth stage of development in the scheme here being used, exhibits temporal parity between structural and crime change in all but the demographic component. The fifth and final stage is seen in the enduring high crime areas in 1970-1976. Suggested is a recurrence of temporal priority in land use and demographics, but both SES and subculture appear during the 1970s to be moving into temporal parity with crime. The overall impression emerges that the developmental trend is generally from temporal priority in the structural components through a period when crime change precedes further change in structural components. In the final stage, in which crime, SES, and subculture become mutually reinforcing, with a recurrence of further prior land use change and demographic change.

More precise and definitive than cross-lagged correlations, cross-lagged regression analysis provides a means of determining the effects of each structural component, net of all the others, on later crime measures. The findings of this analysis point up the importance of the SES component early in the development of high crime areas. Unlike the other three components of neighorhood structure, whose earlier measures had no apparent effect on subsequent crime measures, SES continued throughout the 1960-1970 decade and into the decade of the 1970s to exert a leading effect on the crime measure. But in the later stages of development land use and subculture as well as SES then come to exert a leading effect. It was subculture in particular whose leading effect did not become prominent in the transitional areas until after 1970, exerting its latest effect in the long established enduring high crime areas in the largest 1970-1976 period. In general, the effects of earlier structural change in accounting for later crime change undergoes a shift from the SES to the subcultural component.

Particular note should be taken of the fact that the leading effect of subculture reaches its highest point in the enduring high crime areas in the latest, 1970-1976 period. So far as neighborhood subculture includes behavior patterns supportive of law violation, this trend suggests that in their final stage of development high crime areas witness the transformation of crime itself, the dependent variable in the analysis, such that it takes on the character of an independent predictor variable with reference to its effect on subsequent structural change. Only the 1970-1973 measure of subculture and, marginally, land use, are seen to account for variance in the 1976 crime measure.

Interannual correlation analysis was then used to examine the trend beyond 1970 in the comparative amount of change in

crime and in structural components across time. The analysis revealed that in general there is greater change in the crime measure. With respect to the developmental sequence, however, a notable exception occurs in both the emerging and the enduring areas stages of development. When contrasted with the decade preceding 1970, there was greater change in the demographic component than in crime. This finding is more readily interpretable for the emerging high crime areas, where a slow but persistent change in the composition of the population was likely to have been under way during the 1960-1970 decade. As to the enduring areas, where the shift in population composition was already much more advanced, we only can suggest that this was an effect of substantial increase in the factor weight of the single variable of the youth dependency ratio. In any event, in the subsequent 1970-1976 period in both the emerging and the enduring stage areas the magnitude of change in crime outstripped that of demographics.

The last of the issues addressed in the set of analyses was the question of the effect of the rate of change, or change velocity, in structural components on the change velocity in crime. Two "layers" of change dynamics are considered in this analysis: change velocity relationships across the entire 1950-1970 period, and shifts in these change velocities beyond the 1970 time point. For the ten high crime clusters as a unit, the change velocity in only land use and subculture during 1950-1970 was related to, or "drove," change velocity in crime, with this effect disappearing after 1970 . This was true as well for those clusters in the transitional and enduring stages of development. However, in the emerging stage areas the change rate in SES during 1950-1970 exhibited a pronounced effect on the crime change velocity, with the change rate in subculture during this period showing the same effect to a lesser extent. But to be noted in particular is that in the post-1970 period in the emerging areas, it was the change velocity in crime that impacted the rate of change in SES in contrast to their relationship in the 1950-1970 period. The general proposition these findings support is that it is the rate of change in SES that early in the development of high crime areas exercises an extraordinary effect on the change velocity in crime. However, it is the rate of change in the crime measure that takes over in the course of time to "drive" change rates in the SES component of neighborhood social structure. And since a high degree of collinearity exists among all structural components, it follows that the velocity of change in crime ultimately becomes the main determinant of the pace at which change occurs in the social structure of high crime areas.

CHAPTER IX

MAIN FINDINGS, CONCLUSIONS, AND POLICY IMPLICATIONS

The relationship between neighborhood deterioration and crime was examined by observing changes in both over a period of two-and-a-half decades, and subjecting the associations between them to several forms of time series analyses. The investigation was focused on ten census tract clusters with the highest crime densities in Los Angeles County in 1970. Retrospectively examined were their crime measures and their land use, demographic, socioeconomic, and subcultural characteristics in 1950, 1960, and 1970, 1973, and 1976.

Whether the trends in the relationship between neighborhood change and crime disclosed by the 1950-1970 analysis persisted between 1970 and 1976 was examined in the separate analysis presented in Chapter VIII. Conditions indexing deterioration were classified into four principal components of neighborhood social structure: land use, demographic composition, socioeconomic status, and subculture. These components were constituted by some 94 variables drawn from census reports for 1950, 1960, and 1970, and by 49 variables drawn from the administrative data files of various public and private agencies in Los Angeles County for the 1970-1976 period. Chapters V and VI have presented a detailed analysis of the relationship between crime and each of the constituent variables in each component of neighborhood structure. In Chapter VII, with the use of factor analysis, the set of variables utilized for the 1950-1970 period in each component was reduced to a single composite score, with the consequent reduction in the number of structural variables from 94 to four. The same procedure was used to reduce the number of variables employed for the 1970-1976 period from 49 to four. Study findings respecting the neighborhood change-crime change relationship here presented are all referenced specifically to the composite score data, but also reflect the findings respecting relationships between specific component variables and crime. Following are the main findings of the analysis.

1. The rate at which neighborhoods move from a relatively crime-free to a high crime condition is sharply accelerated only during the late stage of the transformation. Knowledge of the 1950 crime measure for the 1970 high crime neighborhoods in Los Angeles County was non-predictive for either their 1960 or their 1970 crime measures. Knowledge of their 1960 crime measures was, on the other hand, highly predictive for their 1970 measures. The same pattern of predictive utility characterized property, but not person, offenses. However, whether an accelerating curve in the transformation of neighborhoods to a high crime condition is a generalizable characteristic cannot be known with certainty. The 1950-1970 period witnessed a nationwide rise in crime rates

during the 1960-1970 decade, possibly reflecting the climactic impact of demographic, political, and cultural changes that had been gathering force over the preceding 20 years.

2. Whatever the effect of the more pervasive and general changes in criminogenic factors, once a pattern of criminal activity takes root, the affected neighborhood moves inexorably to become the locus of a rising proportion of the total crime in the metropolitan region. The notable development in Los Angeles County over the 20-year period was that, in terms of the square mile density of criminal offenders and offenses, there occurred a disproportionate concentration of crime in the ten census tract clusters of highest crime density measures in 1970.

3. Twenty-year trends in crime measures differed among the ten 1970 high crime areas. Three trend patterns were distinguished: clusters with highest crime densities in 1950 which held that position in both 1960 and 1970; those with moderately high densities in 1950 which moved steadily upward through the following two decades; and census tract clusters that were virtually crime-free in 1950 but whose crime measure, after rising moderately by 1960, increased sharply between 1960 and 1970.

4. The three crime trend patterns indicate that in 1970 the ten areas were at three stages of development as high crime areas: emerging, transitional, and enduring. The designations serve not only to describe neighborhoods that differ in their "maturity" as high crime areas, but also to define the main stages in a cycle of development from a relatively crime-free to a high crime condition.

5. Property crimes are the predominant forms of offense in neighborhoods at each stage of development. The single exception was found in the emerging stage neighborhoods with person crimes briefly exceeding property crimes. But generally as high crime areas increase in maturity, person crimes continuously increase as a proportion of total offenses until, in the enduring stage areas, they are equivalent in their proportion to the proportion of property crimes. There was a noticeable tendency for person crimes to rise with increasing rapidity as neighborhoods moved toward a heavily crime-impacted status.

6. On the basis of concentration (density) and distribution (rate) measures, the increase in percent change in both crime density and rate between 1950 and 1970 was greatest in the emerging areas and least in the enduring areas.

7. As indicated by the unit share measure of juvenile prosecutable offenses, the proportion of the County's total crime in the ten 1970 high crime clusters increased from one-quarter in 1950 to one-third in 1970, although these clusters included less than one-fifth of its census tracts. Their share of property

offenses increased from 25 to 40 percent of the total, and to over half of the person offenses. Over the 20-year period, the total volume of crime in Los Angeles County had become increasingly concentrated in its ten high crime clusters.

8. The increase in unit share of crime did not occur uniformly in high crime neighborhoods at the several stages of development. The percent increase in unit share was greatest in the emerging and transitional stage areas, and declined slightly in the enduring stage areas. While the concentration of offenders was greatest in the enduring areas, the proportion of the County's total crime burden underwent a steady shift over the 20-year period to those census tract clusters that had more recently become high crime areas.

9. The important trends in land use variables associated with percentage increases in crime involved a shift from owner- to renter-occupied housing, and from single to multiple dwelling units. The largest percentage shift in both occurred in the emerging areas, the smallest in the enduring areas. On the other hand, the shift to commercial and industrial land use was more prominent in areas at the transitional and enduring stages of development. Land use change in home ownership and in the character of residential structures appears to be more predictive of a potential increase in crime than is conversion to industrial and commercial use. That this may not have been unique to Los Angeles County is suggested by the trend in recent decades toward the decentralization of commerce and industry in American metropolitan regions.

10. The aging of residential areas, i.e., their "maturation," rather than their invasion by industry and commerce appears to be the land use factor that currently heralds an initial rise in neighborhood crime levels. With respect to the urban land use maturation cycle, neighborhoods at the emerging stage of development were located in the relatively newer sections of the region, in which single family residential structures were beginning to give way to multiple dwelling units. Those in the enduring high crime stage were located in the older areas containing relatively higher densities of industrial and commercial parcels.

11. The deterioration of the 1970 high crime areas as stable residential neighborhoods during the preceding two decades is most sharply reflected in their unit share loss not only of owner-occupied housing, but of renter-occupied housing, of multiplex and apartment dwellings, and of commercial and industrial parcels. The high crime areas declined as a locus for a wide range of land use functions as these shifted to other locations in a rapidly growing metropolitan region. Neighborhoods exhibiting the County's highest crime densities over the longest period of time underwent a slow but perceptible process of abandonment.

12. The process of decline and abandonment indicated by these land use changes is also reflected in the main 20-year shift in the demographic structure of the County's ten high crime areas. Their unit share of population fell from 22 to 17 percent of the County's total, an approximately 23 percent decline. That the decline accelerated over time is indicated by the fact that in the newly emerging high crime clusters in 1970, it amounted to a 21 percent loss, while in the enduring areas over the same 20-year period the percentage loss was 44 percent.

13. With the unit share decline in population, there occurred a rise in unit share of families broken by desertion, divorce, and death, and a precipitous percentage rise in residential mobility, most notably in the enduring high crime areas. The emerging areas were distinctive in their large percentage increase over the preceding two decades in their unit share of unrelated, or defamilized, individuals.

14. Further significant trends in the demographic structure of the high crime areas are revealed by the density and rate measures. The density measure of residential mobility showed large percentage rises in all high crime clusters, but the increases were highest in the emerging areas. Downward trends in median age, indicating growing proportions in the juvenile age group, characterized high crime clusters at all stages of development, but the trend was most marked in the enduring stage areas. This was the case as well in the trend of the youth dependency ratio (proportion below 18 years of age to those between 18 and 65). From the standpoint of resident perception, it is likely that the demographic variables which suggest impending neighborhood deterioration with implications for public safety are sharp increases in residential mobility, in the number and proportion of unrelated individuals, in non-intact families, and in the youth dependency ratio.

15. The most striking trend over the 1950-1970 period in the socioeconomic character of the ten 1970 high crime clusters was the decline in its unit share of the active labor force. This is indicated primarily by percentage declines in unit share of semi- and unskilled groups. The loss was most prominent in the clusters that had been high crime areas since 1950, suggesting the persistence there of a large residue of "discouraged" workers no longer counted among those seeking employment. That such discouragement occurs over time is indicated by the moderate increase in unit share of the same occupational groups in the earlier stage represented by the emerging and transitional areas. Such declines in unit share also occurred with respect to populations with advanced education, although here, again, it was most prominent in the enduring high crime areas and least notable in the emerging areas. Unit share trends in housing indicators of socioeconomic status were rendered ambiguous by the growth over the 20-year period of subsidized and other forms of public housing, particularly in

clusters at the most advanced stage of development as high crime areas.

16. Rate measures of trends in the socioeconomic character of high crime areas which, unlike other rate measures, is likely to capture the attention of residents, show the sharpest declines in professional and skilled groups in the emerging areas, with a complementary pronounced increase there of the semi- and unskilled occupation groups. Paradoxically, the increased rates of the latter groups in the emerging areas was accompanied by a parallel increase in the density of Black and Spanish surname population with advanced education. The increase in the density of this group in the emerging areas suggests a high degree of heterogeneity in the socioeconomic character of newly minted high crime areas.

17. Twenty-year trends in the subcultural composition of the population of the ten 1970 high crime clusters focused, among others, on the variables of ethnicity, density of juvenile status offenders, the ratio of female to male participation in the labor force, and educational status. Between 1950 and 1970 there was virtually no change in unit share of the Black population, while the unit share in these areas of both the Hispanic and Anglo populations declined sharply. Stability in unit share of the Black population was maintained in the face of an approximately 60 percent increase in the County's population. This situation was reflected in the finding that Black mean density in the high crime areas increased by 17 percent, indicating at the least their continued sharp residential segregation.

18. Clusters at earlier and later stages of development differed in their unit share trends with respect to the two minority ethnic groups. Their percentage increase in unit share was largest in the emerging areas, with the increase reduced in the transitional areas, and even more sharply reduced in the enduring areas. Only the emerging areas experienced a precipitous percentage rise in their unit share of the non-white and Hispanic female labor force participation ratio, of non-white and Hispanic population with advanced education, and of status offenses. In all of these respects, there occurred a unit share decline in the enduring areas.

19. While the unit share of the female labor force participation ratio in the ten high crime clusters declined among all three ethnic groups, for non-whites the absolute size of their unit share was strikingly high in both 1950 and 1970 (63 and 52 percent, respectively). This means that of the total number of non-white labor force participants, over half were females in both 1950 and 1970. The comparable measures in the Hispanic group were 50 and 22 percent; in the Anglo group, 18 and eight percent.

20. Trends in density and rate measures of the subculture variables parallel those of the unit share measure. In the course of the 1950-1970 period, residents in the emerging areas witnessed a sixteenfold increase in Black population, a fifteenfold increase in Hispanic population, a ninefold increase in Mexican foreign-born, and a sixfold increase in status offenses. But accompanying these changes, they also witnessed an increase in the density of non-whites with advanced education from a mean of two per square mile in 1950 to a mean of 218 in 1970, for an astronomical percentage increase. In the enduring areas, in contrast, increases in the same subculture features were quite small, and non-white population with advanced education declined by a substantial 32 percent.

21. Two subculture variables indexing family structure also exhibited contrasting 20-year trends in the emerging and the enduring high crime areas. Percent change showed a rise in the ratio of females to males in the labor force for the two minority ethnic groups that was high in the emerging but low in the enduring areas. Similarly, the emerging areas witnessed the highest percentage increase in the non-white fertility ratio. Both the labor force participation of females and the fertility ratio provide a measure of the extent to which families are likely to be female headed, with implications both for poverty and for the control of the conduct of the young.

22. One analysis of the sequential relationship between neighborhood deterioration and crime, using the method of simple cross-lagged correlation, indicated that as high crime areas move from the emerging to the enduring stage, the temporal precedence of neighborhood structural variables starts at a high level, increases through the transitional stage, and then declines as crime rates stabilize at their highest point in the enduring stage. This analysis supports the view that in the earliest stage in the development of high crime areas, neighborhood deterioration precedes the advent of rising crime, and that this relationship is intensified during the transitional stage. As the process continues, however, stabilized high crime rates increasingly feed back to produce further neighborhood deterioration.

23. With transformation of the multiple variables of each structural component to a composite score, distinctions were disclosed in time priorities among the components. In the emerging stage areas, change in land use and in population composition appear as the important precursors of change in neighborhood crime levels. Neither of these components preceded crime change in neighborhoods at the later stages of development. The precursors of crime change in the latter areas were, instead, those of socioeconomic status and subculture. It appears, then, that the prior structural changes early in the neighborhood transformation process are ecological in character, shifting in the later stages to prior change in sociocultural factors.

24. A second form of time series analysis, multivariate cross-sectional correlation, assessed the relationship between neighborhood structural variables and crime in 1950, 1960, and 1970. This "moving snapshot" procedure revealed that in seven of the ten 1970 high crime clusters, the power of structural variables to account for the crime measure (variance explained) increased on a regular gradient from 1950 to 1970. However, when the ten clusters are treated as a single unit of analysis, the explanatory power of structural variables has a relatively lower order of magnitude (approximately .54 in 1950 and 1960) and a much higher magnitude in 1970 (.88). Suggested is that over the 20-year period, neighborhood conditions associated with crime increased in Los Angeles County in number and type, attaining a possible "critical mass" only in the 1960-1970 decade.

25. Viewed cross-sectionally, the extent to which neighborhood conditions accounted for crime was lowest in the emerging 1970 high crime areas in 1950, higher in the transitional areas in 1960, and highest in the enduring areas in 1970. This sequence may be seen as a simulate of the escalating effect of elements of neighborhood social structure in accounting for its crime measure as the neighborhood moves through the developmental cycle to become an enduring high crime area.

26. Cross-lagged multivariate regression analysis, with the use of composite score data, provided a more precisely differentiated account of the effects of neighborhood conditions on crime although the findings were generally congruent with those from cross-lagged correlation analysis. When a neighborhood moves from a low to a high crime state, there occurs an earlier change in the ecological factors of land use and population composition and a later predominance of prior change in their socioeconomic status and subcultural character. As neighborhood deterioration advances and crime rises, the sequence of change in the components of neighborhood social structure begins with shifts in land use involving principally an increase in multiplex dwellings and in renter-occupied housing. Following these are changes in population composition marked by rising proportions in the minority ethnic groups, of single-parent families, and of unattached individuals. The structural component whose change then moves into prominence is that of socioeconomic status, to be replaced finally by subcultural change. Thus, initial limited changes in land use induce a larger number of demographic changes, in turn fostering a still larger number of changes in the socioeconomic features of the resident population. As the capstone, they proliferate in ethnic, occupational and educational patterns representing shared adaptations to the set of background conditioning factors.

27. A final set of measures focused on the relationship between change velocities in neighborhood structure and the velocity of change in the crime measure over the 1950-1976 period. Generally, land use, population composition, and

socioeconomic status changed more rapidly than did crime in the early stage of neighborhood transformation. The exception during this stage was subculture; crime increased at a faster rate. Again with one exception, velocity relationships in the late stage were reversed; the rate of crime increase exceeded change rates in structural components. Only the rate of change in population composition continued then to outstrip the increase in crime.

28. The specific variables of neighborhood structure whose change rates over 20 years accounted for the highest proportion of the change rate in the crime measure differed for clusters at early and late stages of development. In neighborhoods at the emerging stage in 1970, variation in the change rate in crime was accounted for only by the land use variables of owner-occupied housing and multiplex dwelling units. Their statistically significant standardized regression coefficients were -.28 and -.17, respectively. It should be noted also that simultaneously there was a high positive association between the change rate of the demographic variable of residential stability and that of crime. This may suggest an initial reluctance on the part of residents to leave the neighborhood in the face of early signs of rising crime. In any case, change rates in only three variables of neighborhood structure in the emerging high crime areas accounted for 85 percent of the variation in the change rate in crime. In the enduring high crime areas, the change rate in only the two demographic variables of youth dependency and residential mobility were significantly and positively related to the crime change rate. Youth dependency is a similarly prominent factor in the transitional high crime areas. Residential stability shows a positive association as was true in the emerging areas. Two other prominent factors are the subculture variables of Anglo population density with a negative regression coefficient of -.59 and the Anglo female labor force participation ratio, with a positive coefficient of .34. The inclusion of the land use variable (open land) is an idiosyncratic effect of the presence in the transitional high crime clusters in 1950 of an agricultural area, redeveloped as an urban area by 1960.

29. A second, more definitive, analysis examined the effect of neighborhood change velocity in the first decade of the 20-year period on the crime change velocity in the second decade. Only the composite scores for structural components and for crime were used. The principal general finding was that it is the speed of structural change rather than solely the fact of such change that initiates the transition of city neighborhoods from a low to a high crime status. More specifically, while the initial changes in neighborhood transformation had been found to involve the ecological factors of land use and population composition, velocity changes in neither during the first decade spurred the change rate in crime during the second decade. Instead it was a high velocity of first decade change primarily in socioeconomic status and secondarily in subculture that were highly related to

the second decade acceleration in the crime measure. In contrast, in neighborhoods at the terminal stage of transformation, it was only the first decade velocity in land use change and in subculture change that bore a high relationship to the rate of crime change in the second decade. By the terminal stage the effects of change velocities in socioeconomic status and population composition on the rate of crime change appear to have already taken place. The strong lagged velocity relationships between land use and crime in the terminal stage probably indicates that this component is slow in gathering speed. The same relationships between subculture and crime suggest that the highest rates of earlier change in neighborhood social climate occur principally in the enduring high crime areas.

30. The rising crime trend in the County's high crime areas noted for the 1950-1970 period appears to have stabilized after 1970. This was true for neighborhoods at all stages of development. However, between 1970 and 1976 each maintained the same comparative position with respect to the magnitude of their crime measures that existed prior to 1970. There were small and less than notable trend shifts in neighborhood structural components, again with the measure of deterioration they reflect maintaining their earlier relative positions at the three stages of neighborhood transformation. Moreover, the same relationships between earlier structural-later crime, and earlier structural velocity change-later crime change velocity that were observed in the analysis of the 1950-1970 data were found also to obtain in the 1970-1976 period. Thus, extending the time span included in the study to the mid-1970s furnished an opportunity to test the reliability of the findings based on the 1950-1970 data. In addition, and of substantial importance, the extension of the analysis to 1976 afforded an opportunity to test the reliability of juvenile offenses as a surrogate measure of crime. It was found to be highly reliable.

Policy Implications

The findings of this report point to some implications for crime control policy. But first it is necessary to provide a brief background discussion for the suggestions that will follow.

In the absence of unlikely changes in our system of social stratification and in the political economy of the country, there is probably little that can be done to reduce crime in city areas in which high crime rates have persisted over many years. Their crime rates have long since been stabilized at a point that balances an affordable investment in law enforcement with their endemic criminogenic character. The marginal utility of increasing law enforcement resources in these areas is likely to be extremely low.

On the other hand, early in the history of every high crime city neighborhood there was a period when it was relatively crime-free. In the older American cities, whose growth occurred principally prior to 1920, the transition from crime-free to crime-impacted neighborhoods was largely determined by a free market economy in urban land use. High land values for industrial and commercial uses near the city center and adjacent to major transport arteries precipitated the invasion and succession processes. These factors were noted by ecologists of the Chicago School as responsible for the deterioration of these areas as residential sites. Since the mid-1940s, however, neighborhood deterioration followed by a rising crime problem in both the older and the newer "sun belt" cities has been initiated not by the encroachments of industry and commerce, but by more pervasive changes in urban ecological patterns.

Of these, two have had a major effect. The first was the shift in every major metropolitan region of the country from fixed rail to automobile transport and the building up of limited access highways within and across cities. This made feasible a reduction of home-to-work travel time which, coupled with the cultural value of single family home ownership, resulted in the widely noted flight to the suburbs. Induced by this development was the second major change. First and most heavily affected by the exodus were the older residential areas. These were inhabited by income groups able to pay the cost of well maintained housing. Initially, the evacuation of older residential areas and the building up of the new suburban communities was principally a "pull" phenomenon. But in time, as the ethnic minority, lower income groups gradually replaced those who had left, neighborhood transition acquired a "push" character. The evacuation of the city's older middle class areas may have been initiated by the attractions of suburban life for some part of their populations. But as those who departed were replaced by lower income groups, the decline in the residential desirability of these areas now spurred the departure of the remaining higher income groups.

The account of neighborhood change presented in this study was captured in the 26-year history of high crime areas at their three stages of development. Historical reconstruction of the developmental process was accomplished by representing the structural features of the transitional high crime areas as those that in time would characterize the emerging high crime areas, terminating eventually in their establishment as enduring high crime areas. If this representation is valid, there is a substantial policy question which must be posed: Is there any economically and politically feasible form of intervention that may be capable of altering what now appears to be an altogether "natural" developmental process?

The principal suggestion that emerges from the findings of this study is that from the standpoint of long-term crime control

objectives, intervention effort should focus on the emerging high crime areas. Any neighborhood that has had a high level of crime over a period of several decades may be considered "lost" territory for purposes of effective crime reduction. These are the urban areas that absorb a major share of police resources, necessarily devoted to the task of keeping an already precarious order from publicly visible deterioration as an irredemiable social jungle. There is some question whether neighborhoods identified in this study as transitional high crime areas have not by that point in their development already become an irreversibly crime impacted enclave. As such, again, only a strenuous effort of containment by the police offers hope that the pace of their transformation into enduring high crime areas can be slowed. It remains, then, that only the currently emerging high crime neighborhoods may offer some opportunity to reverse their eventual establishment as persisting high crime areas.

The indicators by which emerging high crime areas may be identified are reasonably clear. First, they are likely to be located in the "middle aged" rather than in the oldest residential areas. In Los Angeles County, these were areas in which both single and multiple dwelling units were built before 1940, but in which no commercial or industrial land use had occurred by 1970. Second, their demographics are characterized by sharply rising rates of single and unrelated individuals and an escalation in the density of residential mobility during the preceding decade. Third, their single notable land use change in that decade has been a shift from predominantly owner-occupied to renter-occupied dwellings. Fourth, their population composition is highly heterogeneous with a socioeconomic mix of residents in both the higher and lower income occupations. Fifth, with respect to subcultural characteristics, there is a trend in the prior decade toward a high increase in the density and substantial and steady increase in the rate of ethnic minorities, with a striking increase among this group of those with advanced education. Additional subcultural features include sharply rising trends in the rate of non-white females as a proportion of non-white males in the labor force, and in the rate of juvenile status offenses.

The emerging high crime areas may be said to represent communities of "unsorted" mix at the point just preceding the onset of the ecological processes of segregation and residential specialization. Whether policy initiatives can be suggested capable of inhibiting or reversing what has proven to be a predictable course of development depends on the existence of countervailing "natural" social forces. A number of these may be indicated, although they are likely to be relatively weak in relation to those of residential segregation and specialization based on status and neighborhood quality considerations. Their effectiveness is consequently likely to be heavily dependent on vigorous, and controversy evoking, political and administrative supports.

Among these forces may be mentioned, first, the initial reluctance of both home owners and renters to cut the ties of sentiment to their neighborhoods. Second, residence in the close-in older city areas is currently rising in value as a result of expected increases in the cost of travel from the outer reaches of metropolitan regions. Third, there is some evidence that earlier patterns of middle class "white flight" from the older city areas based on racial prejudice has declined, to be replaced by social class prejudice. There is evidence in recent years of an increase in the number of racially mixed, stable middle class urban communities.

Based on these factors, policies designed to interrupt the impending deterioration of the emerging high crime areas would in the first instance be required to control their advancing cross-class mix. This can be accomplished only by vigorous local political control of zoning, planning, and building code requirements. There may be some possibility of designing these specifically for the endangered areas in such a way as to reduce the proportion of lower income residents to a minimum. Moreover, such changes would have to be supplemented by a set of social and educational services to help lower income families and their children, even if small in number, cope with their economic and social problems and adapt to general neighborhood norms, perhaps most particularly those respecting the use of public space. Finally, because the emerging high crime areas are frequently within easy access from the enduring high crime areas, and therefore highly vulnerable to predatory invasion, a crucial element of policy would concern law enforcement. It is likely that the emerging areas would have to be established as special police administrative districts with a higher than average ratio of police to population and an emphasis on foot patrolling. Needed would be relentless law enforcement by a police cadre devoted to developing the reality as well as the image of the "friendly neighborhood cop."

There is little reason to assume that these policy initiatives can be readily implemented. There is even less reason to assume that, if implemented, they might have substantial payoff in crime reduction, since they would leave untouched the major sources of metropolitan crime in the enduring high crime neighborhoods. The most that can be claimed for such policy moves, if they were implemented, is that they might slow the spread of serious crime problems to ever larger reaches of the city, temporarily segregating the locus of the problem in a limited portion of urban space.

This scenario, unpromising at best, is based on the questionable assumption of stability in the size of the more crime prone urban poverty population. The fact is, however, that over the past several decades the size of this population has increased substantially, both absolutely and relatively in the central city areas of metropolitan regions. In large part, the

territorial expansion of high crime areas in cities is a reflection of the press for living space resulting from the growth of their poverty populations. Current migration patterns suggest that such growth is likely to continue, exacerbating the serious fiscal problems faced by municipal governments as the costs of providing the high level of public services required by the poor, including crime control, continue to rise in the face of shrinking revenues. The more affluent residents increasingly abandon the central city areas in search of lower tax costs as well as more orderly residential communities. Such replacement of higher income by lower income groups accounts for the increasing relative size of the latter. But their increase in absolute numbers stems from continued immigration, both legal and illegal, from the underdeveloped and poverty stricken regions outside the U.S.

This being the case, the problem of neighborhood deterioration with its attendant effect of rising crime is linked to wider problems of polity and economy, whose solution transcends both the resources and the authority of local governments. Policies capable of meeting these problems, and contributing to the control of urban decay and crime, can come only from higher levels of government. As an addition to the corpus of "social accounting," the findings of the study reported here represent simply a set of factual materials available to be taken into account by appropriate policymaking bodies.

BIBLIOGRAPHY

Bandura, Albert
1968 "A social learning interpretation of psychological dysfunctions." In Perry London and David Rosenhan (eds.), Foundations of Abnormal Psychology. New York: Holt, Rinehart, & Winston.

Biderman, Albert D. and Albert J. Reiss, Jr.
1967 "On exploring the 'dark figure' of crime." The Annals. 374:1-15.

Black, Donald J.
1970 "The production of crime rates". American Sociological Review. 35:733-748.

Blau, Peter
1964 Exchange and Power in Social Life. New York: Wiley.

Blok, Anton
1975 The Mafia of a Sicilian Village, 1860-1960. New York: Harper and Row.

Bogue, Donald J.
1959 The Population of the United States. Glencoe, Ill.: The Free Press.

Booth, Allen, David R. Johnson, and Harvey M. Choldin
1977 "Correlates of city crime rates: Victimization surveys versus official statistics." Social Problems 25:187-197.

Booth, Charles
1891 Life and Labor in London, Vol II. London, England: Appen.

Burgess, Ernest W.
1926 "The natural area as the unit for social work in the large city." Proceedings of the National Conference of Social Work.

1927 "Social Forces in the community making for mobility." Proceedings of the Minnesota State Conference and Institute of Social Work.

Chambliss, William
1967 "Deviance and the effectiveness of legal sanctions." Wisconsin Law Review, 1967:703-719.

Cloward, Richard A. and Lloyd E. Ohlin
1960 Delinquency and Opportunity. Glencoe, Ill: The Free Press.

Cressey, Donald R.
1957 "The state of criminal statistics." National Probation and Parole Association Journal, 3:240-241.

Dewey, Richard
1950 "The neighborhood, urban ecology, and city planners." American Sociological Review, 15:502-507.

Dubois, W.E.B.
1935 Black Reconstruction. New York: Harcourt, Brace, & Co.

Duncan, Beverly, Georges Sabagh, and Maurice D. Van Arsdol
1962 "Patterns of city growth." American Journal of Sociology, 67:419-421.

Duncan, Otis Dudley
1955 "Review of Shevsky and Bell, social area analysis." American Journal of Sociology, 61:84-85.

Duncan, Otis Dudley, Ray P. Cuzzard, and Beverly Duncan
1961 Statistical Geography: Problems in Analyzing Areal Data. Glencoe, Ill.: The Free Press.

Elliott, Delbert S. and Suzanne S. Ageton
1980 "Reconciling differences in estimates of delinquency." American Sociological Review, 45:95-110

Frazier, E. Franklin
1966 The Negro Family in the United States. Chicago: University of Chicago Press.

Geary, R.C.
1954 "The contiguity ratio and statistical mapping." The Incorporated Statistician, 5:115-145.

Glaser, Daniel
1974 "The classification of offenses and offenders," in Daniel Glaser (ed.) Handbook of Criminology, Chicago: Rand McNally.

Grey, A.
1959 "Los Angeles: urban prototype." Land Economics, 35:232-242.

Guilford, J.P.
1954 Psychometric Methods. New York: McGraw-Hill Book Company.

1965 Fundamental Statistics in Psychology and Education (4th Ed.). New York: McGraw-Hill Book Company.

Harman, Harry H.
1967 Modern Factor Analysis. Chicago: University of Chicago Press.

Hess, Henner
1973 Mafia and Mafiosi: The Structure of Power. Farnborough, Eng.: D.C. Heath.

Hindelang, Michael
1981 "Race and involvement in common law personal crimes." American Sociological Review, 43:93-109.

Hirschi, Travis
1969 Causes of Delinquency. Berkeley, Ca.: University of California Press.

Hoover, Edgar and Raymond Vernon
1962 Anatomy of a Metropolis. Garden City, N.Y.: Anchor Books.

Jacobs, Jane
1961 Death and Life of Great American Cities. New York: Random House.

Kitsuse, John I. and Aaron V. Cicourel
1963 "A note on the uses of official statistics." Social Problems, 11:131-139.

Kobrin, Solomon and Malcolm W. Klein
1980 National Evaluation of the Deinstitutionalization of Status Offender Programs: Volume I. Los Angeles: Social Science Research Institute, University of Southern California.

Lander, Bernard
1954 Toward an Understanding of Juvenile Delinquency. New York: Columbia University Press.

Lee, Barnett A.
1981 "The urban unease revisited: perceptions of local safety neighborhood satisfaction among metropolitan residents." Paper presented at the annual meeting of the American Sociological Association, Toronto, Ontario, Canada.

Lemert, Edwin M.
1970 Social Actual and Legal Change. Chicago: Aldine.

Lewis, Oscar
1966 La Vida: A Puerto Rican Family in the Culture of Poverty. New York: Random House.

Matza, David
1964 Delinquency and Drift. New York: Wiley.

Myers, George C.
1964 "Variations in urban population structure." Demography, 1:156-163.

Newman, Donald J.
1962 "The effect of accomodation in justice administration on criminal statistics." Sociology and Social Research, 46:144-155.

O'Brien, Robert M., David Shichor, and David L. Decker
1980 "An empirical comparison of the validity of UCR and NCS crime rates." Sociological Quarterly, 21:391-401.

Park, Robert E.
1967 On Social Control and Collective Behavior. Chicago: University of Chicago Press.

Parsons, Talcott
1951 The Social System. New York: The Free Press.

Pelz, Donald C. and Frank W. Andrews
1964 "Detecting causal priorities in panel study data." American Sociological Review, 29:836-848.

Schmid, Calvin F.
1960 "Urban crime areas: Part II." American Sociological Review, 25:655-678.

Schnore, Leo F.
1962 "Municipal annexation and the growth of metropolitan suburbs." American Journal of Sociology, 67:406-417.

Schuerman, Leo, E.W. Hansen and C. Hubay
1974 "Combining ratio-correlation methods for intercensal social and economic small area estimates." Proceedings of the American Statistical Association Conference on Small Area Estimates: 2-15. Washington, D.C.: U.S. Department of Commerce.

Schuerman, Leo A. and Solomon Kobrin
1981 "High delinquency neighborhoods and public housing projects." Paper presented at the 1981 annual meeting of The Society for the Study of Social Problems, Toronto, Canada.

Schuessler, Karl
1971 Analyzing Social Data: A Statistical Orientation. Boston: Houghton Mifflin Company.

Sellin, Thorsten
1938 Culture Conflict and Crime. New York: Social Science Research Center.

1951 The significance of records of crime. Law Quarterly Review, 67:489-504.

1962 An Overview. The Annals, 339:11-23.

Shannon, Lyle W.
1967 "The distribution of delinquency in a middle-sized city." Sociological Quarterly,:365-382.

Shaw, Clifford R., Frederick M. Zorbaugh, Henry McKay, and Leonard S. Cottrell
1929 Delinquency Areas. Chicago: University of Chicago Press.

Shaw, Clifford R. and Henry D. McKay
1942 Juvenile Delinquency and Urban Areas. Chicago: University of Chicago Press.

1969 Juvenile Delinquency and Urban Areas (Rev. Ed.). Chicago: University of Chicago Press.

Shevsky, Eshrev and Wendell Bell
1955 Social Area Analysis. Stanford, Ca.: Stanford University Press.

Sutherland, Edwin H. and Donald R. Cressey
1974 Criminology. New York: Lippincott.

Tomlinson, R.
1969 Urban Structure. New York: Random House.

Valentine, Charles A.
1968 Culture and Poverty: Critique and Counter-Proposals. Chicago: University of Chicago Press.

Van Arsdol, Maurice D. Jr., Georges Sabagh and Edward Butler
1968 "Retrospective and subsequent metropolitan residential mobility." Demography, 5:249-267.

Van Arsdol, Maurice D. Jr., and Leo Schuerman
1971 "Redistribution and assimilation of ethnic populations: the Los Angeles case." Demography, 8:459-480.

Wheeler, Stanton
1967 "Criminal statistics: a reformulation of the problem." Journal of Criminal Law, Criminology, and Police Science, 58:317-324.

Wirth, Louis and Eleanor Bernert
1949 Local Community Fact Book. Chicago: University of Chicago Press.

APPENDIX A

Distribution of Selected Social Structural Variables

APPENDIX A

DISTRIBUTION OF SELECTED SOCIAL STRUCTURAL VARIABLES

An important task in the study was to ascertain the socioeconomic, demographic, and subcultural features of high crime density census tract clusters. Since the aim of the research was to determine the lead-lag relationships between changes in the crime patterns and changes in the structural characteristics of neighborhoods, it became important to anchor the analysis in a definitive characterization of neighborhoods at a terminal point of pronounced deterioration and high crime density.

We decided to do this in a relatively efficient way by examining the statistical relationship between the clustering distribution of an initial test set of ten variables of neighborhood structure and the clustering patterns of crime densities in Los Angeles County in 1970. This obviated the need to resort to the procedure of overlaying maps of the various sets of spatial distributions. The use of a graphic technique, while picturesque, is both time consuming and imprecise in assessing the degree of fit between variables representing neighborhood structure and spatial areas identified by crime densities. Spatial displays are, of course, presented in the main report. But it is more useful to confine the main body of the investigation to statistical summaries. These not only allow for simple comparisons, but also for multivariate assessment of the relationship between the dependent and independent variables.

A test correlation matrix of clustering levels was constructed with the use of output cluster levels for each of ten independent structural variables and the dependent variable of crime density (Table A.1). The measure of crime density in this test was the number per acre of juvenile prosecutable offenders. Structural variables included educational attainment (percent of adult population with college education); ratio of renters to home owners; density of overcrowded dwellings (more than one person per room); residential mobility (percent moved into area over the last two years); median home value; median income; population density; Spanish density; and Black density.

Not unexpectedly, high simple bivariate correlations were found between the designated cluster distribution of crime prevalence and the distribution of population density (.45), median income (-.42), median home value (-.36), overcrowding (.51), residential mobility (.38), education attainment (-.36), Spanish density (.40), and Black density (.36). Perhaps more to the point in assessing the overall relationship of the distribution of crime density to the distribution of neighborhood structural features are measures of explained variation attributable to the several independent variables. This was

examined in a multiple regression equation (Table A.2; Figures A.1 and A.2). Indicated there is the generally high relationship between the neighborhood clustering pattern on the measure of crime and the clustering pattern of the limited set of variables selected to represent neighborhood structure, accounting for almost 40 percent of the variance in the crime measure. All of the regression coefficients are significant, with an expected directional association.

Table A.1.

Correlation Matrix Representing Degree of Cluster Rank Overlay of 11 Selected Variables, Los Angeles County, 1970

CORRELATIONS

		BLACK 2	COLLEGE 3	RENTER 4	OWNER 5	MOBILITY 6	CROWDED 7	INCOME 8	HOMEVLUE 9	POPDEN 10	SPANISH 11	DELINQNT 1
BLACK	2	1.000										
COLLEGE	3	-0.254	1.000									
RENTER	4	0.166	-0.006	1.000								
OWNER	5	0.099	0.023	0.085	1.000							
MOBILITY	6	0.213	-0.054	0.393	0.342	1.000						
CROWDED	7	0.356	-0.458	0.163	0.259	0.421	1.000					
INCOME	8	-0.473	0.685	-0.325	0.049	-0.337	-0.556	1.000				
HOMEVLUE	9	-0.344	0.790	-0.023	0.103	-0.076	-0.445	0.777	1.000			
POPDEN	10	0.326	-0.157	0.318	0.437	0.655	0.534	-0.404	-0.176	1.000		
SPANISH	11	0.132	-0.380	0.119	0.189	0.315	0.531	-0.446	-0.381	0.392	1.000	
DELINQNT	1	0.355	-0.364	0.205	0.299	0.388	0.510	-0.416	-0.355	0.451	0.402	1.000

Table A.2.

Multiple Correlation and Regressions for Cluster Ranks of Crime Density with Selected Neighborhood Structure Variables, Los Angeles County, 1970

STATISTICS FOR 'BEST' SUBSET	
MALLOWS' CP	11.00
SQUARED MULTIPLE CORRELATION	0.39682
MULTIPLE CORRELATION	0.62994
ADJUSTED SQUARED MULT. CORR.	0.39149
RESIDUAL MEAN SQUARE	367.25690
STANDARD ERROR OF EST.	19.16134
F-STATISTIC	74.41
NUMERATOR DEGREES OF FREEDOM	10
DENOMINATOR DEGREES OF FREEDOM	1131
SIGNIFICANCE	0.0000

VARIABLE NO.	NAME	REGRESSION COEFFICIENT	STANDARD ERROR	STAND. COEF.	T-STAT.	2TAIL SIG.	TOLERANCE	CONTRIBUTION TO R-SQUARED
	INTERCEPT	6.99618	3.44269	0.285	2.03	0.042		
2	BLACK	0.112481	0.0163979	0.167	6.11	0.000	0.711804	0.019935
3	COLLEGE	-0.0958158	0.0240352	-0.160	-3.99	0.000	0.333008	0.008475
4	RENTER	0.0874759	0.0290331	0.081	2.93	0.003	0.707258	0.004585
5	OWNER	0.201213	0.0410488	0.136	4.50	0.000	0.697606	0.012814
6	MOBILITY	0.118808	0.0308715	0.126	3.85	0.000	0.498198	0.007699
7	CROWDED	0.145146	0.0278793	0.174	5.21	0.000	0.480092	0.014455
8	INCOME	0.0127056	0.00522625	0.122	2.43	0.015	0.210771	0.003154
9	HOMEVLUE	-0.0125552	0.00454557	-0.129	-2.76	0.006	0.244554	0.004069
10	RUPPEN	0.0516761	0.0203071	0.091	2.54	0.011	0.420995	0.003454
11	SPANISH	0.0999614	0.0236601	0.122	4.22	0.000	0.638997	0.009520

THE CONTRIBUTION TO R-SQUARED FOR EACH VARIABLE IS THE AMOUNT BY WHICH R-SQUARED WOULD BE REDUCED IF THAT VARIABLE WERE REMOVED FROM THE REGRESSION EQUATION.

Figure A.1

Bivariate Plot of Predicted Values, Crime Density, and Actual Crime Density Values, Ten Selected Neighborhood Structural Variables, Los Angeles County, 1970

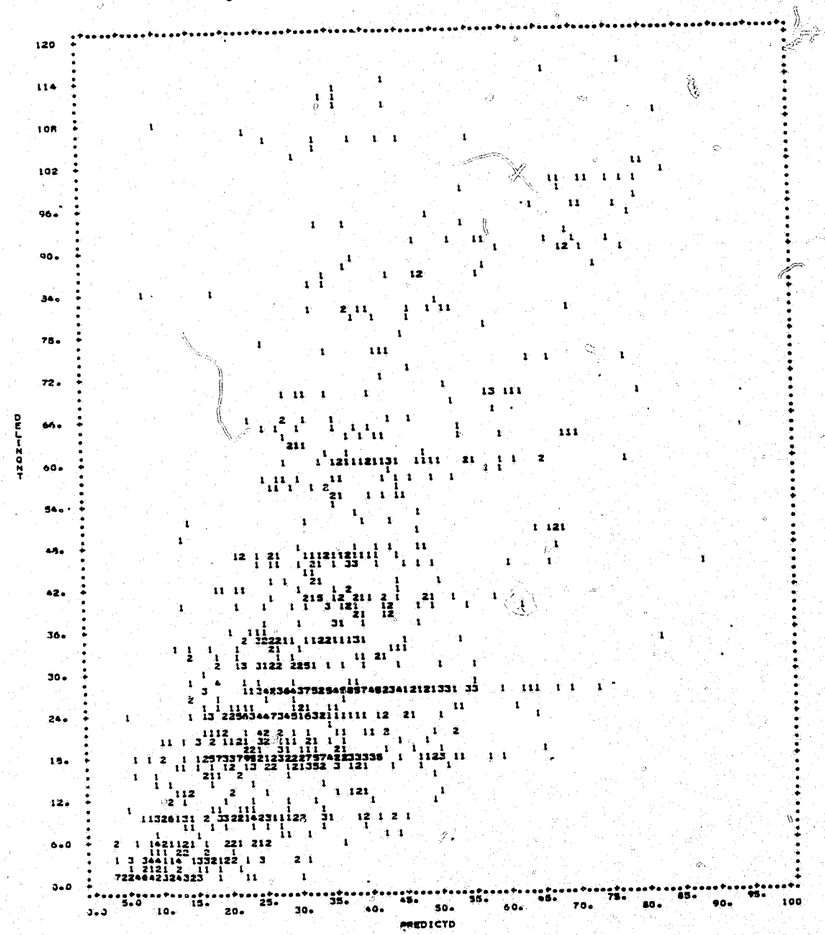
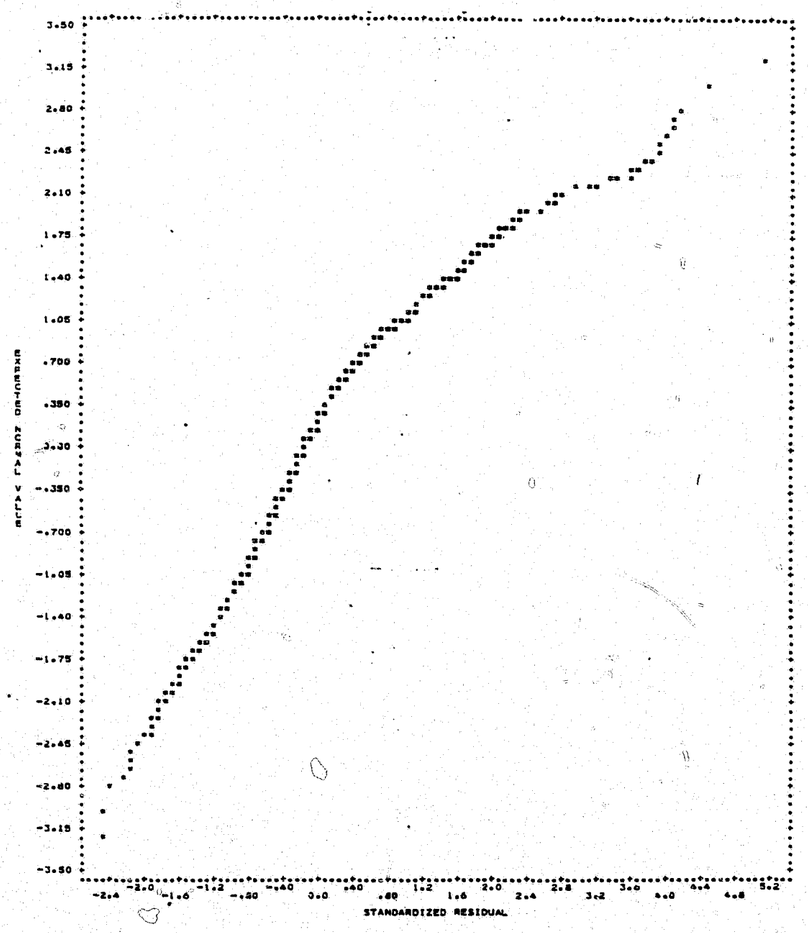


Figure A.2

Normal Probability Plot of Standardized Residuals to Expected Normal Values, Derived from Ten Selected Neighborhood Structural Variables and Crime Density, by Cluster, Los Angeles County, 1970



APPENDIX B

Social Structural Distinctiveness of High Crime Areas

APPENDIX B

THE SOCIAL STRUCTURAL DISTINCTIVENESS
OF HIGH-CRIME AREAS

Thus far presented has been substantial evidence at the descriptive level documenting the features of social structure characterizing the high crime areas of Los Angeles County. At the analytic level, changes over time in these features have been shown to have consistently patterned relationships to changes in their crime status. As measures of structural features associated with crime have increased through time, so have their crime measures.

There remains, however, an unanswered question. What evidence is there that the structural features of the County's high crime areas may not be found as well in its low crime areas?

The fact that specific social features are found to characterize the high crime areas may suggest or imply, but does not demonstrate, their absence in relatively crime-free urban neighborhoods. The evidence for this possibility, although eminently reasonable, requires examination.

To do this, we have identified the ten census tract clusters (neighborhoods) in the County with the lowest crime measures in order to compare their measures of social structure with those of the County's ten census tract clusters with the highest crime measures, using 1950, 1960, and 1970 data for each set. Concentration measures (density per square mile) only are used as the best reflection of the qualitative aspects of neighborhoods, together with selected ratio measures serving the same purpose.

The data of Tables B.1-B.5 provide conclusive evidence of the structural distinctiveness of the high crime neighborhoods. Table B.1 simply defines the high crime-low crime distinction in terms of mean concentration values of the crime measure used. Table B.2 presents the land use variables. With the exception of open land (unbuilt parcels, parks, and recreational space), traffic generators (shopping centers, warehouses, and the like), and apartment dwellings, differences in mean concentration measures of the remaining seven land use variables for the high and low crime clusters differ at very high levels of statistical significance at each of the three time points. Higher mean densities of owner-occupied housing in the high crime areas at each time point simply reflect their older and therefore more compact built-up character. On the other hand, rates of owner-occupied housing (not presented in the tables) show low crime areas with substantially higher percentages than for the high crime areas: 67.3 vs. 38.8 in 1970, 72.4 vs. 45.1 in 1960, and 96.9 vs. 50.2 in 1950.

Table *B.1* Mean Concentration, Juvenile Offenses by Type of Offense, Ten Highest and Ten Lowest Offense Measure Clusters, 1950, 1960, and 1970, Los Angeles County

Variables	1970				1960				1950			
	High Crime Clusters	Low Crime Clusters	t[1]	γ	High Crime Clusters	Low Crime Clusters	t[1]	γ	High Crime Clusters	Low Crime Clusters	T[1]	γ
Total Prosecutable Offenses	63,0	1.99	8.00	.0001	14.8	0.9	6.42	.0001	8.1	1.1	3.08	.0117
Property Offenses[2]	28.4	0.5	5.77	.0003	11.1	0.6	6.42	.0001	3.8	0.7	3.19	.0072
Person Offenses[2]	11.4	0.02	5.41	.0004	0.4	0.01	3.14	.0116	0.9	0.1	2.39	.0369

1. t-values are for unequal variances. Values for equal variances were found to be virtually identical for all offense variables as well as for those of the land use, demographic, socioeconomic, and subcultural dimensions of neighborhood social structure.

2. Felony level offense only.

Table B.2 Mean Concentration Land Use Variables, Ten Highest and Ten Lowest Crime Measure Clusters, 1950, 1960, and 1970, Los Angeles County

Variable	1970 High Crime Clusters	1970 Low Crime Clusters	1970 t^1	1970 γ	1960 High Crime Clusters	1960 Low Crime Clusters	1960 t^1	1960 γ	1950 High Crime Clusters	1950 Low Crime Clusters	1950 t^1	1950 γ
Owner Housing	1512.9	671.1	4.41	.0005	1721.4	618.3	5.29	.0001	1738.2	1101.3	1.03	.3253
Rental Housing	2112.1	584.0	5.58	.0001	2485.3	439.7	5.45	.0001	2081.0	390.1	4.13	.0009
Residential Dwellings	1550.8	678.4	4.54	.003	1519.0	610.7	4.72	.0002	1372.7	488.5	4.58	.0002
Multiple Dwellings	1108.8	145.7	5.64	.0001	3373.4	366.9	4.70	.0004	734.1	109.1	4.93	.0002
Apartment Dwellings	346.0	108.8	2.14	.05	225.2	73.9	1.67	.1187	157.3	49.2	1.46	.1695
Commercial Parcels	172.1	44.4	4.13	.0008	157.3	39.9	4.04	.0009	144.4	35.4	3.93	.0011
Industrial Parcels	44.3	4.71	4.33	.001	39.5	4.5	4.24	.001	33.4	4.1	4.04	.0014
Open Land	75.0	39.0	1.33	.20	74.4	38.9	1.31	.21	74.0	38.8	1.31	.2100
Traffic Generators	6.0	2.5	1.90	.07	.04	0.1	1.16	.2734	3.4	0.1	1.88	.0832
Household Stability Index	2.50	0.7	3.63	.004	2.02	0.5	3.06	.01	1.58	0.5	2.77	.0201

1. t-values are for unequal variances. Values for equal variances were found to be virtually identical for all offense variables as well as for those of the land use, demographic, socioeconomic, and subcultural dimensions of neighborhood social structure.

2. Ratio of renter to owner occupied housing.

Table B.3 Mean Concentration, Demographic Variables, Ten Highest and Ten Lowest Crime Measure Clusters, 1950, 1960, and 1970, Los Angeles County

Variables	1970 High Crime Clusters	1970 Low Crime Clusters	1970 t^1	1970 γ	1960 High Crime Clusters	1960 Low Crime Clusters	1960 t^1	1960 γ	1950 High Crime Clusters	1950 Low Crime Clusters	1950 t^1	1950 γ
Population Density	13,172.3	3,095.2	9.24	.0001	12,827.7	2,736.5	8.82	.0001	11,873.2	2,247.4	6.17	.0001
Unrelated Individuals	1,586.6	532.1	3.42	.0032	2,383.6	692.5	3.27	.0050	1,141.7	302.5	2.74	.0164
Non-intact Families	1,501.5	417.9	5.10	.0001	1,430.1	349.4	4.86	.0001	1,372.5	303.1	4.03	.0010
Residential Stability	9,295.6	2,414.8	8.61	.0001	4,454.2	1,120.5	7.09	.0001	9,019.0	1,730.8	6.00	.0001
Residential Mobility	3,868.4	659.7	9.24	.0001	6,789.1	1,447.3	8.40	.0001	2,577.5	479.4	6.0.	.0001
Youth Dependency[2]	0.7	0.5	1.84	.0841	0.62	0.54	.96	.3509	0.44	0.40	0.62	.5415
Aged Dependency[3]	0.15	0.19	-1.19	.2582	0.162	0.169	-.24	.8150	0.13	0.15	-1.42	.1745
Average Age	25.8	34.7	-3.29	.0066	29.3	35.1	-1.98	.0663	31.2	27.2	0.74	.4769

1. t-values are for unequal variances. Values for equal variances were found to be virtually identical for all offense variables as well as for those of the land use, demographic, socioeconomic, and subcultural dimensions of neighborhood social structure.
2. Ratio of population under 18 to population 18-64 years of age.
3. Ratio of population over 64 to population 18-64 years of age.

Table B.4 Mean Concentration, Socioeconomic Variables, Ten Highest and Ten Lowest Crime Measure Clusters, 1950, 1960, and 1970, Los Angeles County

Variables	1970 High Crime Clusters	1970 Low Crime Clusters	1970 t[1]	1970 γ	1960 High Crime Clusters	1960 Low Crime Clusters	1960 t[1]	1960 γ	1950 High Crime Clusters	1950 Low Crime Clusters	1950 t[1]	1950 γ
Professional Occupations	682.7	600.8	.42	.6827	648.5	457.5	1.12	.2789	862.5	404.0	2.06	.0539
Skilled Occupation	1,753.4	558.7	5.30	.0001	1,640.2	465.6	5.17	.0001	1,851.2	353.6	5.29	.0001
Semi-and Unskilled Occupations	2,286.8	239.6	10.15	.0001	2,167.3	211.4	8.62	.0001	1,917.4	187.3	5.25	.0004
Unemployed	448.0	99.6	7.78	.0001	444.7	64.9	6.92	.0001	444.9	67.6	4.94	.0003
Population with Advanced Education	398.6	500.8	-.67	.5154	389.9	360.6	.22	.8252	425.1	256.4	1.28	.2167
Housing Lacking Plumbing	54.5	6.7	3.05	.0130	78.2	4.4	3.15	.0116	349.1	15.7	3.76	.0045
Overcrowded Housing	685.3	28.2	6.84	.0001	574.6	23.6	6.02	.0002	471.8	27.1	4.29	.0019
Housing Turnover[2]	198.5	41.1	4.43	.0007	198.6	41.2	5.14	.0002	--	--	--	--

1. t-values are for unequal variances. Values for equal variances were found to be virtually identical for all offense variables as well as for those of the land use, demographic, socioeconomic, and subcultural dimensions of neighborhood social structure.

2. Data not available for 1950

Table *B.5* Mean Concentration, Subcultural Variables, Ten Highest and Ten Lowest Crime Measure Clusters, 1950, 1960, and 1970, Los Angeles County

Variables	1970 High Crime Clusters	1970 Low Crime Clusters	1970 t^1	1970 γ	1960 High Crime Clusters	1960 Low Crime Clusters	1960 t^1	1960 γ	1950 High Crime Clusters	1950 Low Crime Clusters	1950 t^1	1950 γ
Status Offenses	22.5	0.8	9.36	.0001	2.8	0.2	4.56	.0012	5.59	0.6	4.60	.0009
Black Population	5,874.6	49.2	3.92	.0035	3,841.2	30.1	3.36	.0084	1,373.1	22.6	1.61	.1413
Spanish Surname Population	3,039.2	40.6	2.15	.0602	2,931.9	83.6	2.41	.0393	1,739.6	8.2	1.88	.0933
Anglo Population	3,662.5	2,953.1	.61	.5468	5,433.9	2,603.8	2.29	.0346	8,446.9	2,208.5	4.25	.0005
Non-White Population	6,470.6	101.5	4.43	.0016	4,461.9	49.2	3.86	.0038	1,686.8	30.7	1.93	.0862
Non-White Females in Labor Force	1,149.0	26.0	4.38	.0018	773.9	16.0	3.79	.0042	281.1	2.1	1.91	.0888
Spanish Surname Females in Labor Force	384.7	5.5	2.21	.0542	341.6	13.3	2.53	.0821	197.3	0.7	1.91	.0878
Anglo Females in Labor Force	653.3	542.7	.45	.6559	890.4	432.6	2.02	.0583	1,246.3	352.0	3.27	.0046
Non-White Population With Advanced Education	173.3	14.7	3.34	.0084	138.9	4.6	3.49	.0068	46.9	0.2	2.07	.0680
Spanish Surname Population With Advanced Education	21.0	1.4	2.55	.0310	17.7	7.9	1.91	.0732	7.6	0.04	2.50	.0340
Anglo Population With Advanced Education	204.3	484.7	-1.96	.0705	233.3	348.1	-1.01	.3313	370.6	256.2	.89	.3855
Mexican Foreign Born	1,152.7	21.7	2.23	.0526	694.3	10.1	2.24	.0517	480.1	8.3	2.11	.0636

1. t-values are for unequal variances. Values for equal variances were found to be virtually identical for all offense variables as well as for those of the land use, demographic, socioeconomic, and subcultural dimensions of neighborhood social structure.

Only three of the eight demographic variables (youth dependency, aged dependency, and average age), fail consistently to distinguish the high from the low crime clusters (Table B.3). However, for the youth dependency variable the probability level of the difference shows an increase in the high crime areas with the passage of time from .54 in 1950 to .35 in 1960 to .08 in 1970, indicating a consistent rise through time in the population ratio under 18 years of age. The trend is reflected as well in the increase during the same period in the statistical significance of differences between the two types of clusters in average age. For 1950 they were virtually indistinguishable in this respect, with a p level of .48. By 1960 this was increased to .06, and to .007 by 1970.

Differences in mean concentration values for two of the eight socioeconomic variables (professional occupations and population with advanced education) fail to distinguish the low from the high crime clusters beyond an acceptable level of chance (Table B.4). This is likely to have been an effect of the inclusion in the high crime cluster of a set of three clusters that emerged as high crime neighborhoods only in 1970. At that date they still retained much of their earlier, relatively crime-free, character with the corresponding high densities of population with advanced education and those in professional occupations.

The same observation applies to three of the 12 subcultural variables (Table B.5). Notable there is the fact that low and high crime clusters do not differ significantly in mean concentration values for Anglo population, Anglo females in the labor force, and Anglo population with advanced education. Indeed, the two types of clusters are least differentiated with respect to their subcultural features in 1950, where eight of the 12 differences of means fail to meet the conventional .05 probability criterion. By 1960 and 1970 the number of variables for which there is similar failure is reduced to three and four, respectively. Moreover, the distorting effect of the emerging high crime clusters is attested to by a comparison of the percentage of the labor force in professional occupations in the emerging and in the enduring, or long established, high crime clusters in 1970. In the three clusters constituting the emerging high crime areas, these were 18.9, 20.1, and 21.1. In the three clusters making up the enduring areas the percentages were 6.0, 8.5, and 7.6. The same sharp difference is found for population with advanced education: 10.3, 9.4, and 10.4 percent in the emerging areas in 1970, versus 1.8, 3.2, and 2.5 in the enduring areas (Tables 5.32 and 5.31). The emerging high crime clusters similarly had high proportions relative to the enduring high crime clusters of the subcultural variables of Anglo population and of Anglo females in the labor force. In a word, the few exceptions to the otherwise consistently sharp differences in structural features between the highest and the lowest crime clusters may be accounted for by the unique features of high

crime clusters at the point of emergence in 1970. Their earlier populations, not yet fully displaced by succeeding groups, still included substantial numbers of higher income Anglos with advanced education, among whom comparatively high proportions of females were to be found in the labor force. Thus, the evidence for the distinctiveness of high crime areas respecting their features of social structure appears to be entirely persuasive.

Variation in the Distinctiveness of High Crime Clusters Over Time.

Treated as a unit, the County's high crime census tract clusters have been shown to be highly differentiated structurally from its low crime clusters in 1950, 1960, and 1970. Where the differences were found to be reduced, particularly with respect to selected structural variables, there was suggestive evidence that this was an effect of those clusters at an early stage of development as high crime areas. This possibility was examined further by comparing measures of neighborhood structural features at the emerging, transitional and enduring stages of development with those of the County's ten lowest crime measure clusters at each of the three time points. T-values for differences of mean concentration measures and their probability levels are presented in Tables B.6 through B.9.

Differences of means from those of the lowest crime clusters for almost all structural variables in high crime clusters at each developmental stage are at very high probability values. However, it is possible to assess variation among the mean differences by focusing on the comparative magnitude of t-values in the emerging and enduring high crime clusters (to maximize contrast) as an indicator of the extent to which neighborhoods at the early and late stages of development differ from the lowest crime clusters during comparable periods. In effect, use is made of an analytic measure as an indicator at the descriptive level of "how far apart" specified high crime clusters at the two extreme points in their development are from the County's lowest crime clusters.

Land Use. Mean concentrations of rental housing in the enduring high crime areas in 1950 indicate sharper differences from those of the low crime clusters than does the mean for the emerging areas in 1970 (Table B.6). Other measures of residential land use (apartment houses and multiplex dwellings) were substantially less different in mean concentrations from those for the lowest crime clusters. As may have been expected, commercial and industrial land use in the emerging high crime areas differed less from that in the low crime areas than did the means for the enduring high crime areas. Expectedly, again, these differences increased between 1950 and 1970 in both types of high crime areas. Large structures representing traffic generators did not distinguish the emerging from the low crime areas during the entire 20-year period, as they did in the Table

Table B.6 T-Values,[1] Difference of Mean Concentration, Land Use Variables, Ten Lowest Crime Measure Clusters and Clusters at the Emerging, Transitional, and Enduring Stages of Development, 1950, 1960, and 1970, Los Angeles County

Variable	Emerging						Transitional						Enduring					
	1950		1960		1970		1950		1960		1970		1950		1960		1970	
	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p
Owner Housing	.974	.333	7.27	.000	5.85	.000	1.24	.217	9.23	.000	7.83	.000	1.36	.177	6.22	.000	4.32	.000
Rental Housing	4.37	.000	7.88	.000	7.95	.000	5.10	.000	6.23	.000	6.28	.000	9.16	.000	8.00	.000	6.28	.000
Residential Dwellings	7.06	.000	7.23	.000	7.00	.000	6.08	.000	7.60	.000	7.61	.000	6.28	.000	5.69	.000	5.27	.000
Multiplex Dwellings	4.93	.000	4.60	.000	6.11	.000	4.62	.000	4.29	.000	5.37	.000	5.45	.000	4.59	.000	6.00	.000
Apartment Dwellings	.961	.339	1.94	.056	3.68	.000	2.35	.020	2.58	.011	2.89	.004	.471	.639	- .164	.870	- .436	.663
Commercial Parcels	3.70	.000	3.86	.000	3.89	.000	4.74	.000	4.81	.000	4.84	.000	.469	.000	5.01	.000	.517	.000
Industrial Parcels	2.14	.035	2.54	.013	2.63	.010	2.14	.035	2.37	.019	2.57	.011	3.93	.000	4.11	.000	4.13	.000
Open Land	.919	.366	.921	.360	.932	.354	.995	.321	.995	.321	1.00	.319	4.50	.000	4.52	.000	4.55	.000
Traffic Generators	- .742	.460	- .624	.534	-5.68	.572	1.11	.268	1.25	.213	1.64	.103	3.02	.003	2.77	.006	2.65	.009
Household Stability Index[2]	2.68	.009	5.00	.000	5.44	.000	4.16	.000	3.90	.000	3.86	.000	2.82	.006	3.34	.001	4.56	.000

[1] Two-tailed test

[2] Ratio of renter to owner occupied housing

Table B.7 T-Values,[1] Difference of Mean Concentration, Demographic Variables, Ten Lowest Crime Measure Clusters and Clusters at the Emerging, Transitional, and Enduring Stages of Development, 1950, 1960, and 1970, Los Angeles County

	Emerging						Transitional						Enduring					
	1950		1960		1970		1950		1960		1970		1950		1960		1970	
Variable	t	p	t	p	t		t	p	t	p	t	p	t	p	t	p	t	p
Population Density	7.61	.000	9.97	.000	9.92	.000	8.01	.000	12.07	.000	12.72	.000	12.14	.000	12.90	.000	11.44	.000
Unrelated Individuals	2.72	.008	4.81	.000	6.41	.000	4.10	.000	4.96	.000	5.04	.000	5.12	.000	5.07	.000	4.26	.000
Non-Intact Families	4.25	.000	6.34	.000	6.75	.000	5.77	.000	6.84	.000	6.83	.000	7.70	.000	7.80	.000	6.89	.000
Residential Stability	7.13	.000	7.28	.000	8.70	.000	7.87	.000	10.14	.000	12.63	.000	16.53	.000	11.56	.000	11.03	.000
Youth Dependency[2]	1.11	.269	.159	.874	-.139	.890	.892	.374	1.13	.261	4.29	.000	5.04	.000	5.64	.000	7.66	.000
Aged Dependency[3]	-2.91	.005	-.747	.457	-1.63	.107	-2.23	.027	-1.79	.075	-5.46	.000	-6.77	.000	-3.91	.000	-2.18	.031
Average Age	.530	.598	-1.91	.060	-3.11	.003	.625	.533	-4.41	.000	-9.42	.000	-.184	.854	-9.11	.000	-10.04	.000

[1] Two-tailed test

[2] Ratio of population under 18 to those 18-64 years of age

[3] Ratio of population over 65 to those 18-64 years of age

Table B.8 T-Values,[1] Difference of Mean Concentration, Socioeconomic Variables, Ten Lowest Crime Measure Clusters and Clusters at the Emerging, Transitional and Enduring Stages of Development, 1950, 1960, and 1970, Los Angeles County

	Emerging						Transitional						Enduring					
	1950		1960		1970		1950		1960		1970		1950		1960		1970	
Variable	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p
Professional Occupations	3.32	.001	3.45	.001	3.47	.001	3.22	.002	1.72	.088	-.152	.880	-.030	.976	-3.57	.001	-5.28	.000
Skilled Occupations	7.48	.000	8.55	.000	8.49	.000	8.04	.000	8.98	.000	8.98	.000	7.55	.000	4.49	.000	3.97	.000
Semi- & Unskilled Occupations	8.30	.000	10.46	.000	11.83	.000	7.88	.000	11.11	.000	12.75	.000	11.45	.000	15.13	.000	12.29	.000
Unemployed	5.58	.000	8.69	.000	8.68	.000	6.10	.000	8.26	.000	9.17	.000	9.67	.000	11.65	.000	9.26	.000
Population w/ Advanced Education	2.00	.049	1.41	.163	1.33	.189	2.15	.033	.171	.865	-2.64	.009	-1.50	.137	-5.09	.000	-7.14	.000
Housing Lacking Plumbing	5.28	.000	3.23	.002	2.47	.016	3.89	.000	3.31	.001	2.91	.004	9.87	.000	5.07	.000	5.24	.000
Overcrowded Housing	8.19	.000	7.29	.000	8.56	.000	8.00	.000	10.15	.000	10.03	.000	13.43	.000	12.99	.000	13.42	.000
Housing Turnover	—	—	6.12	.000	5.46	.000	—	—	6.35	.000	6.71	.000	—	—	7.97	—	6.55	.000

[1] Two-tailed test

Table *B. 9* T-Values,[1] Difference of Mean Concentration Subcultural Variables, Ten Lowest Crime Measure Clusters and Clusters at the Emerging, Transitional and Enduring Stages of Development 1950, 1960, and 1970, Los Angeles County

	Emerging						Transitional						Enduring					
	1950		1960		1970		1950		1960		1970		1950		1960		1970	
Variable	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p
Status Offenses	3.71	.000	3.41	.001	6.93	.000	4.52	.000	2.94	.004	11.50	.000	7.34	.000	5.34	.000	9.94	.000
Black Population	2.44	.017	4.28	.000	5.63	.000	3.04	.003	6.89	.000	9.94	.000	5.68	.001	7.16	.000	7.50	.000
Spanish Surname Population	3.17	.002	5.48	.000	5.66	.000	3.63	.000	6.07	.000	2.38	.018	6.55	.000	6.51	.000	5.67	.000
Anglo Population	7.38	.000	6.98	.000	3.79	.000	7.16	.000	4.15	.000	-.127	.899	2.64	.009	-2.80	.006	-4.89	.000
Non-White Population	2.94	.004	4.68	.000	6.41	.000	3.13	.002	7.14	.000	10.24	.000	6.20	.000	7.95	.000	8.24	.000
Non-White Females in Labor Force	2.71	.008	4.20	.000	6.03	.000	3.00	.003	6.63	.000	9.42	.000	5.36	.000	7.57	.000	8.18	.000
Spanish Surname Females in Labor Force	3.09	.003	6.39	.000	6.02	.000	3.39	.001	4.88	.000	2.16	.033	6.12	.000	6.05	.000	5.40	.000
Anglo Females in Labor Force	5.10	.000	6.27	.000	3.72	.000	5.74	.000	3.40	.001	-.967	.335	1.44	.152	-3.20	.002	-5.12	.000
Non-White w/ Advanced Education	2.65	.010	3.83	.000	5.44	.000	2.79	.006	5.32	.000	6.13	.000	5.38	.000	7.52	.000	4.96	.000
Spanish Surname with Advanced Education	.467	.642	.652	.516	3.83	.000	2.67	.008	.882	.379	1.41	.162	5.52	.000	2.04	.044	3.92	.000
Anglo Population with Advanced Education	1.98	.052	-.007	.994	-.664	.509	1.29	.200	-2.98	.003	-6.52	.000	-.399	.000	-7.13	.000	-8.88	.000
Mexican Foreign Born	6.06	.000	4.66	.000	5.19	.000	5.56	.000	4.82	.000	3.17	.002	6.31	.000	6.08	.000	6.05	.000

[1] Two-tailed test

enduring areas. Finally, both the emerging and the enduring areas differed distinctively from the low crime areas in the ratio of renter- to owner-occupied housing (household stability index) at each of the three time points, with the emerging stage areas in 1970 exhibiting the most extreme difference. Sharply increasing values of the household stability index suggests itself as a possible leading indicator of an impending rise in a neighborhood's crime measure.

Demographic Variables. The enduring high crime area differed more sharply from the low crime area than did the emerging crime area at all three time points with respect to population density, unrelated individuals, non-intact families, and residential stability (Table B.7). Moreover, while the dissimilarity in mean concentration measures for these variables increased in the emerging area between 1950 and 1970, it remained relatively stable in the enduring area during the same period. On the other hand, the emerging area showed no difference from the low crime clusters in their youth dependency ratio, while in the enduring high crime area during the same 20-year period, the difference in youth dependency ratio from that in the low crime area underwent a continuous increase. These contrasts are reflected as well in the related measure of average age.

Socioeconomic Variables. Differences in mean concentration values for occupational classes exhibit one peculiarity that derives from the nature of the measure (Table B.8). For example, in 1950 the enduring high crime area did not differ from the low crime area in mean concentration of professional occupations. This is an artifact of numbers, that is, the very much smaller numbers per square mile of professional occupations in the low crime area, which were much less densely populated. The misleading impression of no difference in 1950 respecting the professional occupations variable is corrected by the distribution measure: the enduring area recorded 9.0 percent in this category versus 39.0 percent in the low crime clusters. Mean concentration values for skilled occupations show the enduring area to differ less from the low crime area than does the emerging stage high crime area over the entire 20-year period. On the other hand, the emerging area differs less than the enduring area from the low crime clusters in mean concentration of semi- and unskilled occupations. The same is true for the mean concentration of the unemployed. For the remaining socioeconomic variables, differences in mean concentration values indicate, expectedly, greater similarity between the emerging and the low crime clusters than between the latter and the enduring stage high crime area.

Subcultural Variables. For over half of the variables constituting this dimension of social structure, the emerging high crime areas at all three time points differed less in subcultural character from the low crime clusters than did the enduring high crime areas (Table B.9). It was also the case that

with the passage of time the emerging areas came to differ in this respect more sharply from the low crime clusters. For many of the variables, the emerging areas at the end of the 20-year period had approximately the same relationship to the low crime areas as did the enduring areas at the beginning of the period. These observations apply to mean concentration differences in the variables of status offenses, black and non-white populations, non-white and Spanish surname females in the labor force, Anglo population, Mexican foreign born, and non-whites with advanced education. But this was distinctively not true for the Anglo population with advanced education: there was no sigificant difference in this measure between the emerging high crime areas by 1970 and the low crime areas at the same time point. Such exception to the general trend is likely to have reflected the highly "mixed" character of the emerging high crime areas in 1970, just prior to the impending escalation of its crime measure. The contrasting situation is seen in the enduring high crime areas lying farthest removed, respecting this variable, from the low crime clusters.

APPENDIX C

Cross-Sectional, Interannual. and Cross-Lagged Correlations of Selected Structural Variables With Crime

Table C.1 Interannual, Cross-sectional, and Lag Correlations, Selected Land Uee Variables and Crime, 1950, 1960, and 1970, Highest Crime Density Census Tract Clustere, 1970 Areal Cohorts, by Stages of Development, Los Angeles County

	Variable	Cluster Emerging			Cluster Transitional				Cluster Enduring		
	A. Owner Hsg. B. Crime	3	7	8	4	5	6	10	1	2	9
1	A50A60	.76[2]	.78[1]	.76[1]	.93[2]	.52	.00	.31	.31[1]	.85[2]	.96[2]
2	A60A70	.87[2]	.89[2]	.75[1]	.97[2]	.94[2]	.94[2]	.92	.88[2]	.96[2]	.97[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.20	.00	.00	.51	.08	.00	.44
6	A60B60	-.09	.00	.00	.29	-.43	-.04	.00	.00	.00	.00
7	A70B70	.00	.00	.00	.45[2]	.00	.45[1]	.00	-.15	.00	.00
8	A50B60	.00	.00	-.29	.24	.00	.18	.00	.00	.00	.45
9	B50A60	.00	.00	.00	.00	-.17	.00	.00	.00	.00	.41
10	A60B70	.00	.35	.00	.56[2]	.00	-.29	.19	-.16	.00	.00
11	B60A70	-.33	.00	.00	.13	-.53	-.19	.00	.00	.00	.38
	A. Rental Hsg. B. Crime										
1	A50A60	-.59[1]	.44	.00	-.31	.00	-.49[2]	.21	.00	.00	.62[1]
2	A60A70	-.59[1]	.00	.00	-.28	-.53	-.64[2]	.00	-.15	.00	.62[1]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.00	.32	.00	.40	.09	.00	.00
6	A60B60	.39	.00	-.24	.00	.65[1]	.00	.00	.24	.00	.45
7	A70B70	.06	.42	.68[1]	.32	.66[1]	.00	.57	.00	.38	.15
8	A50B60	.49	.00	-.17	.00	.59	.30	.00	-.09	.00	.55[1]
9	B50A60	.00	-.47	.00	.00	.65[1]	.00	.39	.00	.00	.00
10	A60B70	.14	.85[1]	.17	.14	.71[1]	.10	.61	.40[2]	.36	.02
11	B60A70	.00	.95[2]	.00	.00	.77[1]	.00	.00	.19	.00	.49

[1] $p < .05$

[2] $p < .01$

Table C.1
Page Two

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
	A. Apt. Dwellings B. Crime	3	7	8	4	5	6	10	1	2	9
1	A50A60	.98[2]	.61	.80[2]	.88[2]	.94[2]	.79[2]	.38[1]	.98[2]	.99[2]	1.00[2]
2	A60A70	.69[1]	.73	.50	.96[2]	.99[2]	.89[2]	.83[2]	.99[2]	.96[2]	.99[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.17	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	-.07	.00	.00	.00	.00	.00	.36[1]	.00	.00	-.21
6	A60B60	.15	.00	.26	-.13	.00	-.28	.00	-.20	.00	.00
7	A70B70	.00	.00	.52	.00	.39	.00	.00	-.14	.00	.00
8	A50B60	.12	.00	.00	-.09	.00	-.24	.15	-.19	.00	.00
9	B50A60	.00	.00	.00	.00	.00	.00	.20	-.10	.00	-.21
10	A60B70	.00	.00	.43	.00	.46	-.08	.00	-.16	.00	.00
11	B60A70	.00	.69	.54	-.15	.00	-.22	.00	-.20	.00	.00
	A. Comm. Act.[a] B. Crime										
1	A50A60	.99[2]	.99[2]	.96[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]
2	A60A70	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.17	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.00	.66[1]	-.01	.58[2]	-.02	.00	.16
6	A60B60	.33	.00	-.50	.00	.54	.45[1]	-.05	-.20	.00	.15
7	A70B70	.00	.00	-.54	.00	.00	.43[1]	.15	-.27	.00	.00
8	A50B60	.31	.00	-.66[1]	.00	.53	.45[1]	-.08	-.22	.00	.25
9	B50A60	.00	.00	.00	.00	.68[1]	.00	.60[2]	.00	.00	.09
10	A60B70	.00	.00	-.51	.00	.13	.43[1]	.15	-.27	.00	.00
11	B60A70	.36	.00	-.43	.00	.55	.43[1]	-.06	-.21	.00	.20

[1] $p < .05$
[2] $p < .01$
[a] Commercial Activity

Table C.1
Page Three

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
	A. Ind. Act.[a] B. Crime	3	7	8	4	5	6	10	1	2	9
1	A50A60	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.97[2]	.96[2]	.99[2]	.99[2]	.99[2]
2	A60A70	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.99[2]	.95[2]	.99[2]	.99[2]	.99[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.17	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.66	.00	.00	-.17	.16	.22	.00	.00	.00
6	A60B60	.00	.00	.00	.00	.00	.30	.00	-.24	.00	-.24
7	A70B70	.00	.00	.00	-.36[1]	-.44	.07	.00	-.44[2]	.00	.00
8	A50B60	.00	.00	.00	.00	.00	.24	.00	-.23	.00	.00
9	B50A60	.00	.57	.00	.00	-.13	.28	.18	.00	.00	-.25
10	A60B70	.00	.00	.00	-.36[1]	-.46	.00	.00	-.45[2]	.00	.00
11	B60A70	.02	.00	.00	.00	.00	.30	.00	-.23	.00	.00
	A. Traf. Gen. B. Crime										
1	A50A60	.69[1]	.89[2]	.83[2]	.93[2]	.90[2]	.95[2]	.83[2]	.97[2]	.99[2]	.99[2]
2	A60A70	.00	.90[2]	.90[2]	.86[2]	.91[2]	.88[2]	.74[2]	.83[2]	.99[2]	.99[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.17	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.47	.00	.00	.00	.00	.43[2]	.00	.00	-.42
6	A60B60	-.20	-.22	-.11	.00	.00	.42[1]	-.05	-.26	.00	-.49
7	A70B70	-.20	.00	.00	-.52[2]	.00	.00	-.20	-.07	.00	-.33
8	A50B60	-.20	.00	-.57	.00	.00	.49[2]	-.08	-.25	.00	-.44
9	B50A60	.00	.85[1]	.00	.00	.00	.00	.26	.00	.00	-.40
10	A60B70	.00	.00	-.41	-.48[1]	.19	.00	-.12	-.30[1]	.00	-.31
11	B60A70	.00	.00	.00	.00	.00	.14	-.11	-.26	.00	-.55[1]

[1] $p < .05$
[2] $p < .01$
[a] Industrial Activity

Table C.1
Page Four

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Renter/Owner, B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	-.64[1]	.00	-.09	-.79[2]	-.61	-.14	.00	-.50[2]	.00	-.59
2	A60A70	-.67[1]	.00	.00	-.85[2]	-.78[2]	-.75[2]	-.31[1]	-.41[2]	-.26	-.58
3	B50B60	.46	-.47	.54	.00	.39	.00	-.17	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.38	.00	.00	.00	-.03	-.22	.10	.00	.00
6	A60B60	.26	-.47	.00	-.23	.70[1]	.00	.00	.33[1]	.00	.00
7	A70B70	.00	.40	.71[1]	-.21	.31	.04	.53[2]	.10	.33	.38
8	A50B60	.36	.00	.00	-.26	-.00	.00	.00	.00	.00	.00
9	B50A60	.00	-.31	-.33	.00	.67[1]	.00	.30	.05	.00	.00
10	A60B70	.00	.77[1]	.00	-.43[1]	.42	.05	.38[1]	.00	.30	.59
11	B60A70	.00	.94[2]	.00	.00	.78[2]	.00	.00	.40[2]	.14	.00

[1] p < .05
[2] p < .01

Table C.2 Interannual, Cross-sectional, and Lag Correlations, Selected Demographic Variables and Crime, 1950, 1960, and 1970, Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, by Stages of Development, Los Angeles County

Variables		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Pop. Dens., B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	.77[2]	.20	.30	.48[2]	.94[2]	.82[2]	.42[2]	.42[2]	.75[2]	.97[2]
2	A60A70	.71[1]	.87[1]	.60	.83[2]	.84[2]	.69[2]	.85[2]	.87[2]	.98[2]	.92[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.45[2]	.11	.00	.50[2]	.25	.00	.44
6	A60B60	.25	.69	.79[1]	.20	.00	.37	.21	.56[2]	.43	.51[2]
7	A70B70	.69[1]	.61	.00	.41[1]	.70[1]	.34	.70[2]	.70[2]	.66[1]	.22
8	A50B60	.36	.00	-.51	.00	.10	.40[1]	.00	.00	.00	.61[1]
9	B50A60	.33	-.44	.00	.20	.18	.25	.00	.20	.00	.40
10	A60B70	.80[2]	.88[2]	.41	.63[2]	.76[1]	.56[2]	.51[2]	.82[2]	.69[2]	.00
11	B60A70	.00	.04	.00	.02	.00	.15	.03	.50[2]	.35	.55[1]
A. Unrela. Ind., B. Crime											
1	A50A60	.16	.00	.00	.00	.68[1]	.59[2]	.43[2]	.13	.56[1]	.73[2]
2	A60A70	.00	.55	.55	.57[2]	.57	.51[2]	.75[2]	.16	.55[1]	.74[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	-.18	.22	.00	.00	.43[2]	.00	.00	.00
6	A60B60	.33	.59	-.30	.00	.00	.00	.00	.00	.00	.16
7	A70B70	.00	.00	.43	.00	.73[1]	.00	.42[2]	.00	.00	.00
8	A50B60	.33	.00	-.25	.00	.00	.29	.00	-.14	.00	.28
9	B50A60	.00	.00	-.23	.00	.55	-.14	.46[2]	.00	.00	.00
10	A60B70	.00	.39	.42	.00	.82[2]	.00	.54[2]	-.17	.00	.00
11	B60A70	.00	.67	.00	.00	.54	.00	.00	.00	.00	.42

[1] p < .05
[2] p < .01

Table C.2
Page Two

Variables		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Res. Mobil., B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	.00	-.73	.00	.00	.00	.00	-.23	-.17	.00	.40
2	A60A70	.71[1]	.86[1]	.63	.84[2]	.82[2]	.68[2]	.84[2]	.86[2]	.97[2]	.92[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.45[2]	.00	.00	.27	.30[1]	.00	.46
6	A60B60	.00	.46	.00	.03	.00	.00	.27	.08	.00	.43
7	A70B70	.88[2]	.67	.59	.57[2]	.32	.29	.64[2]	.72[2]	.54[1]	.00
8	A50B60	.00	-.54	.00	.00	.26	.00	-.20	-.44[2]	-.30	.47
9	B50A60	.38	-.46	.00	.16	.22	.35	.00	.22	.00	.42
10	A60B70	.82[2]	.89[2]	.50	.58[2]	.80[2]	.65[2]	.53[2]	.88[2]	.74[2]	.00
11	B60A70	.00	.88[2]	.00	.00	.58	.00	.00	.43[2]	.55[1]	.45
A. Youth Dep., B. Crime											
1	A50A60	.00	.00	-.27	.00	.00	.00	-.14	.00	.00	.00
2	A60A70	.06	.00	.00	.00	.00	.00	-.43[2]	.31[1]	.00	.00
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	-.15	.00	.22	.00	.57[1]	-.30[1]	.18	.01	.42
6	A60B60	.00	.00	.54	.36[1]	.00	.37	.30[1]	.55[2]	.86[2]	.00
7	A70B70	.88[2]	.76[1]	.89[2]	.64[2]	.00	.86[2]	.50[2]	.81[2]	.79[2]	.74[2]
8	A50B60	-.35	.00	.00	.34[1]	.00	.13	.00	.35[1]	.47	.00
9	B50A60	.37	.00	.00	.00	.23	.48[1]	-.50[2]	.14	.24	.23
10	A60B70	.65[1]	.38	.00	.46[2]	.26	.80[2]	.00	-.77[2]	.75[2]	.71[2]
11	B60A70	.00	.32	.00	.38[1]	.00	.51[2]	.00	.58[2]	.80[2]	.00

[1] $p < .05$
[2] $p < .01$

Table C.2
Page Three

Variables		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Median Age, B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	.33	.00	.00	.00	.00	.00	-.25	-.03	.00	.00
2	A60A70	-.22	-.39	.00	.00	-.31	-.29	.35[1]	.00	.00	.00
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	-.65[2]	-.16	.00	.34[1]	-.19	.00	-.53[1]
6	A60B60	.00	-.31	.00	-.22	.00	-.40[1]	-.31[1]	-.45[2]	-.75[2]	-.25
7	A70B70	-.79[2]	.70	-.45	.00	-.65	-.87[2]	-.55[2]	-.48[2]	-.64[1]	-.76[2]
8	A50B60	.32	.00	.00	.00	-.31	.00	.00	-.36[1]	-.26	-.09
9	B50A60	-.54	.60	.00	-.06	.44	-.48[2]	.54[2]	.00	-.19	-.33
10	A60B70	-.65[1]	-.48	-.32	.00	-.29	-.85[2]	.00	-.58[2]	-.50	-.71[2]
11	B70A70	-.40	-.65	.00	-.13	-.23	-.34[1]	.00	-.37[1]	-.62[1]	.00

[1] $p < .05$
[2] $p < .01$

Table C.3 Interannual, Cross-sectional, and Lag Correlations, Selected Socioeconomic Variables and Crime, 1950, 1960, and 1970, Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, by Stages of Development, Los Angeles County

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Prof. Occ.; B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	.62[2]	.64	.55	.44[1]	.88[2]	.82[2]	.23	.55[2]	.57[1]	.79[2]
2	A60A70	.69[1]	.10	.53	.84[2]	.57	.84[2]	.87[2]	.41[2]	.83[2]	.90[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.00	-.41	-.31	.60[2]	.00	.00	.00
6	A60B60	-.41	.00	.00	-.04	-.19	-.49[2]	.00	-.11	.00	.20
7	A70B70	-.13	.00	.00	-.10	.00	-.72[2]	-.23	.00	.30	.00
8	A50B60	-.33	.00	-.23	.00	-.23	-.33	-.16	-.36[1]	.00	.47
9	B50A60	.00	.00	.30	.00	-.39	-.24	.00	-.19	.00	.00
10	A60B70	-.55	.54	.00	-.16	.00	-.71[2]	.00	-.25	.00	.00
11	B60A70	.00	.00	.00	-.12	-.83[2]	-.57[2]	.00	.00	.00	.32
A. Skilled Occ.; B. Crime											
1	A50A60	-.09	.72	.00	.00	.00	.00	.11	.40[2]	.59[1]	.71[2]
2	A60A70	.89[2]	.00	.61	.54[2]	.55	.50[2]	.54[2]	.59[2]	.42	.76[2]
3	B50B60	.46	-.47	.54	.00	.30	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.00	.00	-.34	.50[2]	-.11	.00	.00
6	A60B60	.00	.46	.00	.00	.00	-.41[1]	.00	-.18	.00	.34
7	A70B70	.00	.14	-.48	.00	.00	-.57[2]	.09	.00	.14	.00
8	A50B60	.23	.00	-.34	.00	.00	.00	.00	-.37[2]	.00	.54[1]
9	B50A60	.00	.00	.00	.00	.00	-.34	.20	-.13	.00	.00
10	A60B70	.00	.60	.00	.19	.00	-.56[2]	.29	-.19	.26	.00
11	B60A70	-.37	.74	.00	.00	.00	-.46[1]	.00	.00	.00	.42

[1] $p < .05$
[2] $p < .01$

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Semi & Unskilled; B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	-.59	.77[1]	-.22	-.33	-.22	-.71[2]	.00	.18	.79[2]	.62[1]
2	A60A70	.00	.00	-.22	.00	.00	-.68[2]	.00	.25	.59[1]	.66[2]
3	B50B60	.46	-.47	.54	.00	.30	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.12	.74[2]	.61	.27	.40[2]	.10	.00	.40
6	A60B60	.15	.72	.00	.31	.45	.59[2]	.19	.00	.00	.40
7	A70B70	.73[1]	.52	.82[2]	.35[2]	.35	.29	.78[2]	.00	.35	.00
8	A50B60	.46	.00	.00	.00	.64[1]	.69[2]	.00	.00	.00	.54[1]
9	B50A60	.16	-.45	.00	.14	.25	.31	.13	.00	.00	.30
10	A60B70	.91[2]	.84[1]	.24	.76[2]	.47	.72[2]	.73[2]	.00	.26	.00
11	B60A70	.00	.89[2]	.00	.00	.00	.31	.00	.00	.00	.42
A. Unemployed; B. Crime											
1	A50A60	-.16	.61	.00	-.14	.00	-.55[2]	.00	.24	.60[1]	.62[1]
2	A60A70	.00	.00	.00	.00	-.48	-.53[2]	-.16	.00	.65[1]	.63[1]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.55[2]	.00	.15	.44[2]	.04	.00	.38
6	A60B60	.57	.60	.00	.00	.25	.44[1]	.26	.36[1]	.00	.41
7	A70B70	.61	.06	.68[1]	.43[1]	.22	.63[2]	.74[2]	.59[2]	.54	.44
8	A50B60	.50	.00	.00	.00	.00	.59[2]	.00	.00	.00	.53
9	B50A60	.35	-.21	.00	.33	.62	.25	.20	.16	.00	.10
10	A60B70	.41	.70	.00	.45[2]	.65[1]	.75[2]	.72[2]	.43[2]	.38	.00
11	B60A70	.21	.87[2]	.00	.12	.17	.18	.00	.46[2]	.21	.15

[1] $p < .05$
[2] $p < .01$

Table C.3
Page Three

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Pop. Adv. Ed.; B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	.51	.68	.00	.50[2]	.28	.90[2]	.29	.53[2]	.75[2]	.48
2	A60A70	.64[1]	.00	.00	.87[2]	.27	.83[2]	.82[2]	.39[2]	.76[2]	.80[2]
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	-.21	.00	.00	.00	-.35	-.22	.57[2]	.00	.00	.00
6	A60B60	.00	.31	.00	.00	.00	-.38[1]	.00	.00	-.07	.39
7	A70B70	.00	-.39	.00	.00	.00	-.25	-.32[1]	-.15	.00	.00
8	A50B60	-.37	.00	.00	.00	-.18	-.30	-.07	-.21	.00	.00
9	B50A60	.00	.00	.00	.00	-.33	-.17	.00	.00	.00	.00
10	A60B70	-.16	.88[2]	.66[1]	.00	.00	-.67[2]	.00	.00	.00	.00
11	B60A70	.00	.00	.00	.00	.00	-.50[2]	.00	-.05	.00	.11
A. Hsg. Overcrowded; B. Crime											
1	A50A60	-.58	.67	-.68[1]	.00	-.42	-.77[2]	.00	-.16	.63[1]	.38
2	A60A70	.00	.00	-.34	.00	-.39	-.66[2]	-.42[2]	-.08	.53	.47
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	-.39	-.49	.65[2]	.55	.45[1]	.25	.47[2]	.14	.53[1]
6	A60B60	.45	.69	.00	.28	.50	.45[1]	.43[2]	.65[2]	.74[2]	.56[1]
7	A70B70	.94[2]	.78[1]	.95[2]	.13	.29	.78[2]	.87[2]	.75[2]	.78[2]	.48
8	A50B60	.68[1]	.54	.00	.00	.40	.59[2]	.00	.12	.00	.55[1]
9	B50A60	.44	-.43	.47	.26	.72[1]	.50[2]	.00	.20	.32	.54[1]
10	A60B70	.81[2]	.83[1]	.59	.33	.69[1]	.88[2]	.58[2]	.89[2]	.89[2]	.30
11	B70A60	.00	.74	.00	.00	.00	.41[1]	.11	.56[2]	.43	.47

[1] $p < .05$
[2] $p < .01$

Table C.3
Page Four

Variable		Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Housing Turnover; B. Crime		3	7	8	4	5	6	10	1	2	9
1	A50A60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	A60A70	.00	.40	-.42	.24	-.37	.00	.00	.00	.61[1]	.59[1]
3	B50B60	.46	-.47	.54	.00	.30	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	A60B60	.40	.85[1]	.00	.00	.63[1]	.00	.00	-.22	.10	.30
7	A70B70	.39	.41	.76[1]	.27	.52	.57[2]	.65[2]	.00	.00	.00
8	A50B60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	B50A60	.00	-.35	.00	.00	.53	.00	.21	.00	.00	.00
10	A60B70	.00	.22	.00	.00	.34	.44[1]	.56[2]	-.30[1]	.00	.00
11	B60A70	.00	.67	.00	.00	.43	.36	.00	.00	.00	.27

[1] $p < .05$
[2] $p < .01$

Table C.4 Interannual, Cross-sectional, and Lag Correlations, Selected Subculture Variables and Crime, 1950, 1960, and 1970, Highest Crime Density Census Tract Clusters, 1970 Areal Cohorts, by Stages of Development, Los Angeles County

Variable	Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Status Offenses; B. Crime	3	7	8	4	5	6	10	1	2	9
1 A50A60	.60	.00	.80[2]	.00	.00	.00	.00	.20	.34	.00
2 A60A70	.69[1]	.86[1]	.00	.00	.29	.00	.35[1]	.28[1]	.35	.00
3 B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4 B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5 A50B50	.00	.00	.25	.33	.00	.52[2]	.43[2]	.34[1]	.40	.15
6 A60B60	.00	.00	.00	.00	.27	.31	.52[2]	.40[2]	.70[2]	.00
7 A70B70	.96[2]	.92[2]	.94[2]	.79[2]	.57	.77[2]	.71[2]	.84[2]	.89[2]	.90[2]
8 A50B60	.00	.00	.36	.10	.00	.20	.00	.00	.46	.49
9 B50A60	.00	.00	.00	.00	.43	.00	-.14	.47[2]	.30	.00
10 A60B70	.63[1]	.63	.00	.00	.16	.04	.00	.44[2]	.59[1]	.36
11 B60A70	.00	.26	.20	.41	.04	.54[2]	.33[1]	.42[2]	.64[1]	.08
A. Black Pop.; B. Crime										
1 A50A60	.63[1]	.00	.12	-.22	.00	.26	.00	.11	.43	.00
2 A60A70	.91[2]	.16	.00	.69[2]	.58	.58[2]	.34[1]	.67[2]	.39	.61[1]
3 B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4 B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5 A50B50	.00	-.48	.00	.61[2]	.45	.44[1]	.00	.27	.00	.00
6 A60B60	.00	.00	.00	.39[1]	.40	.57[2]	.09	.49[2]	.73[2]	.00
7 A70B70	.96[2]	.44	.82[2]	.62[2]	.79[2]	.65[2]	.80[2]	.77[2]	.00	.68[2]
8 A50B60	.00	.43	-.28	.00	.58	.39[1]	.19	.00	.13	.00
9 B50A60	.00	.00	.00	.24	.00	.50[2]	.00	.18	.31	.00
10 A60B70	.96[2]	.57	.37	.67[2]	.67[1]	.69[2]	.37[1]	.77[2]	.58[1]	.63[1]
11 B60A70	.00	.00	.00	.41[1]	.19	.33	.00	.51[2]	.00	.00

[1] $p < .05$
[2] $p < .01$

Table C.4
Page Two

Variable	Cluster Emerging			Cluster Transitional				Cluster Enduring		
A. Spansur Pop.; B. Crime	3	7	8	4	5	6	10	1	2	9
1 A50A60	.61	.00	.00	.00	.00	.00	.00	.46[2]	.00	-.26
2 A60A70	.80[2]	.75[1]	.49	.00	.00	.62[2]	.34[1]	.15	.72[2]	.00
3 B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4 B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5 A50B50	.00	-.50	.00	.00	.00	.66[2]	.00	.46[2]	.26	.61[1]
6 A60B60	.41	.61	.00	.00	.00	.00	.38[1]	.00	.52	.44
7 A70B70	.90[2]	.30	.00	.00	.00	-.29	.10	-.17	.70[2]	.00
8 A50B60	.00	.50	.00	.20	.00	.00	.00	.22	.00	.39
9 B50A60	.38	-.28	.00	.00	.52	.00	.00	.00	.15	.48
10 A60B70	.80[2]	.62	.65	.00	.00	.65[2]	.48[2]	.00	.73[2]	.00
11 B60A70	.15	.62	.00	-.15	.00	.00	.28	.00	.38	.50
A. Non-Wht Female Labor Force; B. Crime										
1 A50A60	.62	.00	.00	-.25	.00	.25	.00	.00	.12	.00
2 A60A70	.90[2]	.00	.00	.61[2]	.46	.56[2]	.27	.09	.00	.00
3 B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4 B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5 A50B50	.00	-.50	.00	.65[2]	.34	.32	.00	.28[1]	.00	.00
6 A60B60	.00	.00	.00	.21	.43	.55[2]	.00	.00	.00	.00
7 A70B70	.96[2]	.52	.73[1]	.49[2]	.39	.00	.78[2]	.23	.00	.00
8 A50B60	.00	.59	.00	.00	.55	.44[1]	.19	.00	.00	.13
9 B50A60	.00	.00	.00	.11	.00	.41[1]	.00	.00	.00	-.14
10 A60B70	.96[2]	.53	.28	.60[2]	.64[1]	.59[2]	.35[1]	.15	.00	.00
11 B60A70	.00	.00	.00	.19	.00	.00	.00	.14	.00	.00

[1] $p < .05$
[2] $p < .01$

Table C.4
Page Three

	Variable	Cluster Emerging			Cluster Transitional				Cluster Enduring		
	A. Spansur Female Labor Force; B. Crime	3	7	8	4	5	6	10	1	2	9
1	A50A60	.60	.00	.00	.00	.00	.00	.00	.25	.00	-.27
2	A60A70	.65[1]	.76[1]	.00	.00	.00	.49[2]	.31[1]	.29[1]	.39	.00
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	-.50	.00	.00	.00	.60[2]	.00	.33[1]	.18	.54[1]
6	A60B60	.40	.55	-.63	.00	.00	.10	.05	.00	.00	.32
7	A70B70	.55	.00	.00	.00	.00	-.29	.19	-.15	.19	.00
8	A50B60	.00	.59	.00	.18	.00	.00	.20	.00	.00	.34
9	B60A50	.38	-.20	-.18	.00	.00	-.16	.00	.07	.00	.24
10	A60B70	.61	.60	.00	.00	.00	.41[1]	.61[2]	-.24	.23	.00
11	B60A70	.00	.74	.00	-.17	.00	.00	.19	.00	.00	.43
	A. Non-White Adv. Education; B. Crime										
1	A50A60	.62	.00	.00	-.25	.00	.26	.00	.00	.00	.00
2	A60A70	.53	.26	.29	.00	.00	-.26	.11	.00	.00	.00
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	-.50	.00	.62[2]	.34	.37	.00	.00	.00	.00
6	A60B60	.00	.00	.00	.00	.00	.00	.00	.00	-.11	.00
7	A70B70	.80[2]	.03	.38	.00	.32	-.59[2]	.48[2]	.00	.00	.00
8	A50B60	.00	.59	.00	.00	.55	.40[1]	.13	.00	.00	.11
9	B50A60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	A60B70	.70[1]	.63	.54	.00	.16	-.06	.25	.00	.00	.00
11	B60A70	.00	.22	.00	.00	.00	-.42[1]	-.24	.00	-.15	.00

[1] $p < .05$
[2] $p < .01$

Table C.4
Page Four

	Variable	Cluster Emerging			Cluster Transitional				Cluster Enduring		
	A. Spansur Advanced Education; B. Crime	3	7	8	4	5	6	10	1	2	9
1	A50A60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	A60A70	.20	.68	.00	.00	.77[2]	.00	.00	.00	.51	.00
3	B50B60	.46	-.47	.54	.00	.30	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.00	.00	.00	.00	.00	.58[2]	.00	.07	.60[1]	.37
6	A60B60	.00	.45	.00	.00	.00	-.09	.08	.48[2]	.55[1]	.27
7	A70B70	.34	.51	.00	.00	.00	-.29	.00	.00	.00	.00
8	A50B60	.00	.00	.00	.00	.00	.00	.24	-.08	-.20	.00
9	B50A60	.00	.00	.00	.00	.00	-.24	.00	.34[1]	.00	.00
10	A60B70	.45	.45	.22	-.20	.00	.00	.00	.28	.76[2]	.00
11	B60A70	.00	.00	.00	.00	.00	.00	.00	.00	-.08	.41
	A. Anglo Advanced Education; B. Crime										
1	A50A60	.00	.00	.00	.00	.00	.00	-.10	-.24	.00	.33
2	A60A70	-.37	.43	.00	-.18	.00	-.70[2]	-.18	.00	.00	.00
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	-.24	.00	.00	-.17	-.36	-.27	.55[2]	-.16	.00	.00
6	A60B60	.00	.00	-.07	.00	-.36	-.46[1]	.00	-.19	-.34	-.37
7	A70B70	-.35	-.70	-.04	-.18	.00	-.73[2]	-.48[2]	-.04	.00	.00
8	A50B60	-.40	.00	.00	.00	-.24	-.33	-.15	-.32[1]	.00	.00
9	B50A60	.00	.00	.00	.00	.00	-.22	.00	-.10	.00	.00
10	A60B70	-.45	.00	.00	-.20	.00	-.76[2]	-.17	-.22	.00	.00
11	B60A70	.00	.00	.00	.00	.00	-.42[1]	.00	.00	.26	.00

[1] $p < .05$
[2] $p < .01$

Table C.4
Page Five

	Variable	Cluster Emerging			Cluster Transitional				Cluster Enduring		
	A. Mexican Foreign Born; B. Crime	3	7	8	4	5	6	10	1	2	9
1	A50A60	.66[1]	.00	.00	.18	.00	.13	-.13	.43[2]	.00	-.31
2	A60A70	.56	.77[1]	.00	.00	.00	.00	.07	-.25	.34	.00
3	B50B60	.46	-.47	.54	.00	.39	.00	-.18	.32[1]	.00	.00
4	B60B70	.00	.42	.00	.50[2]	.00	.40[1]	.16	.72[2]	.80[2]	.00
5	A50B50	.31	-.60	-.15	.08	.00	.41[1]	.00	.49[2]	.24	.50
6	A60B60	.00	.84[1]	.00	.00	-.36	-.32	.00	.00	.00	.34
7	A70B70	.93[2]	.34	.00	.12	.00	.00	.38[1]	-.19	.53	.00
8	A50B60	.34	.57	.00	.00	.00	.54[2]	.00	.11	.00	.32
9	B50A60	.00	-.44	.32	.00	.00	-.55[2]	.17	.12	.00	.29
10	A60B70	.41	.84[1]	.00	.00	.00	-.44[1]	.48[2]	-.20	.19	.00
11	B60A70	.00	.66	.00	-.12	.00	.00	.31[1]	.00	.00	.40

[1] $p < .05$
[2] $p < .01$

END