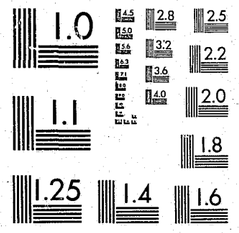

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COMMUNITY CONTEXTS AND CRIMINAL OFFENDERS

FINAL REPORT

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Introduction

Two extensive research traditions have been important to much of modern criminology. One of these, which we will call the risk assessment tradition, dates at least from Quetelet (1842) and Goring (1913), and has provided much of what we now know concerning individual-level correlates of criminality. Research conducted in this tradition generally has been predictive in nature, and directly policy-relevent in intent. Fundamentally, the individual offender is the unit of study, and examination of this literature shows rather clearly that a great deal of criminological research that has focused on individuals has ignored physical and social environmental influences on behavior.

It also is the case that much research conducted in the ecological tradition, the second we wish to consider here, essentially ignores the individual--even though it is clear that many sociological theories of crime causation deal largely with the social environment and its interaction with individuals or groups (e.g., Merton, 1957; Southerland and Cressey, 1974; Hirschi, 1969; Cloward and Ohlin, 1960; Matza, 1969; Reckless, 1973; Gibbons and Jones, 1975). Ecological/areal research findings have been important to much of this theory construction (as illustration, see Willie, 1967; Hirschi and Selvin, 1967; Maccoby, Johnson and Church, 1958).

The two traditions generally may be characterized as having developed virtually independently, even though some persons have been influential to both (e.g., Burgess, 1925; 1927). In particular, ecological research findings have not been used to inform the risk assessment tradition. During the early part of this century, community context was important to some of the risk assessment work (e.g., Tibbits, 1931; Vold, 1931; Kirby, 1954), but such factors then were

virtually ignored until the 1970's, when the bail reform movement again focused attention on issues such as "community ties" as potentially predictive of pretrial release outcomes.

In a recent review of attempts to predict violent and aggressive behavior, Monahan (1981) repeats a call made earlier by Shah (1978): We need to address the role of situational factors if we are to improve upon our abilities to predict behaviors of the sort under consideration. Similarly, a recent report by the National Research Council of the National Academy of Sciences (1981) suggests that research on the social and environmental factors contributing to criminal behavior is missing and necessary (see also Monahan, 1984; Gottfredson and Gottfredson, 1985). That which is available generally is limited to a consideration of violence, and is limited either to simple univariate descriptive summary statistics (e.g., Wolfgang, 1958; Toch, 1969; Curtis, 1974), bivariate (e.g., Steadman, 1982), or disappointing multivariate (e.g., Steadman and Ribner, 1982) analyses.

A Theoretical Perspective for Person-Environment Interactions

In a sense, the two research traditions briefly described above can be characterized as analogous to two rather distinct perspectives to the psychological study of personality: These are the trait and situational approaches. A similar analogy could be made with the well-known "nature/nurture" controversy. We believe that distinctions of these sorts are useful for some purposes, but counter-productive in the long run.

We believe that there are there are three general approaches that one could take in attempting to predict criminality: one could focus solely on characteristics of the offender (a trait or person approach), one could focus

solely on the characteristics of the situation in which an offender is placed (a situational approach), or one could focus on interactions between offender and environmental characteristics (an interactionist approach). In psychology (and in the risk assessment tradition), the first of these approaches has been pursued extensively. The trait approach has been criticized because validity coefficients for trait measures often are lower than .30 (Mischel, 1968; for an alternative view, see Hogan, DeSoto, and Solano, 1977). It is interesting to note that risk assessment devices also rarely (if ever) have coefficients larger than this (Gottfredson and Gottfredson, in press). The influence of environments on behavior also has been well documented in psychology (Barker, 1968), and in addition to the ecological studies reviewed later in this paper, has received some attention in recidivism studies (Reitzes, 1955; Glaser, 1964).

Both in psychology (e.g., Wandersman and Florin, 1981) and in prediction research, we think that the interactionist approach holds promise. "Interactionism" has been used to refer to several different things (Buss, 1977; Olweus, 1977). On one level, the interactionist perspective is very simple and has considerable common sense or "face" validity: it simply is a statement that behavior is a function both of the person and the environment; as Lewin (1936) put it, B = f(P,E). If we want to achieve an understanding of how these influences function, however, definitions of interactionism become more complex (Buss, 1977). Olweus (1977) has proposed four different interactionist perspectives. He calls the first a <u>unidirectional</u> perspective. Here, both person and environment variables are seen to contribute to explanations of particular behavioral outcomes, although no interplay between the person and environment predictors--in terms of person variables being constrained (in their explanatory power) by environment variables, or being potentiated by

environmental variables--is assumed or predicted.

A second perspective is the <u>analysis of variance</u> approach. Here, it is suggested that Person X Environment interaction terms (in an analysis of variance framework) will contribute significantly to the explanation of behavioral outcomes. The interaction terms may have more explanatory power than either the Person or Environment main effects, although this is not a necessary proposition of this perspective. The essential point is that the person and environment variables bear a conditional relation to each other.

A third perspective is the <u>reciprocal action</u> approach, which suggests that the person and the environment influence each other reciprocally. These influences result in adaptation and accommodation, such that changes in both the person and the environment result (e.g., the person and the environment transform each other over time). One assumption of this model would appear to be that a condition of congruence between the person and the environment evolves over time.

Olweus calls the fourth perspective on interactionism the <u>person-environment integrity</u> model. This approach suggests that the person, the environment, and the person's behavior in that environment, are interwoven or integrated in a system-like fashion; that these three classes of variables have a functional integrity; and that this is reflected in processes of reciprocal influence. These different elements function as a single unit (similar to behavior settings; see Barker, 1968).

We feel that the person-environment integrity model will prove most useful for providing advances to the risk assessment problem. First, an offender's adjustment represents not only the influence of the environment on the person,

but the person's influence on that environment. The environment may influence the offender's behavior in many ways. By itself, it may serve as a discriminating stimulus to elicit some behaviors which are reinforcing, such as drug abuse. The environment produces social agents who may encourage either behaviors leading to recidivism, or behaviors leading to successful adjustment. Social agents may indirectly influence the course of events by encouraging police or other crime control agents to keep track of the offender. Physical and land use factors may be a source of influence by providing targets or opportunities for crime (or by limiting these). Clearly, there are many ways in which the environment can have an influence on the offender and the offender's behavior.

Likewise, there are many ways in which the offender and his/her behavior may influence the environment. The mere presence of an offender, if known to police or to community residents, may be a cause of increased vigilance, watchfulness, concern, or perhaps fear. Of course, the offender's behavior contributes to the environment by making it more or less orderly. If the offender's behavior becomes extremely antisocial, leading to the actual commission of crime(s), then this becomes an addition factor influencing environmental quality. Through his/her presence, then, as well as through his/her behavior, the offender may contribute to or detract from the quality of community life, and may stimulate local formal or informal control mechanisms.

The Research Problem and Structure of the Paper

Two general research questions may be stated quite simply: First, by considering the socio-environmental context into which an offender is released after a period of incarceration, can we improve upon recidivism predictions

which are based solely on personal characteristics of the offender himself? Second, what are the effects of offender populations on the community? The bulk of this paper describes our recent efforts to examine the effects of community context on criminal offenders, and the effects of criminal offenders on their communities.

We first provide brief reviews of some of the risk assessment and ecological literatures that have been important to our work, and describe some thoughts on the concepts of neighborhood and community that have provided a framework for our research. These reviews lead to a series of propositions that have guided our thinking, and they are described. We then provide a brief summary of our initial work on person-environment interactions and the prediction of recidivism, and discuss its limitations. More recent work casts considerable doubt on our early findings, and this too is described. We next turn our attention to the second of the two questions posed above, and examine the effects of offender populations on the community. Finally, we ask and attempt to answer the question of "where do we go from here?"

The Risk-Assessment Tradition

For detailed reviews of much of this work see Gottfredson and Gottfredson (in press); for reviews of efforts to predict risk of parole failure, see Gottfredson and Gottfredson (1979; in press), Mannheim and Wilkins (1955), or Simon (1971); attempts to predict performance on pre-trial release are reviewed in Goldkamp and Gottfredson (1985). Other critical reviews also recently have been published. Given the ready availability of this information, we do not give detailed attention to the prediction of violence (reviewed by Monahan, 1978; 1981; Monahan and Klassen, 1982), or to longitudinal studies bearing on

prediction issues (reviewed by Farrington, 1979; 1982). In the section that follows, we will concentrate attention on risk assessment studies concerning the prediction of criminal recidivism.[1]

Prediction studies involving criminal populations or relating in some way to concerns of the criminal justice system are voluminous. This is especially true of criminal recidivism prediction studies.[2] Schuessler (1954) outlines the historical development of such studies from the early 1920's (beginning with the work of Hart, 1923) through the mid-1950's (e.g., Glaser, 1954; Kirby, 1954). Mannheim and Wilkins (1955) review research efforts to about 1953, and Rose (1966) and Gottfredson (1967) summarize research in recidivism prediction through the mid-1960's. Simon (1971) offers a very careful and detailed review of over 40 of the more prominent studies (e.g., Vold, 1931; Ohlin, 1951; Glaser, 1964; Glueck and Glueck, 1950; Mannheim and Wilkins, 1955; Gottfredson and colleagues, 1962 and others). Mannheim and Wilkins (1955) and Gottfredson, Wilkins, and Hoffman (1978), provide brief historical reviews which show the parallel development of such efforts in the English-speaking and European (e.g., Shiedt, 1936; Trunck, 1937; Kohnle, 1938; Meywerk, 1938; Gerecke, 1939; Frey, 1951) literatures; the latter includes some detail concerning developments during the 1970's.

Given the ready availability of these reviews, and the recent update by Gottfredson and Gottfredson (in press), we will not repeat the exercise. Rather, we focus in this section on the identification of specific variables which have been found to have predictive utility across a range of samples and

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1 Portions of this review are adapted from Gottfredson and Gottfredson (1985).
2 Savitz (1965) compiled a bibliography of such studies containing over 600 entries.

studies. We will concentrate on behavioral and demographic correlates; thus, we will largely ignore several extensive research traditions. In particular, research relating to psychological or psychiatric prognostications, tests, or other personality assessments will not be treated. Research concerning the impacts of large-scale social and economic forces (e.g., Ehrlich, 1973, 1974; Forst, 1976; Vandaele, 1978) similarly is not considered.

Past Criminal Behavior. It is a psychological truism that the best predictor of future behavior is past behavior. Not surprisingly, one of the best predictors of future criminal conduct is past criminal conduct; and the risk assessment literature amply supports this fact. From the earliest studies (e.g., Burgess, 1928; Vold, 1931) to the latest (e.g., Palmer and Carlson, 1976; Gottfredson et al., 1978; Schmidt and Witte, 1979; Carroll et al., 1982; Gottfredson and Taylor, 1984) indices of prior criminal conduct consistently are found to be among the most powerful predictors of future criminal conduct.

This generalization tends to hold regardless of the measure of prior criminal conduct used or of specific operational definitions of that conduct. For example, the previous arrest history, the prior conviction history, the record of commitments to jail and/or to prison, the length of "gaps" in the arrest or conviction history (e.g., time free without arrests), the history of prior probation and/or parole violations, the age at first arrest, the number of commitments to correctional institutions, the number of prior court dispositions of any type, and the types of prior offenses all provide examples of variates often found predictive of future arrests or convictions.

The relation changes little whether only men are studied (e.g., Borden, 1928; Tibbitts, 1931; Babst et al., 1971; Kirby, 1954; Glaser, 1955) or if women

are included in the sample (e.g., Brown, 1978; Gottfredson, Wilkins and Hoffman, 1978; Carroll et al., 1982). Restricting the sample only to certain types of offenders, however, appears to reduce the effect. For example, Babst et al. (1972) studied a large national sample of paroled burglars, and observed MCRs relating prior record and parole outcome of from .08 to .14 (depending upon the definition of prior record used). In a study of institutionalized narcotics addicts, Inciardi (1971) did not find prior criminal record to be among the salient predictors of parole outcome. In further support of the truism noted earlier, however, the variable "number of previous treatments for narcotics use" was found predictive.

Prior record is similarly predictive in samples of probationers, who generally exhibit less "criminality" than other samples studied (e.g., Simon, 1971; Monachesi, 1932; Caldwell, 1951). Such variables are found predictive in American, British, and European (e.g., Shiedt, 1936; Trunk, 1937) samples, and for youth (e.g., Mannheim and Wilkins, 1955) as well as for adults.

Age. Information concerning offender age appears consistently to be related to recidivism, although there are contrary examples. Age alone has variously been found positively related to outcome (studies finding that older offenders more often are successful include, as examples, Burgess, 1927; Kirby, 1954; Palmer and Carlson, 1976; Brown, 1978; Schmidt and Witte, 1979), unrelated with outcome (studies finding no, or very little, relation include Borden, 1928; Vold, 1931; Babst et al., 1971; Simon, 1971; Babst et al., 1972; Gottfredson and Gottfredson, 1979), and even negatively related with outcome (e.g., Tibbitts, 1931). When found to be positively related with release outcome, the effect usually is small, although statistically significant in the studies cited. Studies which we have classified as showing no relation actually do show small,

non-significant, but positive coefficients (.004 to about .06 - .08); the significance of the single negative relation noted was not assessed, and inspection of the distribution shows it to be slight and inconsistent (Tibbitts, 1931, pg. 37).

To summarize; the evidence available seems to suggest that age, usually measured at time of release, is positively associated with outcomes, but that the relation is slight, particularly when considered in multivariate contexts. In the literature reviewed, its statistical significance often appears largely to be a function of sample size. Babst et al. (1972) found no zero-order effect for age, but found that the interaction of age with other variables (drug or alcohol abuse and criminal record) was highly significant (although still only marginally predictive).

Many studies have examined the age variable in relation to the onset of noticed (or official) criminal behavior, and here, the evidence is compelling: the earlier the onset of criminal activity, the poorer the prognosis.[3] Kirby (1954) reports a correlation of .21 between age at first arrest and failure on parole; we calculate a contingency coefficient of .14 between age at first committment and failure from data presented by Gottfredson et al. (1978); Mannheim and Wilkins report an adjusted contingency coefficient of .19 between age at first finding of guilt and failure; Simon (1971) reports a phi of .13; and Gottfredson and Gottfredson (1979) report point-biserial correlations of .18 for age at first arrest, .17 for age at first conviction, and .18 for age at

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[3] Unofficial delinquency proxies also have been used. For example, Glaser (1954) reports an MCR of .22 for the relation between the age at which the offender first left home for a period of at least six months and failure on release.

first committment. Although not large, the effect is at least consistent (and is not remarkably smaller than zero-order effects cited above for criminal history variables). When examined in multivariate contexts, the relation usually remains significant, although the unique contribution is small (Gottfredson and Gottfredson, 1979).

Marital Status. Marital status occasionally has been found predictive of recidivism, with single offenders doing more poorly on follow-up (Burgess, 1927; Vold, 1931; Kirby, 1954; Gottfredson and Gottfredson, 1979). The zero-order relations are slight (the correlations are about .15, varying, of course, with the study), and usually, but not always, disappear in multivariate analyses (Gottfredson and Gottfredson, 1979; cf. Kirby, 1954; Palmer and Carlson, 1976). Marital status is colinear with age variables (which are rather more powerful) and with variables which assess release plans (e.g., planned living arrangement). Simon found no effect for marital status, but her sample was very young. In general, the unique contribution of marital status appears modest in relation to the assessment of parole outcomes.

Sex. Most studies reported in the literature have been restricted to samples of males. Those that included both men and women (e.g., Gottfredson, Wilkins and Hoffman, 1978; Gottfredson and Gottfredson, 1979; Schmidt and Witte, 1979; Carroll et al., 1982) either find or report no significant effect for sex. An exception is Brown (1978), in which sex remained statistically significant in a multiple discriminant function analysis. The variable's unique contribution, however, is very slight (see pg. 98). Gottfredson and Gottfredson (1979) systematically studied the effect of sex, and found it to be negligible. In part, this likely is due to the small number of women available for study even when overall sample sizes are large.

Race/Ethnicity. Although some of the earliest studies paid detailed attention to race or ethnicity (e.g., Tibbitts, 1931, studied the zero-order relations between 20 racial and ethnic classifications and parole outcome) few later studies specifically report upon or appear to have examined these variables. Either the variables were not available for study (e.g., Brown, 1978), or investigators appear to have ignored them. It also may be that investigators simply have not reported no-effect findings. Some (e.g., Gottfredson and Gottfredson, 1979) had an expressed goal of developing operationally useful prediction tools, and hence excluded the variable from consideration. In one multivariate study (Schmidt and Witte, 1979), a zero-order race effect failed to reach significance when considered in combination with other factors; in others (Kassebaum, Ward, and Wilner, 1971; Palmer and Carlson, 1976) the effect (substantially diminished) remains significant. Perhaps the best that may be said at this point is that race and ethnicity effects appear to have been understudied in relation to recidivism.

Employment History. Employment history consistently is found predictive of criminal recidivism (although there are exceptions, e.g., Tibbits 1931). The zero-order relations are modest (correlation coefficients of .21, .12, .17 - .14, .17, and .13 - .16 have been reported by Vold, Borden, Kirby, Simon, and Gottfredson and Gottfredson, respectively; contingency coefficients of .25 - .22, and .12 were observed by Mannheim and Wilkins and by Gottfredson et al.; and an MCR of .17 was reported by Glaser). In general, variables which measure the stability of employment appear to be modestly more predictive than do other means of assessing employment history (Simon, 1977; Gottfredson and Gottfredson, 1979). Employment history variables generally retain a unique contribution in multivariate analyses, but the effect is small. Occupational classifications

may be somewhat more powerful (Palmer and Carlson, 1976).

Offense. The nature of the committment offense, and in some studies, the nature of offenders' offense histories, consistently is predictive of criminal recidivism: those who offend against property are poorer risks than are those who have offended against persons (Vold, 1931; Kirby, 1954; Mannheim and Wilkins, 1955; Babst et al, 1971; Palmer and Carlson, 1976; Brown, 1978; Gottfredson, Wilkins, and Hoffman, 1978; Gottfredson and Gottfredson, 1979; Schmidt and Witte, 1979; Carroll et al., 1982; cf., however, Simon, 1971). Brown (1978) systematically studied a number of offense classification schemes, finding that a simple "person/property" dichotomy was about as efficient as any other. It is such a measure that most commonly is used, although some (e.g., Gottfredson et al., 1978; Gottfredson and Gottfredson, 1979) have found specific combinations of property-type offenses to be predictive. Zero-order relations typically observed are in the .15 - .25 range (cf. Mannheim and Wilkins, 1955; Gottfredson et al., 1978; Gottfredson and Gottfredson, 1979). When considered in multivariate models, offense type typically does make a unique, but small, contribution to explained variation in outcome (cf. Kirby, 1954; Brown, 1978; Schmidt and Witte, 1979; Gottfredson and Gottfredson, 1979; Carroll et al., 1982).

Alcohol and Drugs. A history of problematic alcohol use is correlated with recidivism (Vold, 1931; Hakeem, 1948; Ohlin, 1951; Mannheim and Wilkins, 1955; Gottfredson, 1962; Glaser, 1964; Gottfredson and Ballard, 1965; Babst et al., 1972; Palmer and Carlson, 1976; Brown, 1978; Gottfredson and Gottfredson, 1979; Schmidt and Witte, 1979), but the relation is slight. In multivariate models, variables indicative of alcohol use occasionally make small unique contributions (e.g., Gottfredson, 1962; Palmer and Carlson, 1976; Brown, 1978), just as often,

however, they appear to share sufficient variance with other (more highly predictive) variables that no multivariate effect is observed (Schmidt and Witte, 1978; Gottfredson and Gottfredson, 1979).

The evidence with respect to drug abuse, particularly of natural or synthetic opiates, is less mixed. Most studies investigating the issue observe statistically significant, although modest, zero-order effects (e.g., Vold, 1931; Gottfredson et al., 1968; Babst et al., 1971). In large federal samples (e.g., Gottfredson et al., 1978; Gottfredson and Gottfredson, 1979), in extremely large samples based on the Uniform Parole Reports data base (e.g., Babst et al., 1971; Brown, 1978), and in a sizable Michigan sample (Palmer and Carlson, 1976), variables reflective of drug usage do make a modest unique contribution; in one sample, however, drug usage did not remain significant when tested in a multivariate model (Schmidt and Witte, 1979).

Education. Education (variously defined and studied, but most typically measured in terms of attainment) seems to be associated with parole outcomes in the bivariate case (e.g., Vold, 1931; Kirby, 1954; Glaser, 1955; Babst et al., 1971; Gottfredson, Wilkins, and Hoffman, 1978; Gottfredson and Gottfredson, 1979).[4] Multivariate models suggest that the unique contribution to explained variance made by education is negligible (e.g., Kirby, 1954; Gottfredson and Gottfredson, 1979).

Other Predictors. Dozens of other variables have been examined for association with recidivism, usually providing support for the null hypothesis.

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[4] However, Simon (1971) observed no zero order relation between education and outcome. A measure of school conduct, however, was modestly correlated with recidivism.

For listings of many of these, see Mannheim and Wilkins (1955), Simon (1971), or Gottfredson and Gottfredson (1979). A few have shown sufficient promise to mention here, although they often are supported by few studies. A record of punishments (reprimands, reports, misconduct citations, etc.) received while incarcerated has proven prognostic on occasion (e.g., Borden, 1928; Tibbitts, 1931; Vold, 1931; Kirby, 1954; Mannheim and Wilkins, 1955; Gottfredson and Gottfredson, 1979; Carroll et al., 1982). Zero-order relations are low to moderate (.03 - .23 range), but multivariate analyses suggest that the small contribution made is relatively unique. Whether the offender acted alone in the committment offense, or acted with accomplices has been found modestly predictive in some studies (e.g., Tibbitts, 1931; Kirby, 1954); association with criminal gangs appears moderately more predictive (Simon, 1971), and the latter remains predictive in multiple regression framework. A variety of "assessment scales" have proven predictive in some studies (e.g. Burgess' "social types"; see Burgess, 1927; Hakeem, 1948; Ohlin, 1951; or Glaser's (1955; 1964) "social development pattern"), but have proven difficult for others to score reliably.

Community Correlates. Some evidence concerning "community" correlates, variously defined and measured, is available from early risk assessment studies (e.g., Vold, 1931; Tibbetts, 1931; Kirby, 1954; Burgess, 1927; Hakeem, 1948). This evidence is discouraging: it routinely is found that demographic and, more strikingly, behavioral correlates of delinquency or recidivistic delinquency overwhelm "community" correlates. However, it must be noted that little is known concerning just what the "community" variables actually used in some of these studies were. For example, from Kirby (1954) we learn only that "Data ... were gathered and coded [on] ... [some] rating of [the] neighborhood to which [the] parolee moved on release" (pg. 541). Tibbetts (1931) relied on the

definitions of Chicago's urban areas developed by his colleagues at the University of Chicago, and recorded both the "neighborhood" type from which an offender came and to which he returned. However, only about one-third of his sample came from Chicago; cases from other cities were typed based on "some knowledge of the smaller cities of Illinois" (pg. 21).

Other evidence concerning "community" correlates is available from studies conducted in response to the bail reform movement. That movement and subsequent legislation (as outlined in American Bar Association, 1968; Angel et al., 1971; National Advisory Commission, 1973; Freed and Wald, 1974; Goldkamp, 1979) focused research attention on factors deemed legitimate and/or appropriate for consideration in bail and pre-trial detention decisions. Since (until rather recently) assurance of appearance at trial was the overwhelming consideration at this stage of the criminal justice process, a variety of studies examined the relation between a variety of community/contextual factors--focusing principally on social- and familial-environmental influences--and offender behaviors (e.g., Bock and Frazier, 1977; Goldkamp, 1979; Ebbesen and Konecni, 1975; Bynum, 1976; Roth and Wice, 1978; Goldkamp and Gottfredson, 1984; Gottfredson, 1974; Angel et al., 1971; Locke et al., 1970; Clarke et al., 1978). Although the evidence here is a bit more mixed, again it is observed that behavioral correlates overwhelm environmental correlates. This particularly is true when criminal pretrial outcomes are considered: When the criterion is failure to appear for trial, community ties and similar variables can provide predictive advantage.

Ecological/Areal Research

Investigations in this area have differed substantially with respect to their conceptual bases. This brief review focuses on three relatively distinct

research traditions.

Human ecology. The "human ecological" perspective (Park, 1916) developed from the ecological framework successfully used in biology. According to this view, concepts of "ecological niches," "environmental competition," etc., have counterparts in criminology. Processes of urban change and development are seen to be such that particular locales are differentially influenced by large-scale economic and "subsocial forces" (Michelson, 1970), resulting, for some locales, in social disorganization. Thus, Shaw and McKay (1942) observed that delinquency rates were high in areas where physical deterioration also was high, and that delinquency varied inversely with distance from the city center (see also Thrasher, 1927). It appeared that delinquency showed the same "spatial pattern" as did many other pathologies (Faris and Dunham, 1939).[5]

Later work replicated and extended these findings, associating delinquency and/or crime rates with socioeconomic status (Harries, 1979, provides a comprehensive review). Factors related to housing (crowding, vacancies, substandard conditions), employment (unemployment rates, welfare rates), and family characteristics (percent of single- headed households) were found to covary with delinquency rates.

Considerable debate developed concerning whether these results reflected socioeconomic status or "anomie" (cf. Merton, 1957; Gibbons and Jones, 1975). Lander (1954) argued for the latter, and subsequent replications appeared to support this contention (Bordua, 1958; Chilton, 1964; Bates, 1962; Polk, 1957).

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[5] For a review of human ecology, see Morris (1957) or Michelson (1970); for a review of delinquency research from an ecological perspective, see Baldwin (1975, 1979); for a critique, see Taylor (in press).

Gordon (1967; see also Hirschi and Selvin, 1967) later demonstrated that results of several statistical methods had been miscalculated or that the techniques themselves had been misused (often in subtle ways) in much of this research. Thus, Gordon concluded that "when all of these errors are taken into account, it turns out that the association between delinquency and socioeconomic status is quite unambiguously very strong." [6]

As already noted, many sociological (as opposed to biological or psychological) theories of crime causation deal largely with the social environment and its interaction with individuals or groups (Merton, 1957; Southerland and Cressey, 1974; Hirschi, 1969; Cloward and Ohlin, 1960; Matza, 1969; Reckless, 1973; Gibbons and Jones, 1975). Not surprisingly, the ecological/ areal research findings have been important to much of this theory construction. Of course, the association between crime or delinquency rates and social characteristics, although strong and consistent, is (a) not perfect, (b) more than likely operates through several (often unspecified) mediating factors (cf. Willie, 1967; Hirschi and Selvin, 1967), (c) which if specified, are difficult to measure adequately (Meier, 1982; Greenberg, Rohe and Williams, 1984).

One suggestion of how this relation functions was proposed by Shaw and McKay (1942), and tested by Maccoby, Johnson and Church (1958). Shaw and McKay suggested that the distribution of socially maladjusted youth was relatively uniform throughout an urban area, but that modes of controlling (or of failing

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[6] It is important to note, however, that this does not deny the possible co-occurrence of anomie and disorganization. Further, it is not clear whether anomie, socioeconomic status, or both, is most closely related to social disorganization. Finally, Gordon's conclusions are not supported by recent work based on self-report methods (Hindelang, Hirschi and Weiss, 1981).

to control) children varied from community to community. Maccoby et al.'s research supported this hypothesis, and aggregate-level research has identified similar relations between intra- and inter-household "cohesion" factors and delinquency (Schmid, 1960; Quinney, 1964; Glueck and Glueck, 1950; Hirschi, 1969; Dentler and Monroe, 1961).

Positive local forces. A very different conceptual base for understanding spatial variation in crime and delinquency can be found in work that focuses on neighborhood and community qualities. Burgess (1925) suggested that there were three types of social forces operating at the neighborhood level: the ecological, cultural and political. This framework has been used by others to investigate criminal outcomes, and a compelling demonstration of it's utility is Warren's work on riots (Warren, 1969, 1977, 1978). He suggested that neighborhoods vary on three dimensions: (1) the extent of attachment to local community; (2) the degree of informal social exchange among neighbors, and (3) "vertical" ties to the larger community. Warren observed that riot behavior was elevated in neighborhoods lower in social exchange and attachment, and that "counter-riot" activity was elevated in neighborhoods in which neighboring linkages were extensive. Apparently, such neighborhood- level attributes may help preserve social order.

Situational factors. Although little-researched, a third stream of thought has been concerned with the micro-level situational correlates of crime, violent behavior, and recidivism. This work has dealt with physical environmental factors that may create "opportunities" for crime (see Taylor, Gottfredson, and Brower, 1980; Taylor, 1982, in press, for reviews), and social, employment, and family-related stressors. This situational approach, as articulated by Monahan and Klassen (1982), includes family-related stressors (e.g., Straus, 1980),

peer-related stressors (e.g., Davies, 1969) and job-related stressors (Cook, 1975). Following recent trends in personality psychology, Monahan and Klassen suggest that attention to situational variables may greatly enhance power to predict crime-related outcomes, and that current devices may be overly constrained by a "trait" approach.

Summary

It consistently has been observed that, at the aggregate-level, sociodemographic variables are related to delinquency and crime rates. Further, it appears very likely that in addition to, and/or mediating these effects, are social cohesion or community integration factors (Maccoby et al, 1958; Warren, 1969; Schmid, 1960). The inference then might be drawn that social network correlates of delinquency or crime may also be good correlates of post-release adjustment.

Some direct evidence to support this inference is available (Glaser, 1964; Reitzes, 1955). For example, Reitzes found that recidivists as opposed to non-recidivists: (a) have less stable employment upon release, work more frequently in unskilled professions, and are more "occupationally mobile;" (b) have less stable marital and parental relationships; and (c) report themselves as "friendless," but associate more with other offenders, and work more often in occupations likely to involve them in contact with other offenders (bars, gambling houses, etc.). Finally, recidivists were much less likely to join an organization than were non-recidivists. From these few factors, Reitzes built a single Burgess-type scale which allowed differentiation of released offenders with respect to recidivism, concluding that "the adjustment of ex-convicts to law-abiding society depends on the social conditions under which this adjustment

takes place." Clearly, several of these factors identified by Reitzes primarily involve socio-environmental factors. Other, less comprehensive studies also have found these variables predictive of recidivism (Davies, 1969; Waller, 1974; Cook, 1975).

The Neighborhood Perspective

Areal socio-demographic factors are correlated with crime-related outcomes, and these relations obtain even when individual-level characteristics are statistically controlled (Sampson, 1982a, 1982b). If we are to fully understand the nature of these relations, we need conceptual tools to help in deciding (a) the appropriate areal unit(s) to study, (b) which ecological variables theoretically are important, and (c) how these can be best measured. Thus, we have a geographical problem, a conceptual problem, and a measurement problem. We believe that use of the concept of neighborhood may prove useful in providing the needed framework.

The concept has been used widely and contradictorily over the last half-decade. It has been proposed as a fundamental planning unit (Dahir, 1947; Rohe, 1981), attacked as segregationist (Issacs, 1948), treated as a polity (Crenson, 1983; Fredericksen, 1972), and as a basic arena for primary (Cooley, 1902; Gans, 1962) and secondary (Mann, 1970) ties. Not surprisingly, debate has emerged regarding differential use of the term (see Taylor, 1982, for a review; see also Hunter, 1974, 1978; Suttles, 1968, 1972; Keller, 1968; Wellman and Leighton, 1979).

We see three advantages to using a neighborhood perspective for the selection of socio-environmental variables for our purpose. First, neighborhood may be a clearly bounded spatial unit. Second, as defined in Baltimore (Taylor,

Brower and Drain, 1979; Goodman and Taylor, 1983), neighborhoods have substantial ecological integrity, and the areas are recognized by insiders and outsiders alike. Finally, there has been extensive attention given to their social and psychological functions (Popenoe, 1973; Warren, 1977).

Thus, use of the neighborhood concept can help solve the geographic and conceptual problems concerning socio-environmental characteristics we raised earlier. We expect that three classes of neighborhood- related variables will be associated with crime-related outcomes. The first is the nature and extent of local social ties (Fischer et al, 1977; Mitchell, 1969; Granovetter, 1973). It is through local ties that informal sanctions or controls are asserted (Warren, 1963). Thus, pressure to conform with local norms may be mediated by local social networks. Second, local ties are important for instrumental outcomes such as finding a job (Granovetter, 1974) or a place to live, as well as use of local services (Froland and Pancoast, 1979).[7]

The second class of neighborhood variables are those concerned with attachment to locale (Shumaker and Taylor, 1983; Gerson, Stueve and Fischer, 1977; Warren, 1978); i.e., the extent to which residents are involved in local events, and feel positively about and responsible for what goes on in the neighborhood.

The third relevant class of neighborhood variables is the extent, location, and distribution of local services. Conceptions of "community" (Froland and Pancoast, 1979; Gerson et al., 1977; Warren, 1963) rely heavily on these notions

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[7]Of course, the "controlling network" in the neighborhood in which a potential offender lives may have less of a deterrent effect if offenders' targets are outside of the neighborhood.

of the location and type of local service institutions. A reasonable hypothesis is that some local services and community elements may prove supportive (e.g., presence of local churches, places of employment, social service agencies, job location agencies, etc.), while others may pose a risk (bars, liquor stores, concentrations of other offenders, etc.) to offenders.

Propositions Based on the Literature Reviewed

This brief review of three research traditions relevant to the potential impacts of community environments on offenders suggests a number of propositions which we have found useful in guiding our research. First, we observe remarkable consistency with respect to the demographic and behavioral correlates of recidivism. Little in the way of increased predictive power is likely to be achieved unless new ideas are investigated. We propose that the situational approach outlined holds considerable potential promise. It also is clear that given the nature and availability of present predictor and criterion information, we are unlikely to see advances in predictive power based simply on the use of different statistical approaches. The most sophisticated and the simplest statistical methods result in devices of comparable predictive power (Gottfredson and Gottfredson, 1979). Rather, we are much more likely to advance our predictive ability through careful attention to the data themselves. Thus, a second proposition is that increases in predictive utility are likely to be realized through better and more careful measurement.

A third proposition, and one which is supported by considerable empirical evidence, is that areal socioeconomic and sociodemographic factors are related to delinquency rates. Perhaps of more importance, however, is a fourth proposition: that socio-environmental context, independent of socioeconomic or

demographic factors, appears likely to influence delinquency rates and post-release adjustment. If this is so, our reading of the literature suggests a fifth hypothesis: meaningful and ecologically valid geographic or areal units are needed to assess and understand the relations between socio-environmental variables and the crime-related outcomes of interest (e.g., delinquency, recidivism).

Two final propositions are that the concept of neighborhood can help to define the requisite ecologically valid geographic units, and that the neighborhood concept itself suggests three classes of contextual variables (nature and extent of local social ties, attachment to the locale, and potentially supportive or criminogenic facilities) that should be related to recidivism.

These propositions have formed the basis for the research which we report upon in this paper. In the course of our investigations, we have developed several data bases: an offender data file, a neighborhood assessment data file, a criterion data file, information from the 1970 and 1980 census, and a neighborhood resident survey data file.

The Preliminary Study

In 1982, we completed a preliminary investigation of the impacts of community environments of released offenders (Gottfredson and Taylor, in press). Results of that investigation, although limited in scope, were very encouraging. To provide a context for findings we will report later in this paper, and because much of the data we have been using is common to both investigations, we provide a summary of the preliminary work below.

Methods[e]

Offender Data File. Information concerning criminal history, current offense, social history, demographic characteristics and performance after release from imprisonment was obtained for the several hundered subjects of this study in June and July of 1981. Variables of interest were selected to include those which had shown predictive promise in past research on recidivism. Offenders studied were all those released from a period of incarceration in state institutions to any of 90 randomly sampled Baltimore neighborhoods over a two-year period. Double-blind intercoder reliability checks resulted in coefficients for items ranging from 1.00 to .78, and averaging .91.

All offenders released to our sample of neighborhoods between October, 1978 and October, 1980, were assessed in terms of follow-up in January, 1982. Variables of interest were chosen to reveal as much as possible about the outcome of the offender's release, i.e., not only whether there was a re-arrest, but also the nature of that occurrence (date, seriousness, and if known, disposition). F.B.I. rap sheets provided the data, and intercoder reliability coefficients for items ranged from .99 to .85, and averaged .94.

Outcome Measures used in the Preliminary Study

Perhaps the most important variable in a prediction study such as this is the criterion or outcome variable. Several problems with outcome variables commonly used in prediction research have been noted in the literature (Gottfredson and Gottfredson, 1979; Waldo and Griswold, 1979; Blumstein and

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[e]Detailed information concerning methods can be found in Gottfredson and Taylor (1982). Information on the environmental assessment methods can be found in Taylor, Shumaker and Gottfredson (in press).

Larson, 1971). These include: (1) the validity of available data as a measure of release outcome; (2) the inability of dichotomous success/failure criteria to capture the full range of post-release adjustment (and statistical difficulties inherent in the use of a dichotomous criterion); (3) the confounding effect of "time-at-risk" when comparing experiences of offenders who have been in the community for varying lengths of time; and (4) differing error rates depending upon the nature of the criterion chosen (e.g., arrest, conviction, or incarceration).

Seriousness. A major development in the measurement of recidivism has been the effort to improve upon simple success/failure outcomes through assessment of the seriousness of criminal acts. Efforts to measure the seriousness of crimes date from Thurstone (1927), and replications suggest that these judgements remain remarkably stable over time (Coombs, 1967; Krus, Sherman and Krus, 1977). Others, using similar methods, have developed more comprehensive schemes (Sellin and Wolfgang, 1964; Rossi, Waite, Bose, and Berk, 1974; Gottfredson, 1980). Post-release crimes of offenders in this study, both at arrest and later disposition, were recorded using a modification of the scale developed by Gottfredson (1980), resulting in (at least) a rank ordering of offenses. Successes all received the same value on this outcome; zero, the lowest rank. Failures yielded a distribution from 1 to 60.[f]

Time at Risk. The problem of varying "time-at-risk" has been addressed in many ways. Those comparing the success rates of different groups have developed sophisticated methods to adjust for differences in time at risk among groups

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[f]The least serious crimes are things like trespass and littering; the most serious are assaults and murders. For all practical purposes, the scale approximates interval-level qualities.

(Stollmack and Harris, 1974; Turnbull, 1977). When a measure of the success of each individual offender is required, however, the problem is different. The most common method of standardizing follow-up time for offenders released at different times has been to take the shortest follow-up period as the common denominator for all offenders. In our study, offenders were released over a two year period, and follow-up data was obtained for all offenders one year and two months after the release of the last offender.

We decided upon a little-explored method of adjusting time at risk for our sample of offenders. The method allows us to use all the information available for each offender, while simultaneously controlling for time at risk differences. A variable that measured the months between the release date of each offender and the end of our follow-up period was calculated, and used as an independent control variable to partial for variation in post-release performance that could be attributed to differences in time available. Any remaining variation can then be attributed to other offender characteristics or the environmental variables (or, of course, to error).

Time Free. Another consideration is that not all offenders actually were free for the length of time available to them. Failures were rearrested, and in most cases, reincarcerated upon arrest or later at conviction. This information is interesting, however, and we explored its use not as a control, but as an outcome measure. It can be argued that the offenders who recidivate after several months are more successful than offenders who commit new crimes shortly after release. Both are failures, but the offender who had a longer successful adjustment may (in some sense) be considered less of a failure than the other. The third outcome criterion we used, then, is time free. Successes have no value on this variable, since they were not rearrested during our follow-up

period (i.e., time free is equal to time at risk--our control variable). Analyses involving this outcome will tell us if we can predict what kinds of offenders, in what types of environments, will offend quickly.

Time Free and Seriousness. Finally, we experimented with a complex outcome variable that used information concerning the seriousness of post-release crime (if any) as well as time free to commit crime. We combined the seriousness score and time free variables to create this fourth criterion measure. (Again, successes are not considered in analyses using this criterion.) Failures were given a score equal to the seriousness score of their crime divided by their time free in months. Thus, a shorter time free raised an offender's score on this criterion, as did a more serious crime.[10]

Information concerning post-release adjustment was coded, in this preliminary study, from FBI rap sheets made available to us by the Maryland State Police Department.

Physical Environmental Assessments.

A random sample of 90 Baltimore City neighborhoods (38% of all neighborhoods in Baltimore) was selected for study.[11] Subsequently, a 20% random sample of the blocks (defined as both sides of a street-face), with a minimum of four blocks in small neighborhoods, were chosen for on-site

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[10]The question of what ratio of seriousness to time free constitutes the best single index of success can not be answered on the basis of this or previous research.

[11]Almost all of the Baltimore City population lives in 236 recognized neighborhoods. These were defined by Taylor, Brower and Drain (1979) in a manner which recognized the ecological integrity of these areas. Subsequent analysis (Taylor and Talalay, 1981) provided support for the ecological integrity of the neighborhoods as defined.

assessment by teams of trained raters. A total of 1,102 blocks, with an average of over 12 blocks per neighborhood, were assessed using a standardized checklist.

Attributes were included on the checklist if prior empirical or theoretical work suggested that those elements were relevant to crime, crime-related outcomes, or social disorder. Attributes assessed included aspects of the street (e.g., number of dwellings, percent residential vs. commercial street frontage), appearance (e.g., graffiti, litter, vacant housing), land use (e.g., industrial, service, etc.), and social climate (e.g., group size and sex of people "hanging out"). Interrater reliability (of items and of scales which subsequently were developed) was assessed using the intraclass correlation (Shrout and Fleiss, 1979). Most items had acceptable block-level reliability ($r(ic) > .60$), and all items and scales retained for further analysis had excellent reliability at the neighborhood level ($r(ic) > .90$).

Scales Based on On-Site Assessments. To reduce items from the on-site assessments, and as a check on the external validity of items, the environmental variables were correlated with average 1979-1981 neighborhood-level crime rates.[12] Environmental variables that consistently correlated in the hypothesized direction with crime rates were retained for further analysis. Subscales were developed to reflect particular environmental influences on social control. For example, since prior research has suggested that formation of cohesive groups and informal social control are inhibited in areas of high

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[12] Since we were interested in assessing attributes of neighborhoods that could promote or inhibit criminal activity, crime rates were viewed as reasonable measures to use in a preliminary test of item validity. The three-year average was used to meliorate effects of extreme variability over time often observed for crime rates calculated on small areas.

levels of street and foot traffic, as well as in areas of high housing density, scales reflecting these were constructed.

Subscales and items that correlated with crime rates were subjected to principal components analyses to further reduce the dimensionality of the environmental measures. Inclusion of sociodemographic variables indicated that neighborhood racial composition was independent of dimensions based on the environmental assessments (that is, the racial composition measures formed a separate factor). The final analysis we chose to use was based on a 67 neighborhood principal components analysis of on-site assessments alone.[13]

The first component, accounting for 34% of the variance, reflected general neighborhood decay, or, to use the terminology of Hunter (1978; also Lewis and Salem, 1981), social and physical incivilities. Neighborhoods with a high score on this dimension were characterized by the presence of graffiti and litter, vacant houses, and groups of males "hanging out." A general look of decay may signify that area residents are unable or unwilling to maintain their community; thus, the community may be less cohesive and more vulnerable to criminal activity. The second component (13% of the variance) reflected residential vs. non-residential land use. Neighborhoods with a high score on this dimension were characterized by the presence of commercial, industrial, or institutional land use, high automobile and foot traffic, and vacant lots.

Analytic Strategy

In seeking to identify the separable or unique contributions of time available in which to recidivate, offender and environmental characteristics,

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[13] No offenders were released to 23 of the neighborhoods originally sampled.

and the interactions of persons and places, we used analysis of covariance (by regression) methods (Cohen and Cohen, 1975).[14] Since time available was our control variable, it was entered on the first step in each analysis. Optimal clusters of offender characteristic variables were entered on the second step, the environmental decay scale was entered on the third step, and offender characteristic X environmental factor interactions were entered on the fourth step. Thus, one may think of the proportion of variance explained by offender characteristics to represent the "main effect" for personal characteristics net of time available in which to fail. Similarly, results reported for the environmental scale represent the "main effect" contribution of environmental characteristics, net of time available and the personal characteristics.

Inclusion of interaction terms in regression equations is a simple--but sometimes cumbersome--process. One difficulty is that the possible number of interaction terms increases dramatically as variables are added to the equation. In the present case, this difficulty was meliorated through use of "clusters" of offender characteristics (e.g., representing criminal history, social history, financial need and dependency, etc.) and by the fact that we were using a single scale representing environmental incivilities.[15] However, inclusion of interaction terms usually results in a second problem. Since these terms are created from independent variables which are already included in the regression equation (in the usual case), the interaction term(s) and the predictor (main

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[14]Regression analyses are reported even for dichotomous outcomes for purposes of comparability. We are well aware of the limitations of OLS regression in such situations, and of advantages of other methods, such as logistic regression. Given the base rate of our sample, however, we are not seriously disadvantaged through use of simple regression methods.

[15]Theoretically, we are assuming that this scale stands as a proxy for social disorganization or social decay.

effect) variables often are highly correlated. Although this has no deleterious effect on the principal question at hand--the assessment of the statistical significance and magnitude of increments in variance explained (cf. Allison, 1977)--it may render some model parameters (e.g., beta weights) unstable. To err on the side of conservatism, we will not consider detailed specification of models involving interaction terms, and will limit concern to the provision of estimates of the relative contributions (increments in R-sq.) of offender characteristics, environmental characteristics, and the interactions of these, to the prediction of recidivism.

Findings From the Preliminary Study[16]

Tables One and Two summarize results of these analyses. Table One, which addresses the dichotomous arrest/no arrest criterion and the seriousness score criterion described earlier, is based on all cases for which requisite information was available. Table Two, which summarizes findings relative to the time free and the complex time free/seriousness criteria, is based on those members of the sample who in fact were arrested during the follow-up period (for successes, time free and time available--our control variable--are totally confounded).

Tables One and Two About Here

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[16]All analyses discussed are based on arrests as a criterion, since disposition information was missing for many cases.

Table One

Contributions of Effects Regressed on Dichotomous and Seriousness Criteria

Criterion Type	Increment in R-sq.	F-Test
Dichotomous (Success/Failure)		
Predictor Cluster		
o Time Available and Offender Characteristics	.224	F(17,423)= 7.04, p<.001
o Environmental Characteristics	.000	F(1,422)= 0.20, n.s.
o Environment and Offender Interactions	.012	F(5,417)= 1.33, n.s.
o Unmeasured Environmental Effects	.055	F(1,416)= 32.49, p<.001
Total R-sq. = .292; F(24,416)= 7.14; p<.001		
Seriousness Score		
Predictor Cluster		
o Time Available and Offender Characteristics	.246	F(17,423)= 7.94, p<.001
o Environmental Characterisitics	.000	F(1,422)= 0.19, n.s.
o Environment and Offender Interactions	.052	F(5,417)= 6.17, p<.001
o Unmeasured Environmental Effects	.057	F(1,416)= 36.17, p<.001
Total R-sq. = .355; F(24,416)= 9.55, p<.001		

Table Two

Contributions of Effects Regressed on Time Free and Seriousness/Time Free Criteria

Criterion Type	Increment in R-sq.	F-Test
Time Free		
Predictor Cluster		
o Time Available and Offender Characteristics	.140	F(17,264)= 2.42, p<.002
o Environmental Characteristics	.000	F(1,263)= 0.00, n.s.
o Environment and Offender Interactions	.071	F(5,258)= 4.65, p<.001
o Unmeasured Environmental Effects	.043	F(1,257)= 14.89, p<.001
Total R-sq. = .255; F(24,257)= 3.66; p<.001		
Seriousness Score/Time Free		
Predictor Cluster		
o Time Available and Offender Characteristics	.066	F(17,249)= 0.99, n.s.
o Environmental Characterisitics	.001	F(1,248)= 0.30, n.s.
o Environment and Offender Interactions	.133	F(5,243)= 8.05, p<.001
o Unmeasured Environmental Effects	.122	F(1,242)= 43.51, p<.001
Total R-sq. = .322; F(24,242)= 4.79, p<.001		

Since our primary interest was in the environmental factor and its interaction with offender characteristics, discussion of results relative to time available and offender characteristics alone will be quite limited. Time available is a significant predictor of three of the four outcomes considered: the dichotomous measure (R-sq. = .044; $p < .001$); the seriousness measure (R-sq. = .052; $p < .001$); and the time free measure (R-sq. = .045; $p < .001$). Its contribution to the fourth criterion measure, seriousness/time free, is not significant (R-sq. = .002; n.s.).

When considering the dichotomous criterion measure (which is similar to those used in most prediction studies), offender characteristics performed quite well, yielding results of substantially greater power than typically has been observed (inclusion of offender characteristics resulted in an increment in R-sq. of .180). When combined with information concerning time available in which to recidivate, the overall proportion of variance in the dichotomous criterion accounted for was .224 (Table One). Similar results were observed with respect to the seriousness criterion (Table One). When failures alone were considered, and the criterion was either the length of time the offender remained free or the more complex criterion which combined information concerning both time free and seriousness, offender and time available characteristics performed substantially less well (Table Two).

Socio-environmental characteristics. Considered net of time available to fail and offender characteristics, the environmental scale proved not to be significantly associated with any of the outcome measures studied (Tables One and Two). In other analyses, we entered all socio-environmental variables available for study[17] into regression equations controlling only for time available, and observed increments in R-sq. of less than 3 percent regardless

of the outcome criterion considered. In these equations, only the incivilities scale appeared to have any consistent relation with the criterion measures.[18] In and of themselves, then, it appears that the socio-environmental variables we have explored here have little to do with release outcomes.

Person-environment interactions. As we have discussed, there are three general approaches that one could take in attempting to predict recidivism: one could focus solely on characteristics of the offender (a trait or person approach), one could focus solely on the characteristics of the situation to which an offender is released (a situational approach), or one could focus on interactions between offender and environmental characteristics (an interactionist approach). A first indication that this approach has validity would be the finding that different types of offenders perform differently in different types of environments.

Our basic hypothesis is confirmed: interaction terms do add to the predictive power of the regression equations, resulting in increments of 1 to 13 percent of the variance, depending upon the outcome criterion considered (Tables One and Two).

To aid in the interpretation of these interaction effects, we performed median-splits on each cluster of offender characteristics considered, and on the environmental incivilities scale. Typical interactions are displayed in Figures One and Two, which graph interactions for the seriousness criterion considered.

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[17]These included the incivilities scale, the land use scale, and three socio-demographic variables from the only census data available at the time (proportion black population in 1980, 1970 average housing values, and 1970 average rental values).

[18]Hence our choice of that scale for inclusion in the analyses reported here.

From examination of these figures, it is apparent that the nature and extent of the interactions depends not only on the outcome criterion considered, but on the particular class of offender attributes considered as well.

Figures One and Two About Here

Figure One illustrates an interaction term based on offender risk assessed in terms of criminal history: prior arrests and incarcerations as a juvenile and as an adult. As the figure demonstrates, those offenders with an extensive history of criminal involvement ("bad risk" offenders) fail more seriously when released to "bad" environments, and do better if released to "good" environments.[19] Note, however, that "good risk" offenders do <u>better</u> in poorer environments and more poorly in better ones. Such an observation is at variance with an "anomie" theory of criminality (Merton, 1957), which would anticipate that socially disorganized environments would have a deleterious effect on all released offenders. However, we observed no main effect for environment; instead, we observed this apparently counterintuitive interaction.

At this point it is important that we again stress the nature of our criterion measure, and the nature of the "at-risk" characteristics under consideration. For the analyses reported here, the outcome criteria were based on arrests only. At this stage in our research, conviction or incarceration

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[19]Our use of the terms "bad" and "good" environments should be considered simply as shorthand for neighborhoods with high and low scores on the incivilities measure. No pejorative connotation is intended.

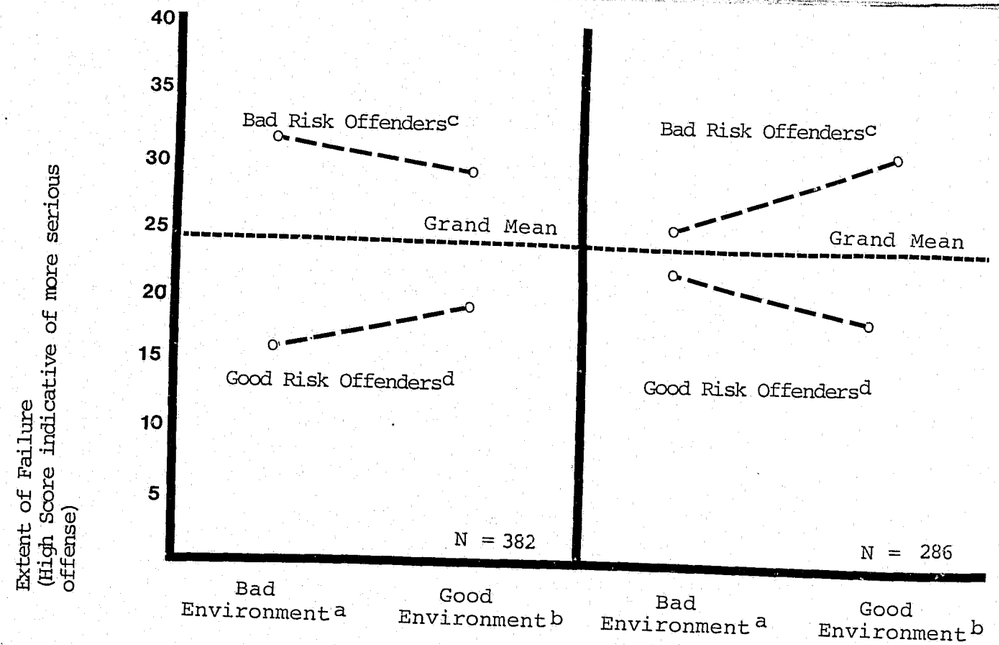

Figure 1

Figure 2

Interaction Effects: Seriousness Criterion

Notes: Figure 1

[a]Above median on Environmental Incivilities Scale

[b]Below median on Environmental Incivilities Scale

[c]Extensive prior record as juvenile and adult. Based on median split.

[d]Moderate prior record as juvenile and adult. Based on median split.

Figure 2

[a]Above median on Environmental Incivilities Scale

[b]Below median on Environmental Incivilities Scale

[c]Post-release situation assessed as poor at time of release interms of financial need, vocational skills, employment status and stability, and wages. Based on median split.

[d]Post-release situation assessed as good at time of release. See note c. Based on median split.

criteria were problematic due to missing information. The "at-risk" characteristics considered in Figure One-- prior criminal involvement--were those which may well be related to surveillance by police and/or by members of the community. In "bad" environments, there may not only be more opportunities for failure, but there might also be considerably more formal--i.e., police-initiated--surveillance. Further, such surveillance might well be targeted on offenders with extensive criminal records. If so, reliance on surveillance by policing authorities could easily result in the pattern observed here: good risk offenders do better, and poor risk offenders more poorly, in socially disorganized environments. In better (more socially organized) environments, there may be less reliance on formal surveillance control mechanisms, and an increased reliance on informal surveillance and control. Accordingly, bad risk offenders (perhaps not known to residents in the same way that they are known to police), do relatively better (they still do quite poorly, but in fact do better in better neighborhoods). Good risk offenders, on the other hand, do somewhat worse in the better neighborhoods. Although they may be "under-watched" by policing authorities, they may be watched by their neighbors. Thus, it would seem that a differential surveillance/control model--which results in a differential arrest/ charging phenomenon--could be invoked to explain the observed interaction.

Figure Two illustrates that the nature of the interaction can change dramatically when different offender risk-characteristics are considered. The figure graphs an interaction term based on an assessment of the offender's post-release situation (made at approximately the time of release). Considered in this scale are assessments of financial need and dependency, vocational skills, and employment status and stability. As the figure illustrates,

offenders released to "bad" environments fail about equally seriously, but "good" environments have a deleterious effect on "bad risk" offenders, and a beneficial effect on "good risk" offenders. To us, these observations seem consistent with an opportunity model; and this seems particularly appealing given that the at-risk characteristics considered are economic ones, and that the effect is somewhat stronger for "bad risk" offenders. Not only may targets be more appealing in better neighborhoods, but agents of formal control may be less apparent--enhancing perceived opportunity. It may be too, that a different sort of differential surveillance model is operating. In poorer environments, policing authorities may concentrate attention on offenders who are at-risk due to prior criminal involvement (e.g., Figure One). However, offenders who are at-risk due to financial dependency and other economic considerations may be less salient in poorer environments, but considerably more salient--and particularly to neighbors--in better environments. Thus, we may be observing a differential surveillance effect, but here the effect may operate through informal, rather than formal mechanisms.

To this point, our discussion has focused on selected, measured aspects or characteristics of neighborhood environments which were deemed likely to have an impact on recidivism (although as we have stressed, most of the measures used were crude proxies for the concepts of interest). This second approach will ask whether the neighborhood environment as a whole (but net of those characteristics which we already have assessed) has some impact on recidivism.

The general approach which we followed has been outlined by Bielby (1981) and Heise (1972). The inclusion of 66 dummy variables (since there are a total of 67 neighborhoods in the sample) in a regression equation is cumbersome and the equation quickly becomes unwieldy. Accordingly, we followed a two-stage

model to develop a neighborhood variable or "sheaf coefficient" (Heise, 1972). Twelve neighborhoods contained but a single offender; these served as the reference group in a vector of dummy variables classifying the remaining 55 neighborhoods. These dummy variables were then regressed on recidivism. Resulting regression coefficients thus represented the adjusted mean difference in recidivism between each neighborhood and the reference neighborhoods. We then used these coefficients as one variable in a standard regression framework by assigning each neighborhood the regression coefficient for its dummy variable and repeating the earlier regression. This required use of only one additional variable (rather than 66). Results are given in Tables One and Two: inclusion of these unmeasured neighborhood effects on the final step resulted in increases in R-sq. of from 4 to 12% over and above the increases provided by the measured neighborhood characteristics and their interactions with offender characteristics.

Of course, the interpretation of this finding is difficult since, by definition, we do not know to what to attribute the effect (other than to neighborhood differences). It is interesting to note, however, that the contributions provided by the unmeasured characteristics follow the same general pattern as that provided by the interaction effects of the measured characteristics, becoming larger when more complex outcomes were considered.

Summary and Limitations of the Preliminary Study

Results of this preliminary investigation were encouraging. As hoped, we were able to increase predictive power through the inclusion of environmental characteristics. In general, these increases were principally due to interaction effects of environmental and offender characteristics. The observed

effects were statistically significant, and also appeared theoretically meaningful, particularly from an interactionist perspective. Person-environment interactions appeared most promising when criterion variables were more complex than simple success/fail dichotomies. Indeed, when very complex criteria were used, person-environment interaction effects exceeded main effects for offender characteristics in magnitude. Finally, it is clear that our relatively crude assessments have failed to fully capture the variation in neighborhood characteristics associated with criminal recidivism. Considerable environmental variation remains to be measured if we are to understand the nature of the observed person-environment interactions.

We must note some limitations to the research that we have presented thus far. First, we were unable (because 1980 census materials were substantially delayed in release to researchers) to adequately assess the effects of socioeconomic and demographic variables on the relations observed and outlined above. The careful examination of these effects to be critical. Since the ecological literature suggests that the effects of socioeconomic and demographic variables (considered on an areal basis) are likely to be substantial, and since these factors are known to covary with other environmental characteristics (such as those we assessed in this preliminary study), it is crucial that we attempt to examine the effects of environmental characteristics net of socio-demographic characteristics. The problem may be stated simply: socioeconomic and demographic characteristics are known to covary with crime-related behaviors. Concepts such as social networks, cohesion, incivilities, etc., are hypothesized to covary with crime-related behaviors, and appear to. Finally, social and demographic variables also are known to covary with these concepts of social cohesion and incivility. The research question is whether the concepts of

cohesion, networks, incivilities, etc., are related to crime-related behaviors beyond their relation to socioeconomic and demographic characteristics.

Second, the environmental characteristics which we were able to measure in this study were limited to observable physical characteristics. It can be argued (and we argue strongly in the early pages of this paper) that of the relevant neighborhood concepts, those measured here are less likely to have predictive power than are others. Variables assessed here stand only as crude proxies for things which one would prefer to measure more directly, such as the nature and extent of local social networks, social cohesion, and attachment.

A More Complete Study

The research we report in this section originally was designed to overcome each of the limitations to our preliminary study. In this section, we describe the development of measures based on the 1980 census and on an extensive survey of community residents in many of the neighborhoods studied.

Of the original sample of 90 neighborhoods selected for the on-site physical assessments, only 66 could be sampled in accord with requirements of a separate community crime prevention study (2 neighborhoods had to be omitted because the neighborhood leaders would not cooperate with the research plan, and 22 had to be eliminated because they were too small to accomodate the desired sampling strategy). Neighborhoods in the final pool varied widely with respect to race (99% white to 99% black), income (poverty rate of 2% to a poverty rate of 45%) and crime (for example, robbery rates per 100,000 persons range from 2,957 to 236). Sampling and survey procedures are described in detail in Taylor, Gottfredson and Shumaker (1984). The final sample consisted of 1,406 (88%) telephone interviews, and 216 (12%) face-to-face interviews. Completed

interviews were obtained from 1,622 of the initial 2,216 cases assigned, for a response rate of 73.2%. The sample of respondents: are 72% homeowners and 28% renters; are 33% men and 67% women; have a median income of between $20,000 and $25,000; and have children or teenagers living at home (51%).

Survey Scale Development.

The survey of neighborhood residents asked a broad range of questions about local social dynamics, aspects of residents' attachment to the locale, place dependence, territorial attitudes, comparisons of the neighborhood vis a vis others, confidence in and expectations for the neighborhood, knowledge of the neighborhood, its features and organizations, responses to crime and other forms of social threat, perceptions and fear of crime and neighborhood disorder, and restriction of activities. For most of the issues considered, several questions were asked to ensure reliability of response.

Rather than relying on single questionnaire items, the structure of responses was reduced through a series of factor analyses designed to allow us to construct reliable scales to assess each of the constructs mentioned above. Detailed information concerning the scales created is available in Taylor, Gottfredson, and Shumaker (1984). In general, principal components factor analysis (with varimax rotation) was used to reduce the item pool, and component scores used to construct scales. In general, resulting scales have excellent internal consistency reliabilities.

The following section is included in the hope that a few examples may help give a flavor of what these scales consist of, and the manner in which they were developed.

Local Social Involvement

Our survey asked a broad range of questions about local social dynamics: presence of local friends, acquaintances and relatives; awareness of and membership in various types of local organizations; and instances of assistance and friction between neighbors all received attention. These social network items were submitted to principal components analysis (throughout, we have used varimax rotational procedures), and four components were extracted (all having eigenvalues > 1.0), which together account for better than 60% of the variance available in this set of questionnaire items. Results are given in Table 3.

Table 3 About Here

The first component appears to reflect trust among residents. Neighborhoods with a high score on this component are those in which residents have done things for one another which imply confidence and trust, such as giving a neighbor a key, asking a neighbor to take in mail, or asking a neighbor to watch the house during an absence. For such favors to be shared, some minimal level of trust must exist. Correlated with such confidence is membership patterns in local neighborhood organizations. Neighborhoods where trust is higher are also those in which a greater proportion of respondents belong to the local neighborhood or improvement organization. This bond of shared membership implies further shared understandings, allegiances, and concerns among residents. Such sharing of interests and background also is implied by more respondents reporting having friends in the neighborhood.

Table 3

Principal Components Analysis of Social Network Variables

Variable		Component I	Component II	Component III	Component IV	Communality h^2
(Q7AM)	Proportion with relatives in neighborhood	-.06	.68	.24	.21	.57
(Q8AM)	Proportion with friends in neighborhood	.56	.32	-.11	.09	.44
(Q8M)[a]	Average number friends in neighborhood	.28	.66	-.03	.15	.54
(Q23A$M)	Proportion know about neighborhood organization	.61	.04	-.39	.07	.53
(Q23B$1M)	Proportion know about local churchgroups	.23	.52	-.08	.00	.33
(Q23C$1M)	Proportion know about local PTA	-.10	.50	.08	-.52	.53
(Q23D$1M)	Proportion know about local youth groups	-.02	.80	.16	-.09	.68
(Q23A$2M)	Proportion belong local neighborhood organization	.60	-.36	.06	-.17	.52
(Q28AM)	Proportion kept watch neighbors house	.73	.25	.26	-.34	.78
(Q28BM)	Proportion have arranged mail take-in	.78	.31	.09	-.21	.75
(Q28CM)	Proportion have given neighbor key	.84	.21	-.04	.04	.75
(Q48AM)[b]	Proportion have run shopping errand	.22	.32	.76	.21	.78
(Q48BM)[b]	Proportion have visited inside neighbor's house	.78	-.08	.22	.20	.71
(Q48CM)[b]	Proportion have argued with neighbor	-.19	.17	-.13	.72	.60
(Q48DM)[b]	Proportion have borrowed tools	.67	-.09	.05	.01	.46
(Q48EM)[b]	Proportion have worked together on appearance	.03	-.01	.89	-.07	.79
(Q48FM)[b]	Become annoyed with neighbor	.05	.09	.27	.76	.67
(47M)[b]	Proportion known by face or name	.54	.33	.18	-.19	.47
Lambda		5.01	2.57	1.72	1.60	
Variance Explained (%)		27.9	14.3	9.6	8.9	

Notes. a = excludes from average count persons who indicated they had no friends in the neighborhood.
b = these questions were asked explicitly and only with reference to the street block.

I = trust (DOHLPSAG)
II = ties (ORGBELAG)
III = instrumental helping (BLKHLPAG)
IV = negative social climate (BLKNEGAG)

Reliability (assessed via coefficient alpha) for the scale constructed of items which load on this component (>.40) is .86.

The second component seems to reflect social ties. Neighborhoods with high scores on this component are those where respondents were aware of many different types of local organizations (e.g., PTA, church, and youth-oriented groups), where large numbers of local friends are reported, and where many respondents have relatives living nearby. These patterns of ties and awareness do not necessarily imply intimacy or shared confidence among neighbors. Coefficient alpha for items loading on this scale is .68.

Component III reflects local instrumental helping. Neighborhoods with a high score on this component contain residents who report that they have helped or worked with other residents on the block. Although these items reflect a willingness to assist and cooperate, they do not imply shared trust. Coefficient alpha for the scale constructed from the two items loading heavily on this component is .74.

Component IV appears to reflect on-block friction. Neighborhoods where residents have "tangled" with other neighbors on the block, or been bothered by the opinions or activities of these neighbors, would score high on this component. However, coefficient alpha for these items is only .46.

Attachment and Territorial Functioning

Survey respondents were asked about several aspects of their attachment to the locale. Both standard items (e.g., "feel neighborhood is home vs. just a place to live") and items relevant to place dependence were included. Finally, we included items reflective of territorial attitudes. Results of our principal

components analyses of these items are reported in Table 4.

Table 4 About Here

Component I appears to reflect territorial responsibility and how the current neighborhood compares to prior neighborhoods in which respondents have lived. Neighborhoods with a high score on this component are those whose residents feel a strong sense of territorial responsibility for what happens on the block and elsewhere, are satisfied with their neighborhood, feel it compares favorably to their last place of residence, and feel that they exercised choice in moving to their current location. Coefficient alpha for items loading on this component is .84.

Component II is the dimension most clearly reflecting attachment to place. The item with the highest loading on this component is that which has most widely been used as a measure of attachment: feeling that the neighborhood is "home" vs. "just a place to live." Neighborhoods with high scores on this component have stable residents, who have moved little in the past and expect to be where they are now five years in the future. Respondents with a high score on this dimension also report a strong sense of community, and of being attached to both the block and the neighborhood. Coefficient alpha for the items loading on this scale is .90.

The third component reflects current comparisons of the neighborhood vis a vis others. Neighborhoods with a high score on this component contain residents

Table 4

Principal Components Analysis of Attachment Variables

Variable		Component I	Component II	Component III	Communality h^2
(Q6M)	Overall Satisfaction	.71	.21	.48	.77
(Q9M)	Proportion expecting to live there in 5 years	.19	.58	.58	.71
(Q10A & B)	Serious about moving out	-.37	-.39	-.53	.56
(Q11M)	Liking of current residence compared to prior	.67	.12	.41	.63
(Q12M)	Perceived choice in moving to current residence	.70	.14	-.01	.51
(Q13A)	Average number moves in past five years	.07	-.74	-.27	.62
(Q14M)	Feel part of neighborhood (vs. just place to live)	.32	.80	.15	.77
(Q15M)	Strength of perceived sense of community	.37	.78	.05	.75
(Q16M)	Proportion thinking <u>other</u> neighborhoods more attractive	.11	-.17	-.82	.72
(Q17)	Strength off-block responsibility	.79	.29	-.18	.75
(Q45)	Strength on-block responsibility	.64	.24	.27	.54
(Q18)	Level of attachment to neighborhood	.59	.65	.16	.79
(Q44M)	Level of attachment to block	.38	.74	.34	.80
	Relative safety of block and neighborhood*	.49	.19	.63	.67
Lambda		6.85	1.55	1.19	
Variance Explained (%)		48.9	11.1	8.5	

Note. * is actually a scale. A person with the highest possible score on this scale would indicate that his/her block is safer than other blocks in the neighborhood, and that his/her neighborhood is safer than other nearby neighborhoods. A person with the lowest possible score would think that his/her block is less safe than other blocks within the neighborhood, and that his/her neighborhood was less safe than other, nearby neighborhoods. Block sentiments are nested within neighborhood sentiments. Thus the middle scores on the scale go to respondents who think that their neighborhood is as safe as surrounding neighborhoods, but have varying opinions regarding the relative safety of their block (vis-a-vis other blocks in the neighborhood).

who think their neighborhood is more attractive and safer than others, and who are not seriously contemplating moving from the neighborhood. The reliability coefficient for items loading on this scale is .78.

Neighborhood Confidence and Expectations

We developed a five-item scale concerned with ratings of and perceived changes in neighborhood appearance and overall quality. With respect to the former, respondents estimated the overall condition of homes in the neighborhood, and also indicated whether the appearance of the neighborhood has gotten better, stayed the same, or gotten worse during the time he or she has lived there. Respondents also rated overall neighborhood quality (using a self-anchoring ten point scale) as it is currently, as it was two to three years ago, and as it will be two to three years in the future. A scale composed of these items was constructed by creating and summing standard scores for items. The reliability coefficient for the resulting scale is .90.

Neighborhood Knowledge

Two ordinal items reflecting an awareness of neighborhood features were combined to form one general scale reflecting knowledge of the neighborhood. the scale (created by summing standardized scores) has a reliability coefficient of .75.

Response to Crime and Threat Scales

We constructed seven scales from survey items that appear to reflect various types of potential community responses to crime and threat. Items included in each scale, as well as the reliability of each scale, are given in Table 5. Our informal social control scale measures the predisposition to

intervene in relatively non-serious but annoying incidents such as late night noise and vandalism. Our post-hoc informal response scale is concerned with informal, resident-initiated responses to a (hypothetical) rash of burglaries on the home block. Awareness of active organizations is the proportion of respondents in a neighborhood who are aware of an active, problem-oriented neighborhood organization involved in activities like crime prevention, neighborhood clean-up, etc. A responding to break-in scale assesses predisposition to intervene and solicit help from neighbors in the event a break-in appears to be in progress. A fear scale uses the standard National Crime Survey items, repeating them for block as well as neighborhood; it also includes a "fear of retaliation" item, and an "awareness of dangerous places" item. Finally, a restricted activity scale measures the extent to which people stay in more, or go out less frequently, due to a perception of vulnerability.

Table 5 About Here

We believe that several of these items are related to a larger concept of resistance to disorder, and that several are related to a more passive accommodation to disorder. Examination of the zero-order neighborhood-level correlations among these items provides suggestive evidence concerning these more general response strategies. Fear and behavioral restriction are significantly related ($r = .46$; $p < .001$), in support of our notion of an accommodation dimension. Informal social control correlates with post-hoc responses to crime ($r = .66$; $p < .001$), awareness of active organizations ($r =$

Table 5

SCALE (PROPERTIES)	ITEMS	WEIGHT
	RESISTANCE TO DISORDER	
Informal Social Control (Reliability = .832): SPRYNOIS		
	(Q52A) Suppose some kids were spray painting a building on your street. Do you think any of your neighbors would tell the kids to stop? (No; Yes)	1
	(Q52B) Do you think any of your neighbors would get another neighbor's help to stop the kids from spray painting? (No; Yes)	1
	(Q54A) Suppose some teenagers around 15 or 16 years old were shouting and making a loud disturbance on your street around 11:00 at night. Do you think any of your neighbors would tell them to stop? (No; Yes)	1
	(Q54B) Do you think any of your neighbors would get another neighbor's help to stop the teenagers from making noise? (No; Yes)	1
Post-Hoc, Informal Responses to Crime (Reliability = .770): POSTHOC		
	Now suppose that there was a string of burglaries, say two or three that occurred within a few weeks of one another on your block. Do you think you and your neighbors on the block would:	
	(Q57A) Talk about the problem? (No; Yes)	1

TABLE 5 (CONT'D)

SCALE (PROPERTIES)	ITEMS	WEIGHT
	(Q57B) Organize a system to watch each other's houses? (No; Yes)	1
	(Q57C) Talk to a local neighborhood organization about the problem? (No; Yes)	1
	(Q57D) Call the police to get better advice on how to protect property? (No; Yes)	1
	(Q57E) Buy security devices? (No; Yes)	1
Awareness of Active, Local Organizations: Q24M		
	(Q24) Do you know of any local organizations or groups where people from your neighborhood get together to work on the kinds of problems we've mentioned earlier like crime, vandalism, vacant housing, trash, or teens hanging out? (No; Yes)	
Organized CCP Activities (Reliability = .702): ORGCCPAG		
	I'm going to read a list of activities or concerns that local groups or organizations might have encouraged or been involved in during the past two or three years. Tell me whether or not the group we have been talking about has been involved in each activity:	
	(Q24D) Encouraging neighbors to help each other prevent crime through such things as block watch, neighborhood watch, citizens on patrol, and so on? (No; Yes)	.82
	(Q24E) Trying to get better police service or more police protection? (No; Yes)	.82

SCALE (PROPERTIES)	ITEMS	WEIGHT
Responding to a Break-In (Reliability = .920): BRKIN		
	Suppose a suspicious person was trying to break into a neighbor's home.	
	(Q53A) Do you think any of your neighbors would personally try to stop the person? (No; Yes)	1
	(Q53B) Do you think any of your neighbors would get another neighbor's help to try to stop the person from breaking into the house? (No; Yes)	1
	ACCOMMODATION TO DISORDER	
Fear (Reliability = .868): BIGFEAR		
	(Q29) How safe would you feel being out alone in your neighborhood during the day? Would you feel very safe; somewhat safe; somewhat unsafe; or very unsafe?	1
	(Q30) How safe would you feel if you were out alone at night in your neighborhood? Would you feel very safe; somewhat safe; somewhat unsafe; or very unsafe?	1
	(Q32) Are there any specific places in your neighborhood that many people try to avoid because they think these places might be dangerous? (No; Yes)	1
	(Q49) How safe would you feel being out alone on your block during the day? Would you feel very safe; somewhat safe; somewhat unsafe; or very unsafe?	1
	(Q50) How safe would you feel being out alone on your block at night? Would you feel very safe; somewhat safe; somewhat unsafe; or very unsafe?	1

SCORE (PROPERTIES)	ITEMS	WEIGHT
	(Q56) Do you think if a neighbor told the teenagers to stop making noise that these teenagers would hurt your neighbor, damage his or her property, or anything like that? (No; Don't Know; Yes)	1
Restriction of Activity (Reliability = .909): RESTRCAG		
	Up to now we've talked about what you and your neighbors might do in a number of situations. Now I'd like to ask you what kinds of things you or someone in your house has done to protect you, your household, or your property.	
	(Q58D) Are the people in your house less willing to go out at night than they used to be? (No; Yes)	1
	(Q58E) Do the people in your house go out alone less frequently then they used to? (No; Yes)	1

Notes. Scales in which items are weighted "1" are based on standardized scores (Z scores) which were then added up. Other scales were built using principal components analysis; value shown is variable loading.

No reliability is shown for the item that reflects awareness of CCP activity because the scale included only one item.

.32; $p < .01$), and awareness of active community crime prevention initiatives ($r = .24$; $p < .10$), providing support for our notion of a resistance dimension.

Other scales also were developed: the reader is referred to Taylor, Gottfredson, and Shumaker (1984) for details. For example, scales were developed which assessed residents' perceptions of physical and social problems confronting the neighborhood, and a few "mega scales" were created by combining some of the scales noted above (e.g., to provide an overall assessment of social climate).

Census Data

The 1980 Census of Population and Housing was collected in April, 1980, for all individuals and households in the United States. Two types of questionnaires were used. The "short form" went to approximately 80% of all households, and included questions on household size, race, tenure (own or rent), estimated house value, contract rent, number of rooms, and a small number of other housing-related variables. The "long form" went to the remaining 20% of the population, and asked detailed information concerning employment status, education, income, commuting time, and many other socio-economic variables.

Short form questionnaires (combined with the long forms) comprise a full census, and these data are available at the block level. Long form questionnaires, on the other hand, provide estimates for the entire population; these are available only at the block-group level. A block-group is a cluster of from one to nine block groups in any census tract.

The allocation of census data into neighborhoods requires approximation in some cases. Data available at the block level generally did not prove to be a

problem, since individual blocks usually were allocated in toto to individual neighborhoods. However, a great deal of important information is only available at the level of the block-group, and in many cases, neighborhood and block-group boundaries do not coincide. It would be incorrect to aggregate the long form data at the block level, because the small number of observations would render the estimates imprecise. Aggregation at the block-group level, however, allows estimation of the appropriate counts at a level that is small enough to provide geographic differentiation, but large enough to provide statistical validity. (Although supression--refusal of the Bureau of the Census to report data for a particular table if numbers in one or more cells of the table are so small that particular individuals or households potentially could be identified--is conceivable at the block-group level, we encountered little such problem for the variables of interest.) Consequently, we had to develop procedures to allocate block-group tallies into neighborhoods.

For example, educational information was available only at the block-group level. Suppose that a particular block-group had to be allocated to two separate neighborhoods, and the variables of concern are the number of individuals over age 25 with a college education. Our task was to determine which fraction of this group should be allocated to neighborhood A and which to neighborhood B. Our procedure involved calculating the precentage of the population over 25 in each neighborhood from the block data, and then to allocate that percentage of those in the block-group count of persons with college educations to the neighborhoods. Thus (for example) if 75% of people over age 25 live in neighborhood A and 25% in neighborhood B, we would allocate 75% of those in the block-group count of persons with a college education to A, and 25% to B. Similar calculations were performed on all other variables

available only at the block group level.

These procedures provide an approximation of the numbers of individuals and appropriate percentages in given categories. However, they assume that block groups are homogeneous; that is, that the variables examined were evenly distributed over the blocks in the block group. If (in the example used above), college-educated people liven on only one of the blocks in the block-group, then they should have been allocated precisely to the neighborhood in which that block was located. Our procedures, of course, would have allocated some of them to a different neighborhood, based on the proportion of the population over the age of 25. Unfortunately, we have no information which allows us to estimate the extent of this type of error. On the other hand, block-groups are small, and we have every reason to believe that any allocation errors made also are small. Furthermore, errors of this type may cancel each other; i.e., they may offset one another if adjoining areas are considered. (One way we attempted to check for errors of these sorts was to examine block and block-group allocations of the same variables (e.g., population by race). We spot-checked neighborhoods on these two approaches to obtaining the same number, and they matched very closely.

Scales and Variables Based on Census Data

Others (e.g., Shevky and Bell, 1955; Hunter, 1974) have suggested that urban residential locales differ from one another on three underlying dimensions: economic status, life style, and race or ethnicity. Each of these dimensions is hypothesized to consist of a variety of variables which, taken together, determine the area's value with respect to the dimension of interest.

Economic Status. Neighborhoods may, of course, vary with respect to the

amount and type of economic resources available. Typically, neighborhoods with more economic resources will have higher housing values, higher household income, and residents with higher educational levels. We used the following variables to attempt to define this factor:

- House value percentile score. This variable transforms raw housing prices into a percentile score ranging from 0 to 100. Thus, a neighborhood score of 50 indicates that 50% of the houses in the city are at or below the average house price in that neighborhood, and a score of 80 means that 80% of the houses in the city are at or below the neighborhood's average price.
- Household income percentile score. This variable is like that above, except that average household income was used instead of average house value. The transformation allows the assessment of each neighborhood relative to all others in the city.
- Status employment. This variable represents the sum, in percentage terms, of a neighborhood's labor force that is in either white collar or managerial/professional occupations.
- Education. This is represented as the percent of a neighborhood's adult population that has at least completed high school and obtained a degree.

Lifestyle or "familism". A second way that neighborhoods may differ is in terms of a lifestyle or "familism" dimension. Such a dimension contrasts areas where homeownership, married couples, and children are salient with those where renters, working women, and single or non-married households are salient. We have selected the following variables as representative of this dimension:

- Percent of population from zero to five years of age;

- Percent of population from six to thirteen years of age;
- Percent of households which are "married couple" households; and
- Percent of housing units which are single-unit structures (as opposed to multi-unit, and therefore probably rental).

Race and ethnicity.. Race and ethnicity represent the third dimension on which neighborhoods have been held to differ. We used two variables to attempt to identify this factor:

- Percent of the total population who are black; and
- Percent of the total population who are "other" (e.g., neither black nor white). In Baltimore, these people predominately are Korean, Hispanic, or Amerindians.

These indices were created based on both the 1970 and the 1980 censuses, and change scores (created by subtracting each neighborhood's 1980 score from the 1970 score) also were created. In an effort to provide empirical validation for the three theoretical constructs identified above, a series of principal components analyses (using varimax rotational procedures) were conducted. The status dimension, appeared precisely as predicted, and includes house value, income, type of employment, and educational level. The second component, however, does not completely conform to expectation. Rather than reflecting a lifestyle or "familism" dimension, the scale appears to reflect stability. It does include married couples, one unit structures and homeownership, but does not include the two "children" variables. The latter load on a third component, which does include the proportion of black population (but not the "other" races). Thus, this dimension appears to reflect race and youth, rather than

ethnicity alone.

Because of the statistical approach taken, these three factors or dimensions are independent of one another; thus, a neighborhood may be high (or low) on any given dimension, and have virtually any score on either of the other dimensions.

Outcome Data

Because the State Police failed to provide FBI Rap sheets for several hundred subjects originally planned for study in our preliminary investigation, follow-up information was re-coded for all offenders using "rap sheets" available through the State Division of Parole and Probation. Thus, the outcome information data source for the analyses to be reported here, and those reported above, differ. Because of differences in format and information available, information concerning the seriousness of recidivistic acts could not be coded.

Sample Attrition

In this study, sample attrition has occurred in three ways. First, some of the 1,033 offenders originally identified as having returned to one of the 90 Baltimore City neighborhoods sampled and assessed later were found not to have returned to the designated neighborhood (that is, the Parole and Probation headquarters office records were incorrect). This was the case for 235 (23%) of the original sample. Second, follow-up information for 179 offenders originally sampled (17.3%) could not be obtained due to errors or changes in identification numbers, or other problems of this sort. Third, sample attrition occurred based on differences in the neighborhoods studied in the two projects we are attempting to combine (132 offenders--12.8%--were so affected). The offenders

originally were sampled if released to one of 90 Baltimore City neighborhoods for which we had made on-site assessments of physical environmental characteristics. These 90 neighborhoods also formed the basis for the study in which the survey information to be used here was collected. As described below, however, only 66 of the original 90 neighborhoods could be studied given the requisite sampling procedures for that study. Finally, it was found that no offenders were released to 23 of the neighborhoods originally sampled. Thus, analyses based on survey information are limited (in this study) to 57 neighborhoods and 487 offenders. Analyses based on the physical assessments are based on 619 offenders and 67 neighborhoods.

For all practical purposes, this attrition appears to have been random; that is, no differences in offender characteristics were discovered between offenders removed from and remaining in the sample. Differences in neighborhood characteristics were encountered: the 23 neighborhoods to which no offenders were released during our project period generally were more socially cohesive, of higher socio- economic status, and were lower on the incivilities measure developed.

Findings

Analyses reported here are based on three outcome criteria: a simple success/failure measure (arrest/no arrest during follow-up period), the proportion of the follow-up period arrest-free, and the number of arrests experienced during the follow-up period. In an effort to examine the stability of any effects observed over the follow-up period, both six and twelve-month (standardized across offenders) periods are investigated.[20] Table 6 provides a summary of individual-level outcomes for three follow-up periods. By the end of

the first twelve months following release from incarceration, over one-half of this sample of offenders had experienced at least one re-arrest; the average offender had experienced 2.16 arrests, and had remained arrest-free about eight and one-quarter months.

Contributions of Offender Characteristics

As shown in Table 7, risk models developed using only information concerning offenders' characteristics provide results very typical of those commonly found in such efforts, and the power of the models is in the mid- to upper-ranges typically observed. In short, we find nothing surprising. Variables commonly found predictive, as described earlier in this paper, are predictive in this sample as well.

Tables 6 and 7 About Here

Contributions of Environmental Characteristics

What of our efforts to identify environmental effects and person-environment interaction effects? We must give an unfortunately brief and disappointing answer: virtually no such effects were observed. Neither any of the census scales, nor any of the carefully constructed survey scales yeilded either main effects or interaction effects when entered (after personal

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[20] Analyses conducted on longer follow-up periods yeild substantively identical results.

TABLE 6

INDIVIDUAL-LEVEL OUTCOMES AT
SIX, NINE, AND TWELVE MONTHS

OUTCOME MEASURE	SIX MONTHS	NINE MONTHS	TWELVE MONTHS
Arrest/No Arrest	.36	.46	.53
Number of Arrests	1.55	1.95	2.16
Months Arrest-Free	4.88	6.70	8.23

TABLE 7
REGRESSION OF VARIOUS INDIVIDUAL-LEVEL OFFENDER OUTCOME VARIABLES
ON OFFENDER CHARACTERISTICS

INDIVIDUAL-LEVEL OFFENDER OUTCOME	B	BETA
Success/Failure (Arrest/No Arrest)		
Predictor Variable		
Number of Offenses as Juvenile	.0059	.0386
Seriousness Score: Property Offense	.0007	.0436
Age at Sentencing: Instant Offense	-.0005	-.1200
History of Drug Abuse	.0883	.1058
Marital Status	-.0683	-.0724
Frequency of Visits by Family While Incarcerated	-.0286	-.0942
Time Served: Instant Incarceration	.0019	.1187
Employment Status on Release	-.9100	-.1366
Total R-sq. = .101; F(8,602) = 8.42; p < .001.		
Time Arrest-Free		
Predictor Variable		
Number of Incarcerations as Juvenile	-.1715	-.1520
Seriousness Score: Most Serious Instant Offense	.0106	.1147
Number of Prior Parole/Probation Revocations	-.2922	-.1205
Instant Offense: Fraud, Forgery, Checks	.3616	.0612
Type of Release (Paroled/Not)	-.1807	-.0491
Employment Status on Release	.2699	.1735
Attitude Toward Supervision	.0753	.1011
Total R-sq. = .157; F(8,602) = 14.03; p < .001.		

TABLE 7 (Contd.)
REGRESSION OF VARIOUS INDIVIDUAL-LEVEL OFFENDER OUTCOME VARIABLES
ON OFFENDER CHARACTERISTICS

INDIVIDUAL-LEVEL OFFENDER OUTCOME	B	BETA
Number of Arrests		
Predictor Variable		
Number of Incarcerations as Juvenile	.0518	.0714
Number of Prior Parole/Probation Revocations	.1396	.0896
Number of Adult Convictions for Property Offenses	.0461	.1168
Seriousness Score: Property Offense	.0002	.0044
Seriousness Score: Most Serious Instant Offense	-.0035	-.0595
Age at Sentencing: Instant Offense	-.0022	-.2102
History of Drug Abuse	.1968	.1036
Type of Release (Paroled/Not)	.1749	.0739
Employment Status on Release	-.1688	-.1694
Total R-sq. = .149; F(9,601) = 11.68; p < .001.		

characteristics, of course) in the models. The encouraging findings reported in our preliminary study completely fail to replicate here. On the basis of these data, then, we can demonstrate no support, at the individual level, for the situational model posited in our introductory section.

Effects of Offenders on Community Environments

Findings concerning the second of our "general research questions," relative to the impacts of offenders on community, are less discouraging. For purposes of these analyses, we have treated the neighborhood survey scales as indices of "community outcomes" (whereas, of course, we treated them as independent, rather than dependent variables, in the individual-level analyses). This seems quite reasonable, and in keeping with the "person-environment integrity" approach to interactionism outlined earlier. Of interest at the neighborhood level, then, is the extent to which the presence of offenders influences factors such as the community perception of its social climate, residents' fear of crime, and accommodation to social threat (e.g., through restriction of activities). In particular, we are interested in the extent to which these influences are manifest over and above other socio-demographic characteristics of the neighborhoods (e.g., as assessed by the census-based scales).

Both the ecological and risk assessment literatures provide ample evidence that offenders tend to come from similar kinds of environments, and that they return to environments which, if not the same, are similar to those from which they came. This clearly is true of the offenders in this study (about which more will be said shortly). Figure 3 gives the observed distribution of number of offenders per neighborhood. No offenders were returned to 23 neighborhoods,

and the distribution drops off very sharply; but exhibits a very long tail (the final figure for number of offenders actually represents 30+). Two neighborhoods, for example, each contained over one-tenth of the total sample of offenders available for study.

Figure 3 and Table 8 About Here

Using census information, two rate measures were developed (offenders per 10,000 residential population, and per 10,000 households). The former ranges from 1.29 to 212.77; the latter from 3.10 to 588.24. Table 8 summarizes bivariate correlations of the three census-based scales, the two rate measures, and the raw number of offenders per neighborhood with the community outcome measures described earlier. (Interestingly, none of the census measures correlates better than .3 with any of the offender-based measures.)

The first three columns of the table confirm "typical" ecological research findings. Indices of socio-economic status, stability, ethnicity and age composition are rather powerfully correlated with indices of community decline, anomie, incivility, and crime rates. The last three columns are suggestive that offender concentration also is powerfully correlated with community decline, anomie, incivility, and crime. To observe otherwise, of course, would be surprising at best, and would lead us seriously to question the validity of the community outcome measures.

The remaining question is whether knowledge of offender concentration

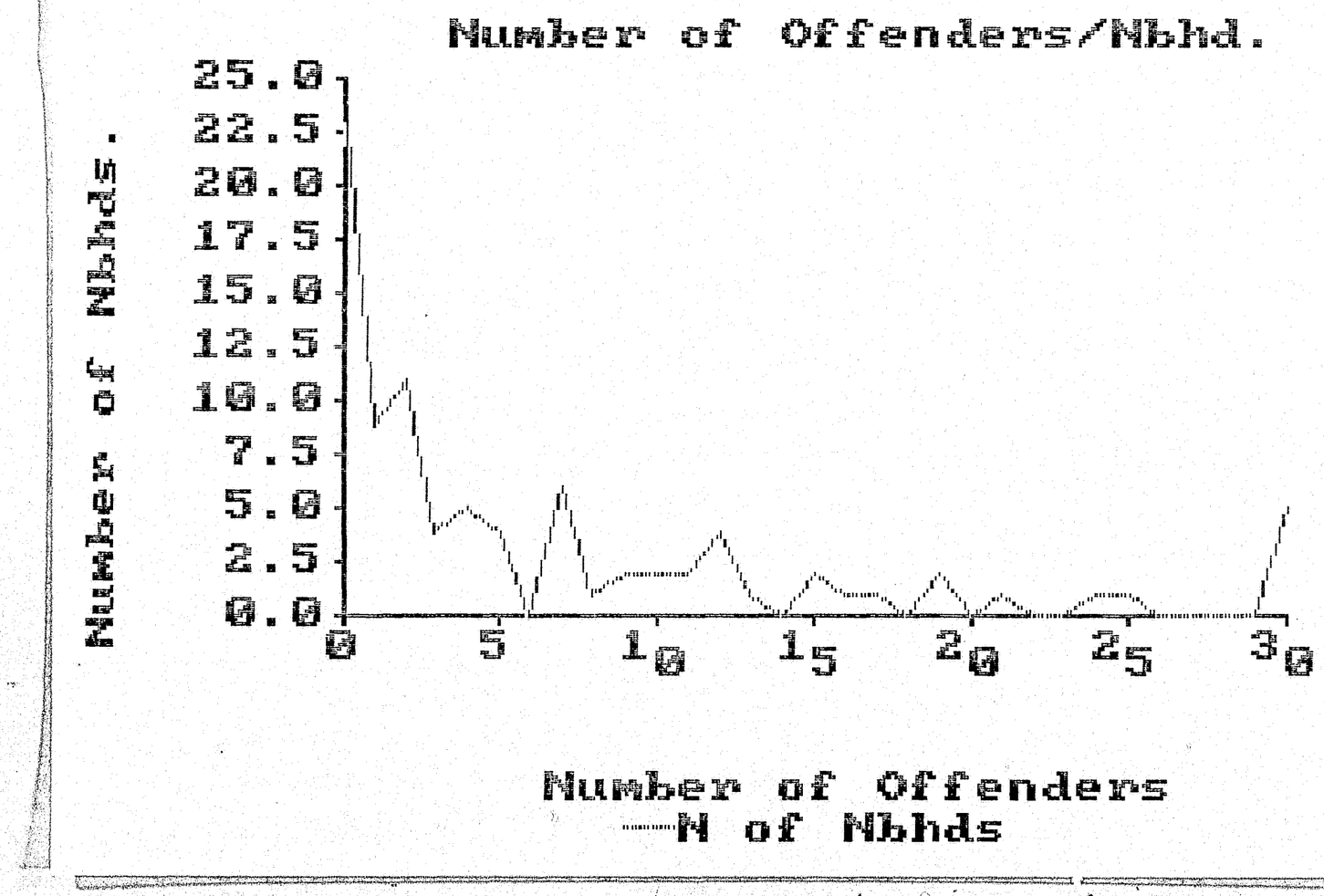
Number of Offenders/Nbhd.
Nbhds.
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
0
5
10
15
20
25
30
Number of Offenders
N of Nbhds

TABLE 8
COMPARISON OF ZERO-ORDER CORRELATIONS BETWEEN CENSUS FACTORS AND OFFENDER RATES -- VARIOUS COMMUNITY OUTCOMES

	CENSUS OR OFFENDER-BASED PREDICTOR					
COMMUNITY OUTCOME	Status	Stability	Race/ Youth	Number of Offenders	Offenders/ Nbhd. Pop.	Offenders/ Nbhd. Hshlds.
Community Perception of Social Climate (57)	.616	.204	-.161	-.420	-.472	-.486
Residents' Attachment to Community (54)	-.219	.367	.560	.150	.118	.187
Residents' Expectations for Community (57)	.609	.207	-.179	-.381	-.538	-.559
Physical Signs of Incivility (64)	-.490	-.391	.083	.617	.738	.732
Community Perception of Physical Problems (57)	-.672	-.278	.252	.423	.587	.591
Community Perception of Social Problems (57)	-.628	-.227	.009	.302	.387	.375
Residents' Fear of Crime (57)	-.295	-.409	.262	.373	.488	.492
Community Perception of Crime Problem (54)	-.347	-.521	.176	.490	.641	.633
"Actual" Community Crime Problem (57)	-.295	-.511	.243	.512	.694	.683
Reported Restriction of Activities (57)	-.181	-.036	.426	.377	.440	.476

Notes: a) Number of neighborhoods/outcome measure is given in parentheses.
b) Status dimension reflects mean housing value, income, type of employment, education.
c) Stability dimension reflects married couple households, one-unit housing structures, and owner-occupancy.
d) Race/Youth dimension reflects percent black, young (0-5) children, and children (6-13).

provides information about community outcomes over that which is provided by socio-economic status, stability, and ethnicity and age composition. The answer seems to be yes (Table 9). Offender/population rate (for example) adds significantly to the prediction of all but two of the community outcomes examined (these are Attachment to the Neighborhood and Community Perceptions of Social Problems). In some cases, the increments in explanatory power are quite substantial (e.g., offender rate adds 14% explained variance to Residents' Expectations for the Neighborhood, 10% to Community Perceptions of Physical Problems, 15% to Residents' Perception of Crime as a Neighborhood Problem, 13% to self-reported Restriction of Activities (but only 6% to Fear of Crime), and 20% to the explanation of the actual neighborhood crime rate).

Tables 9, 10, and 11 About Here

Offender Outcomes in the Aggregate

Finally, we investigated the effects of community environments on neighborhood-aggregate offender outcomes (Tables 10 and 11). Here, it seemed appropriate to use offender/population rate as a statistical control, and it was provided first opportunity to explain variation in aggregate outcomes. In Table 10, aggregate offender characteristics are provided next opportunity, followed, in order, by census-based sociodemographic factors, the survey-based community factors, and finally, by an "offender mobility" measure (the number of times an offender was known to have moved households during the follow-up period). Although aggregate offender characteristics explain by far the bulk of the

TABLE 9
REGRESSION OF VARIOUS COMMUNITY OUTCOMES
ON CENSUS FACTORS AND OFFENDER RATES

COMMUNITY OUTCOME (Criterion)	Beta	Increment in R-sq.	F - Test
Community Perception of Social Climate			
Predictor Cluster			
Census Based			
Status	.572		
Stability	.182	.456	F(2,54) = 22.61 p < .001
Offender/Population Rate	-.288	.070	F(1,53) = 7.81 p < .01
Total R-sq. = .526; F(3,53) = 19.57; p < .001			
Residents' Attachment to Community			
Predictor Cluster			
Census Based			
Race/Youth	.544		
Stability	.342	.430	F(2,51) = 19.22 p < .001
Total R-sq. = .430; F(2,51) = 19.22; p < .001			
Residents' Expectations for Neighborhood			
Predictor Cluster			
Census Based			
Status	.545		
Stability	.158	.449	F(2,54) = 21.98 p < .001
Offender/Population Rate	-.368	.114	F(1,53) = 13.78 p < .001
Total R-sq. = .563; F(3,53) = 22.71; p < .001			

TABLE 9 (Contd.)
REGRESSION OF VARIOUS COMMUNITY OUTCOMES
ON CENSUS FACTORS AND OFFENDER RATES

COMMUNITY OUTCOME (Criterion)	Beta	Increment in R-sq.	F - Test
Community Perceptions of Physical Problems			
Predictor Cluster			
Census Based			
Status	-.610		
Stability	-.248		
Race/Youth	.124	.618	F(3,53) = 28.62 p < .001
Offender/Population Rate	.347	.096	F(1,52) = 17.43 p < .001
Total R-sq. = .714; F(4,52) = 32.48; p < .001			
Community Perceptions of Social Problems			
Predictor Cluster			
Census Based			
Status	-.617		
Stability	-.245	.485	F(2,54) = 25.43 p < .001
Offender/Population Rate	.175	.026	F(1,53) = 2.786 p = .10
Total R-sq. = .511; F(3,53) = 18.44; p < .001			
Residents' Fear of Crime			
Predictor Cluster			
Census Based			
Stability	-.363		
Status	-.255		
Race/Youth	.191	.348	F(3,53) = 9.43 p < .001
Offender/Population Rate	.278	.062	F(1,52) = 5.42 p < .05
Total R-sq. = .410; F(4,52) = 9.01; p < .001			

TABLE 9 (Contd.)
REGRESSION OF VARIOUS COMMUNITY OUTCOMES
ON CENSUS FACTORS AND OFFENDER RATES

COMMUNITY OUTCOME (Criterion)	Beta	Increment in R-sq.	F - Test
Community Perception of Crime Problem			
Predictor Cluster			
Census Based			
Stability	-.428		
Status	-.292		
Race/Youth	.069	.465	F(3,50) = 14.49 p < .001
Offender/Population Rate	.431	.147	F(1,49) = 18.64 p < .001
Total R-sq. = .612; F(4,49) = 19.36; p < .001			
"Actual" Community Crime Problem			
Predictor Cluster			
Census Based			
Stability	-.391		
Status	-.215		
Race/Youth	.127	.442	F(3,53) = 14.01 p < .001
Offender/Population Rate	.499	.198	F(1,52) = 28.56 p < .001
Total R-sq. = .640; F(4,52) = 23.12; p < .001			
Reported Restriction of Activities			
Predictor Cluster			
Census Based			
Race/Youth	.344	.181	F(1,55) = 12.17 p < .001
Offender/Population Rate	.363	.125	F(1,54) = 9.72 p < .01
Total R-sq. = .306; F(2,54) = 11.91; p < .001			

TABLE 10
REGRESSION OF VARIOUS AGGREGATE OFFENDER OUTCOME VARIABLES
ON NEIGHBORHOOD OFFENDER RATE, AGGREGATE OFFENDER CHARACTERISTICS, CENSUS FACTORS,
COMMUNITY CHARACTERISTICS, AND AGGREGATE OFFENDER MOBILITY

AGGREGATE OFFENDER OUTCOME (Criterion)	SIX-MONTH OUTCOME Increment in R-sq.	TWELVE-MONTH OUTCOME Increment in R-sq.
Time Arrest-Free (in months)		
Predictor Cluster		
Offender/Population Rate	----	.041*
Offender Characteristics	.360	.342
Census Factors	.097	.071
Community Factors	----	----
Offender Mobility	----	----
Total R-sq.	.457	.454
Success/Failure (Arrest/No Arrest)		
Predictor Cluster		
Offender/Population Rate	.071*	----
Offender Characteristics	.368	.466
Census Factors	.026*	.034*
Community Factors	----	----
Offender Mobility	----	.023*
Total R-sq.	.465	.523
Number of Arrests		
Predictor Cluster		
Offender/Population Rate	.063*	.045*
Offender Characteristics	.332	.178
Census Factors	----	.070
Community Factors	.115	.139
Offender Mobility	----	----
Total R-sq.	.511	.362

TABLE 11
REGRESSION OF VARIOUS AGGREGATE OFFENDER OUTCOME VARIABLES
ON NEIGHBORHOOD OFFENDER RATE, CENSUS FACTORS, COMMUNITY CHARACTERISTICS,
AGGREGATE OFFENDER CHARACTERISTICS, AND AGGREGATE OFFENDER MOBILITY

AGGREGATE OFFENDER OUTCOME (Criterion)	SIX-MONTH OUTCOME Increment in R-sq.	TWELVE-MONTH OUTCOME Increment in R-sq.
Time Arrest-Free (in months)		
Predictor Cluster		
Offender/Population Rate	----	.041*
Census Factors	.136	.075
Community Factors	.038*	.049*
Offender Characteristics	.332	.291
Offender Mobility	----	----
Total R-sq.	.506	.456
Success/Failure (Arrest/No Arrest)		
Predictor Cluster		
Offender/Population Rate	.071	----
Census Factors	.051*	----
Community Factors	----	----
Offender Characteristics	.320	.466
Offender Mobility	----	.028*
Total R-sq.	.442	.494
Number of Arrests		
Predictor Cluster		
Offender/Population Rate	.063*	.045*
Census Factors	----	.047*
Community Factors	.150	----
Offender Characteristics	.307	.201
Offender Mobility	.028*	----
Total R-sq.	.548	.293

aggregate outcome variance, sociodemographic and community factors do add significant increments in some of the models. It remains the case that aggregate offender characteristics explain the bulk of the variation in outcomes even when sociodemographic and community factors are provided the advantage of order (Table 11).

Summary and Conclusions

To what, then, are we finally lead? We began with a consideration of two research traditions that have, rather independently, been important to much of current criminology--the risk assessment and the ecological traditions. Our reading of these literatures strongly suggested that the risk assessment tradition could be greatly informed and strengthened by the ecological, and we posited the common-sensical notion that people's behavior--including offender criminal behavior--is a function both of the person and the setting in which that behavior takes place. Borrowing from Lewin and the interactionist perspective, a complex but none-the-less compelling theoretical foundation for the study of situational influences was developed.

A preliminary study was conducted with very encouraging results: person x environment interaction terms of modest power were observed; and results appeared consistent with criminological theory concerning the etiology of crime. A more extensive study then was conducted, designed to overcome certain limitations of the preliminary study, and to extend the explanatory power of effects demonstrated. Disappointingly, the preliminary findings fail to replicate, and no effects of environment (or of environmental/individual interactions) could be demonstrated at the individual level.

At the aggregate level, some effects for environment on aggregate

(neighborhood-level) offender outcomes are demonstrated, but the overwhelming effects for aggregate offender characteristics are unmistakeable.

Finally, it is clear that offender concentrations have a substantial impact on neighborhood environments, and that these impacts obtain even after sociodemographic factors are controlled.

The first question the reader may ask is "Why, if the preliminary study failed to replicate, do we devote several pages to its description?" The answer, briefly, is that we do not know which set of results to believe. Although the data bases used in the two studies contain considerable overlap in terms of offenders studied, variables investigated, etc., they also are different. Some offenders studied in the preliminary research could not be studied in the more complete investigation, and vice versa. Measurement was, with one important exception, careful in both studies. The exception, unfortunately, has to do with the outcome criterion measure: recidivism. It is our clear impression that the follow-up information available from the Division of Parole and Probation, and used in the more complete study, is substantially less valid than is that available from the FBI (and used in the preliminary investigation). This is not only our impression from coding the data, but evidence that this is so is available: Although risk assessment models developed in both studies are similar, those developed in the preliminary study have considerably more power.

Nonetheless, the evidence is compelling that if environmental effects and interactions such as those studied here are reliable, they are small--personal characteristics likely overwhelm them. As noted earlier, this has been found in the few other studies bearing on the issue. The aggregate-level analyses of

offender outcomes also suggest that this is so.

Serious limitations also must be mentioned--and these pertain to both investigations reported. First, we were not able to "track" offenders: We have no idea how long they remained in study neighborhoods, and we do have evidence that this is a very mobile group. Second, outcome measures used in both studies must be considered as crude proxies for recidivism: indeed, some have considered arrests to be a better measure of police performance than of offender behavior. Third, for community factors such as those assessed via our surveys to be influential, the offender must to some extent be integrated into the social fabric of the community. We have no measure of the extent of this. Finally, at the individual level, the studies reported suffer a peculiar sort of range-restriction problem. There is very little variability in the kinds of places in which these offenders resided. In one series of analyses designed to "type" neighborhoods with respect to sociodemographic factors, we observed that the vast majority of offenders resided in one or two neighborhood classifications. Accordingly, it may well be that many more offenders than were available for study are needed to fully examine the kinds of effects sought here (for perforce, if no offenders returned to one of our study neighborhoods, the effect of environment could not be investigated; and if only one or two offenders were available for study, the contribution made by that neighborhood/offender combination must be considered of suspect reliability). At this point we must mention that we did perform several series of analyses designed to deal with this problem (e.g., through weighting of the samples, through proportionate sampling, etc.), but are not confident that we were able to deal adequately with the problem. It also must be noted that the "problem" is a natural ecological fact (recall Figure Three).

We must state that we remain committed to the person-environment integrity model, despite the mixed results of the present investigations: it simply makes too much theoretical sense to dismiss readily. What is needed now, we believe, are careful and detailed micro-level studies that have been beyond resources available to support the research reported here. These studies must be longitudinal in nature, and probably should be "crime-specific" in nature. Finally, careful attention must be paid to the issue of offender decision-making: Since it is through the offender that all environmental influences are presumed to be mediated, much attention must be paid to this "black box" (on the latter two points, see Clarke's (in press) informative discussion).

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