A MACRO-LEVEL MODEL OF SCHOOL DISORDER

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Drawing on school climate theory and social disorganization theory, this article examines the influence of major institutional and community factors on disorder in Philadelphia public schools. Using U.S. census data, school district data, and police data, the authors examined the following predictors of disorder in 43 middle schools: community poverty and residential stability, community crime, school size, and school stability. Community was conceptualized in two ways: local (the census tract around the school) and imported (aggregated measures from the census tracts in which students actually reside). Previous studies have failed to make this distinction when assessing community-level influences on school disorder. The authors used path analysis to examine direct and indirect relationships between community characteristics (poverty, residential stability, crime rates), school size, school stability (a factor score based on student attendance and turnover), and school disorder (a factor score based on school incident data and dismissal rates). The local community model fit the data better than the imported model: The communities immediately surrounding schools have a stronger influence on school disorder than the communities from which students are drawn. Community poverty exerted strong indirect effects on school disorder in both models. The effects of community variables on school disorder were strongly mediated by school stability, illustrating that analyses of institutional processes have much to add to the explanation of school disorder.

Metal detectors, paid security personnel, and student locker sweeps are now commonplace in public schools.1 In a National School Board Association (1993) survey of 720 school districts throughout the United States, researchers found that 39 percent of urban school districts use metal detectors, 64 percent use locker searches, and 65 percent use security personnel in their schools. Eighty-two percent of school district administrators reported that

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the problem of school violence had worsened in the previous five years, and 35 percent believed that incidents were more serious. In another survey, 44 percent of teachers nationwide reported that student misbehavior interfered substantially with their teaching (Office of Educational Research and Improvement 1991). Recognizing the importance of safe, disciplined schools, Congress passed the Safe School Act of 1994, providing funding and technical assistance to school districts to develop school safety plans. Today, school curricula typically contain courses on conflict resolution and mediation along with more traditional subjects. Of the 720 school districts that responded to the National School Board survey, 82 percent of urban schools, 63 percent of suburban schools, and 49 percent of rural school districts reported having implemented some type of conflict resolution and/or peer mediation program (National School Board Association 1993).

While researchers and policy makers have often assumed that community characteristics have much (or everything) to do with problems of school disorder, macro-level models of disorder that operationalize critical dimensions of both schools and communities have rarely been tested; when they have been, researchers have failed to distinguish between local community (the area surrounding the school) and imported community characteristics (areas where students actually reside). Using school climate theory and social disorganization theory as guiding perspectives, this article articulates and tests a macro-level model of school disorder.

**MEASURES OF SCHOOL DISORDER**

Terms such as *disorder* and *disruption*, according to Gottfredson and Gottfredson (1985), "appear to capture the essence of the kinds of misconduct involved, some of which by themselves are relatively minor and some of which certainly do constitute crime" (p. 26). Unfortunately, the term *school disorder* has been used to refer to diverse phenomena, including student, teacher, and administrator perceptions and fear of disorder; student and teacher self-reported victimization; various measures of self-, peer-, and teacher-reported misconduct; and school incident data and disciplinary responses to disorder (see D. C. Anderson 1998; Gottfredson and Gottfredson 1985; Lawrence 1998; Toby 1983).

*Perceptions of Disorder*

Perceptions of school disorder may influence student behavior (Pearson and Toby 1991). As student fear increases, confidence in school administrators and/or adults diminishes, and informal social controls against violence...
weaken. Resultant behaviors may include choices to carry weapons to school, manage impressions by fighting or putting on a tough "front," or retaliate against perceived transgressors (Lockwood 1997). According to 1989 data from the School Crime Supplement, only 5.3 percent of students overall feared being attacked at school at least "sometimes" (Pearson and Toby 1991). However, in central-city schools where the presence of street gangs was reported, 37.4 percent of students feared attack. Fear was also related to age (younger students feared attack more and were more likely to avoid certain places at school out of fear) and mode of transportation (those traveling more frequently by public transportation reported higher levels of fear) (Bastian and Taylor 1991). Part of this fear is related to residing in communities with high rates of crime (Skogan and Maxfield 1981).

**Victimization Measures**

A major source of data on victimization occurring inside a school building or on school property is the School Crime Supplement, which was added to the National Crime Victimization Survey in 1989 (Bastian and Taylor 1991) and repeated in 1995 (Chandler et al. 1998). In 1989, 16 percent of students reported that another student had attacked or threatened a teacher at their school (Bastian and Taylor 1991). Results comparing the 1989 and 1995 surveys showed that the percentage of students reporting one or more violent crimes or property crimes at school over a six-month period remained stable (14.5 percent in 1989 vs. 14.6 percent in 1995), but there was an increase in the percentage of students reporting violent victimization (3.4 percent vs. 4.2 percent). While victimization measures are useful as estimates of crime incidence and change, such measures involve known limitations, including potential respondent misunderstanding of questions and crime definitions; faulty recall of incidents and time periods; and underreporting due to fear, embarrassment, or one's own participation in illegal activities (Biderman and Lynch 1991).

**Self-, Peer-, and Teacher-Reported Misconduct**

Researchers use diverse measures of self-, peer-, and teacher-reported student misconduct. Behaviors measured range from pushing and shoving to shootings and stabbings. Locations of incidents include within schools, on school property, and in transit to and from school. Data collection methods have included self-reported misconduct, peer ratings, and teacher ratings (see D. C. Anderson 1998; Lawrence 1998; Toby 1983). Self-report measures of overall delinquency have been widely used (see Farrington 1973; Farrington et al. 1996; Hindelang, Hirschi, and Weis 1981; Huizinga and Elliott 1986;
Kelley et al. 1997), although self-reported school misconduct is measured much less frequently (Welsh, Greene, and Jenkins 1999).

School Incident and Disciplinary Data

Another source of data about school disorder is school incident and disciplinary information, including school records of incidents, suspensions, and other disciplinary actions. According to police statistics, youth violence is heavily concentrated on school property. Thirty-seven percent of all violent crimes experienced by youths age 12 to 15 occurred on school grounds (Whitaker and Bastian 1991), whereas 56 percent of all juvenile victimizations (property and violent crimes) in 1991 occurred in school or on school property: “There is no comparable place where crimes against adults were so concentrated” (Snyder and Sickmund 1995:16). Official statistics (e.g., crimes recorded by police and school agencies) have known limitations, of course, including underreporting, unfoundedness, and recording errors (e.g., Biderman and Lynch 1991; Reiss and Roth 1993, Appendix B). Menacker, Weldon, and Hurwitz (1990) analyzed data collected by the Chicago School District and the Chicago Metropolitan Police for a high-crime neighborhood in the city. Comparing school disciplinary actions with police contacts, they found that school principals notified police in only 6.5 percent of all reportable offenses known to the schools. In a national study of secondary schools, researchers found consistent underreporting of crimes on school grounds (Quarles 1989). Disincentives for reporting incidents included fear of appearing incapable or incompetent and potential loss of local and state political support. Because record keeping is typically low on the list of school district priorities, school disciplinary records may also contain errors in administrative recording. Disciplinary records, in sum, partially reflect teacher, school, and district policies, as well as actual rates of incidents. While official estimates of delinquency incidence and prevalence are likely to be artificially low, as with Uniform Crime Report (UCR) data, such data are still quite useful for estimating delinquency patterns, trends, and locational variations across jurisdictions (Hindelang et al. 1981). Official records and self-reported delinquency tend to correlate positively and significantly, and the probability of arrest and conviction increases with the frequency and seriousness of delinquency (Farrington et al. 1996). If one focuses on more serious incidents, therefore, and is interested in comparing differences between schools within the same school district rather than estimating true incidence and prevalence rates, the reliability of school-recorded incident rates becomes much less problematic.

In general, different researchers have measured different aspects of school disorder without due attention to theoretical or practical utility.
disorder is of primary interest in this study, not necessarily fear, victimization, or delinquency per se. Institutional measures of school disorder can accommodate linkages between macro-level theories such as social disorganization theory and organizational (micro-level) theories of disorder (school climate). Multilevel studies have received growing support in recent years.

The National Academy of Science Panel on Understanding and Control of Violent Behavior (Reiss and Roth 1993) proposed that predisposing, situational, and activating factors for violence be examined at multiple levels of analysis: macrosocial (e.g., concentration of poverty), microsocial (e.g., community dynamics and interactions, family disorganization, and organizational influences), psychosocial (e.g., individual differences in learning, attitudes, and temperament), and biological (e.g., neurobehavioral traits and genetically mediated traits). Research and intervention efforts have too often been piecemeal, examining specific variables and levels of analysis in isolation from one another. For example, studies have examined selected aspects of community characteristics in relation to school disorder (usually measured by victimization rates or suspension rates) without concurrently examining school climate and structure, individual student characteristics, or student behavior (Welsh, Greene, et al. 1999). Other studies have examined school climate and structure without considering community dynamics or individual student characteristics, while studies of individual-level attitudes and behaviors often lack any situational, institutional, or community-level analysis (Sampson and Lauritsen 1993; Short 1990, 1998).

Even when external community factors have been assessed, research has consistently failed to distinguish between the community surrounding the school and the communities from which students are drawn. This omission has important implications depending on the type of school being studied. Elementary schools are typically community schools; middle and high schools typically draw students from wider geographic areas that may or may not resemble the local community associated with the school. Studies that ignore this distinction cannot distinguish whether students import characteristics conducive to violence or whether some set of conditions in the local environment contributes to disorder in the school.

Institutional indicators of school disorder are more appropriate than individual-level (student) measures when examining between-school differences in disorder. A sample of both schools and communities is needed so that institutional indexes of disorder can be appropriately linked to school- and community-level rather than individual-level differences. School climate theory and social disorganization theory provide useful frameworks in this regard; both are capable of explaining between-school differences. In contrast, individual-level measures and theories of student misconduct (e.g., self-reported delinquency) are used to examine within-subject differences across
individuals. For example, control theory is essentially an individual-level theory of delinquent behavior, and social disorganization theory identifies community-level influences on delinquent behavior (Welsh, Greene, et al. 1999). Across different schools and communities, therefore, institutional measures and theories of disorder should prove useful in assessing variations in school disorder (between-school differences), school-level versus community-level influences of disorder, and school-level policy responses to disorder.

FACTORS AFFECTING SCHOOL DISORDER

A handful of comparative studies have examined schools with different social compositions and administrative practices to suggest how officials might reduce school disorder (Johnston 1973; McPartland and McDill 1977; National Institute of Education 1978; Rutter et al. 1979; Coleman, Hoffer, and Kilgore 1982; Lipsitz 1984; Bryk and Driscoll 1988). Such studies have illustrated that a variety of community- and school-level factors contribute to school disorder.

School Climate

There is a growing realization that schools have their own characteristic personalities, just as individuals do. Education is delivered within a specific organizational structure and social climate. The term school climate is, however, a rather broad concept that encompasses at least four distinct school-level dimensions: school culture, organizational structure, social milieu, and ecological environment (Anderson 1982). All four dimensions of school climate help define the parameters of acceptable behavior among teachers, students, and administrators, and assign some degree of institutional responsibility for school safety. These between-school or “contextual” factors (Bryk and Driscoll 1988) provide important theoretical and policy insights into the explanation and prevention of school disorder (Welsh 2000).

First, the culture of a school includes the unwritten beliefs, values, and attitudes that characterize the style of interaction among students, teachers, and administrators. School culture includes factors such as communication patterns, norms about what is appropriate or how things should be done, role relationships and role perceptions, patterns of influence and accommodation, and rewards and sanctions (Fox et al. 1975). In contrast, the school organizational structure refers to its overall administrative structure, including regular patterns of school operations and rules governing various school practices. Variables include curriculum design and classroom-scheduling practices,
teacher-student ratios, decision-making policies, leadership, enrollment, classroom size, resources, and teacher salaries. Organizational structure is most often measured by school operational characteristics derived from school district data (e.g., staffing, enrollment, classroom size), whereas school culture is often measured by assessing (and aggregating) various attitudes of teachers, students, parents, and administrative officials with regard to the school. Although there is some overlap between organizational structure and climate, their distinction is theoretically and empirically useful. Research on school climate has occasionally suffered from overly broad definitions that fail to make distinctions between different types of school characteristics (Anderson 1982).

One of the major research studies relating school culture and organizational structure to school disorder was the National Institute of Education's (NIE's) (1978) Safe School Study. Data were collected from students, teachers, and principals from 642 public schools in the United States. Community data from each school were prepared from the 1970 U.S. census. School policies associated with lower levels of disorder included making school discipline more systematic, decreased arbitrariness of rule enforcement and student frustration, and improved school reward structures. Increasing the relevance of schooling for career options and decreasing students' sense of powerlessness and alienation have also been linked to lower levels of disorder (Gold 1978; Liazos 1978; McPartland and McDill 1977; NIE 1978), as has increased involvement of students, teachers, parents, and community members in school improvement programs and curriculum revision (Gottfredson 1986).

In a reanalysis of the Safe School Study data, Gottfredson and Gottfredson (1985) examined relationships between disorder (measured by student and teacher victimization) and various school cultural characteristics. Factor analyses suggested that student reports of social climate with direct relevance for student disruption included two major factors: delinquent youth culture and belief in conventional school rules (chap. 8). The first scale, delinquent youth culture, characterized schools in which students tended to report permissive attitudes with regard to alcohol and drug use, delinquency, truancy, and cheating. The second scale characterized schools in which students tended to regard conventional rules as irrelevant guides for behavior and felt free to violate rules. Multiple regression analyses revealed that junior high schools scoring high on the delinquent subculture scale and low on the belief in conventional rules scale had significantly higher rates of overall disruption, teacher victimization, and student victimization (p. 116). Overall, many of the major NIE (1978) findings were confirmed. In schools with the worst discipline problems, rules were typically unclear, unfair, or inconsistently enforced; responses to student behavior were ambiguous or indirect (e.g.,
lowered grades in response to misconduct; teachers and administrators did not know the rules or disagreed on appropriate responses to student misconduct; teachers ignored misconduct; and students did not believe in the legitimacy of the rules. Other significant predictors have included poor teacher-administrator cooperation and inactive administrations (Gottfredson 1989).

School attendance rates provide an important index of school culture potentially related to school disorder. Although individual truancy is often associated with academic failure, low commitment to education, early dropout, and delinquency (see Howell 1995; Howell and Hawkins 1998; Loeber and Farrington 1998; Reiss and Roth 1993), examinations of potential links between school-level attendance rates and disorder are somewhat scarce. Using multiple regression analysis, Hellman and Beaton (1986) found that nonattendance (average student attendance for the school year) significantly predicted higher suspension rates in Boston middle schools. School age (year constructed) and size (total enrollment, square feet) showed no effects. In a study of 255 public schools in Philadelphia, low rates of average daily attendance predicted higher rates of dismissals and incidents occurring on or near school grounds in multiple regression analyses (Welsh et al. 1997). School attendance rates can thus provide a useful barometer of school culture, partially reflecting school disciplinary policies (e.g., resources devoted to monitoring and sanctioning truancy) and students’ attachment to the school and belief in conventional rules (Fox et al. 1975; Owens 1987).4

Aspects of school organizational structure that have been associated with disorder include school size (e.g., total student enrollment, classroom size), staffing (high student/teacher ratios), and resources (e.g., low operating budgets for learning materials and teacher salaries) (Duke 1989; Gottfredson and Gottfredson 1985; Toby 1983). Findings relating school size to disorder are particularly relevant to the present inquiry.

Why should larger schools experience higher levels of disorder? First, larger schools tend to experience greater difficulties in monitoring and regulating student behavior (Toby 1983). There is more ground to cover, many spaces not easily subject to surveillance, and many interpersonal interactions that increase opportunities for conflict. Larger schools may also facilitate a culture of anonymity, powerlessness, and impersonality (NIE 1978; McPartland and McDill 1977), with socially isolated, insecure, unpopular, and new students most likely to be victimized (McDermott 1980). In addition to difficulties directly associated with maintaining adequate surveillance and security, large schools may indirectly affect school disorder by negatively influencing student-teacher interactions (Gottfredson and Gottfredson 1985, chap. 7).
However, the unique effect of school size on disorder by itself remains unclear due to the extreme diversity of dependent measures that have been used and inadequate attention to a multivariate framework in different studies. Gottfredson and Gottfredson (1985, chap. 7) reported significant bivariate correlations between total student enrollment and self-reported teacher victimization, and between total student enrollment and overall disruption (a rather heterogeneous composite measure consisting of principal reports of vandalism and crime, teacher reports of misbehavior and crime, and student reports of fear and victimization). However, no significant effect of total student enrollment was found on student victimization. Total student enrollment had little impact on measures of disorder when entered either by itself or as part of another composite measure (consisting of school staffing, size, and resources) into more sophisticated multiple regression and path analytic models (Gottfredson and Gottfredson 1985, chap. 10).

The effects of school size on school disorder are likely mediated by other aspects of school structure and culture. For example, at least seven leadership functions have been identified as variables mediating the effects of school structure: teacher supervision and development, teacher evaluation, instructional management, resource management, quality control, coordination, and troubleshooting (Duke 1989). Hellman and Beaton (1986) reported that total student enrollment had no significant effect on school disorder in Boston middle schools. The most significant predictor of suspension rates in multiple regression analyses was the ratio of students to teachers, with higher student/teacher ratios being associated with more problems. The only other significant predictor of disorder was average student attendance. However, the sole dependent measure used (suspension rates) is often regarded as a weak indicator of disorder (Gottfredson and Gottfredson 1985; Welsh 2000). No single study can examine every possible independent and dependent measure, but findings with regard to the effects of school size on school disorder have not been entirely conclusive.

The third dimension of school climate articulated by Anderson (1982), the social milieu of a school, refers to the average background characteristics of students, teachers, and administrators, including race, gender, income, and teachers' experience and training. While multicollinearity among these variables often limits straightforward conclusions, reanalyses of the Safe School Study found that higher victimization rates were associated with school minority composition (percentage students non-White), socioeconomic status (e.g., percentage of children of persons on welfare), and percentage of male students (Gottfredson and Gottfredson 1985).\footnote{6}

The fourth and final dimension, the ecological environment of a school, refers to its physical setting, including its age, building condition, lighting,
number of floors and stairwells, total square footage and layout, and number of entrances and exits. No simple relationship has been found between the age of a school and measures of attendance, achievement, or delinquency (Rutter et al. 1979). However, some evidence suggests that the design and setting of school buildings is at least partially related to observed patterns and levels of disorder. Reported school crime occurs most frequently in places where supervision is weakest: hallways, restrooms, locker rooms, stairs, and near unmonitored entrances and exits (Short 1990; Toby 1983). Schools that have many different entrances and exits present difficulties in terms of adequately monitoring the movement of students, visitors, or potential intruders, contributing to truancy, drug dealing, or weapon carrying in the school (Crowe 1990; NIE 1978; Rubel and Blauvelt 1994; Toby 1983). Some have advocated crime prevention through environmental design as a means of assessing school trouble spots and improving the management of student movement in schools (Crowe 1990). However, studies that assess the physical environment in detail rarely assess (or control for) other important individual, school, and community factors that influence school disorder. Research provides little evidence that security measures alone (e.g., use of metal detectors, random searches, or more security officers) provide a simple answer to school violence (Office of Educational Research and Improvement 1993).

While the Safe School Study and various other studies have provided researchers and policy makers with valuable information about school disorder, studies have often suffered from significant limitations. For example, most of the NIE (1978) analyses were simple cross tabulations of personal or school characteristics with victimization status. Such analyses fail to address the multiple levels of analysis (individual, peer, family, school, and community) associated with the dynamics of school disorder. In addition, tests of statistical significance were often omitted; a multivariate, theoretical focus was missing; measures of demographic and community characteristics were not explicitly considered in the analyses; little information was provided about the reliability or validity of the measures used; the causal ordering of many variables was ambiguous; and researchers were not allowed to collect self-reported delinquency information from students (Gottfredson and Gottfredson 1985).

Community Factors

Community or neighborhood factors frequently associated with school misbehavior and delinquency include high population density, high residential mobility, high poverty rate, availability of weapons and drugs, and a high rate of adult involvement in crime (Howell 1995; Howell and Hawkins 1998; Reiss and Roth 1993). According to social disorganization theory, crime
rates vary with the capacity of a community to control the behavior of its members. The classic work of Shaw and McKay (1942) found that three major structural factors—low economic status, ethnic heterogeneity, and high residential mobility—led to the disruption of community cohesion and organization and, subsequently, higher rates of delinquency. These disruptions in the "social metabolism" of a community made it difficult for residents to form close ties, maintain kin and friendship networks, and exert collective control over norms and behaviors (for a recent assessment of community social cohesion, see Sampson, Raudenbush, and Earls 1997). These conditions impaired the ability of local institutions of socialization, including the family, school, churches, and businesses, to transmit proper rules of behavior and to control the behavior of juveniles. Social disorganization describes the inability of a neighborhood to monitor and manage its boundaries, socialize its youth to conventional values, and exert control over the behavior of those who live there.

Associations between socioeconomic status and violence have been well established, although the exact causal mechanisms are not entirely clear. Recent research has uncovered complex links between poverty and crime, and between social disorganization and violence. Researchers studying community-level variations have found relationships between poverty and high rates of delinquency, and between poverty and high rates of homicide (Reiss and Roth 1993). Community characteristics found to relate to violence have included concentrations of poverty, high residential mobility and population turnover, family disruption, high density in housing and population, weak local social organization (e.g., low density of friends and acquaintances, few social resources, weak intergenerational ties in families and communities, weak control of street corner groups, low participation in community events and activities), and opportunities associated with violence (e.g., gun density, drug distribution networks). Although relationships are complex, diverse community influences often combine with one another to influence high rates of community crime (see Sampson and Lauritsen 1993).

Community characteristics can affect levels of school violence in complex ways—by heightening exposure to risk coming to and from school, through the importation of norms and behaviors conducive to the use of violence to resolve disputes, and by weakening effective community control over the behavior of children who attend school in a specific neighborhood (e.g., Hellman and Beaton 1986; Pearson and Toby 1991). Simply getting to and from school safely can be a challenge. In a 1995 Louis Harris poll, almost half of the 2,000 junior high school and high school students surveyed said they had changed their daily routine because of crime and violence. Thirty-six percent believed that crime was a serious problem in their communities, and 75 percent believed conditions were staying the same or getting worse. In
high-crime neighborhoods, more than 30 percent of students said they stayed home or cut class due to fear. In central-city schools, students were least afraid of attack when traveling by car, slightly more afraid when taking the bus, and most afraid when walking (Pearson and Toby 1991).

Poverty and unemployment in the surrounding community are often linked to violence in schools, although the exact chain of causality is not always well articulated (Gottfredson and Daiger 1979). The Safe School Study (NIE 1978) reported that high rates of crime in the immediate communities surrounding schools distinguished schools with higher rates of victimization. Moreover, schools in such communities were more likely to have problems with intruders (nonstudents) who contributed to school crime problems (Rubel 1978; Toby 1983). Reanalyses of NIE data (Gottfredson and Gottfredson 1985) further revealed that teachers reported more victimization in schools located in urban areas; high-crime communities; areas in which the student population was mostly Black, low in ability, and from families on welfare; and neighborhoods characterized by unemployment or female-headed families. Junior high school students reported more victimization in schools located in neighborhoods characterized by unemployment and female-headed households, and where busing or court-ordered desegregation was in effect. Senior high school students reported more victimization in schools located in neighborhoods characterized by high crime, low education, and in schools that were largely male.

In a sample of Boston middle and high schools, Hellman and Beaton (1986) reported that community characteristics predicted violence in high schools (measured by suspension rates) more strongly than did school characteristics. In middle schools, however, characteristics of the school environment, such as teacher/student ratios, explained suspension rates better than did community characteristics. Hellman and Beaton concluded that “middle school problems are a function of the school environment, not that of the community, or . . . the school environment can overwhelm any disruptive influence of the community” (p. 122). As in previous studies, however, researchers did not account for the potentially crucial distinction between characteristics of the community surrounding the school and characteristics of the communities in which students actually reside. In the modern era of busing and student mobility, this distinction is crucial.

The Present Study

Guided by school climate and social disorganization perspectives, this study attempts to assess the direct and indirect effects of community- and school-level variables on school disorder rates. Previous macro-level analyses of school disorder have typically used the immediate community sur-
rounding the school (e.g., census tract) as the reference point for aggregating community data (e.g., socioeconomic status) then correlated community characteristics with measures of school disorder such as incidents or suspensions. A portion of our analysis is thus devoted to examining the potential influence on school disorder of the immediate (local) community in which schools are located. However, because students attending Philadelphia public schools come from a wide variety of social backgrounds and often travel some distance to attend school, it is equally important to examine the potential influence of the communities in which students actually reside. To represent this imported contribution of communities from outside the immediate area, we obtained U.S. census and reported crime data for the census tract of the students attending each school. This strategy improves upon previous studies that failed to address the locational differences between where students live and where they attend school.

**METHOD**

**Setting: The Philadelphia School District**

The Philadelphia School District is the fifth largest public school system in the United States. In 1993, the district had an annual budget of slightly more than $1.3 billion, served approximately 192,000 students, and employed a staff of nearly 30,000 persons, 13,217 of whom were regular classroom teachers. Staff accounted for 90.6 percent of the district's operating budget for the 1990-91 academic year. The district operates 31 high schools, 43 middle schools, 171 elementary schools, and 15 special facilities, which are spread throughout the city of Philadelphia. The district is subdivided into six administrative areas, each of which is supervised by a regional superintendent.

Sixty-three percent of the students attending Philadelphia public schools are African American, 4 percent are Asian, 10 percent are Latino, and the remaining 23 percent are White. In the 1990-91 school year, 28,772 suspensions were issued, 12 percent of students withdrew (i.e., left voluntarily) from school, and 20 percent of students did not meet the criteria for promotion. As of June 1991, average daily attendance in Philadelphia public schools was 85.6 percent. In that same year, the district graduated 8,014 students, 57 percent of whom had plans to attend some form of college after graduation.

The district has 43 middle schools, which are the major focus of this study. Middle schools in Philadelphia usually enroll students in Grades 6 through 8. In the 1990-91 academic year, the middle schools enrolled 34,055 students and employed 3,463 staff, of whom 1,743 were regular classroom
teachers. Students enrolled in middle schools were 69 percent African American, 2 percent Asian, 11 percent Latino, and 10 percent White. In the 1990-91 academic year, middle schools in Philadelphia issued 11,000 suspensions, 8 percent of students withdrew, and 19 percent of students failed to reach promotion criteria.

In response to a series of widely publicized shootings, stabbings, and near riots in Philadelphia schools, the Philadelphia City Council held hearings in 1993 to determine whether violence in the public schools was increasing. Comparing figures for a two-year period (1991 and 1992) and using both U.S. Justice Department and Philadelphia School Board data, the council found an increase in the total number of incidents and an increase in the number of serious incidents occurring in the schools and/or on school property. We entered into a collaborative relationship with district officials beginning in 1993 to examine school disorder and develop recommendations to reduce and prevent it.

ANALYTICAL MODEL

Path analysis is a statistical procedure that allows one to examine the goodness of fit of a hypothesized causal model. Using path analysis procedures outlined by Pedhazur (1982), a Q statistic is obtained, which varies from zero to one. The closer Q is to one, the better the proposed causal model fits the data. Next, a W statistic, which approximates a chi-square distribution, is calculated to test the model for goodness of fit. A nonsignificant W statistic suggests that the proposed model fits the data. We compare the goodness of fit of two separate models, each with the same dependent variable: school disorder. We constructed variables that capture crime and sociodemographic measures for the census tract in which the schools are located (the local model) and variables aggregated to the school from communities in which students actually reside (the imported model). Through path analyses, we were able to examine the impact of hypothesized mediating variables including school organizational structure and culture on school disorder. Data reduction techniques were used to optimize two conditions for path analysis: a low ratio of independent variables to the number of cases and minimized multicollinearity between independent variables (Pedhazur 1982). Five predictors were examined in each path model (see Figures 1 and 2).

Based on research findings that suggest the indirect influence of a community’s social and demographic characteristics (e.g., income, crime in surrounding neighborhoods) on school disorder, community characteristics (e.g., poverty, residential stability) are presented as exogenous variables. Exogenous variables may have some direct influence on school disorder (e.g., drug sales in the school yard, gang members that settle disputes in the school), but their effects are hypothesized to be mediated by school culture
Figure 1: Local Community Path Model *p < .05.

Figure 2: Imported Community Path Model *p < .05.
(e.g., disciplinary policies and rule enforcement). School organizational structure (e.g., school staffing, size, and resources) is also conceptualized as an exogenous variable, following previous research indicating that its effects on school disorder, although sometimes significant, are likely mediated by other school-level practices and policies (e.g., school culture).

Endogenous predictors in the models include community crime and school stability. Following previous research, the social and demographic characteristics of any particular community (poverty, residential stability) directly influence the level of crime that a community experiences. Community crime, however, mediates the effects of other community characteristics (e.g., poverty, residential stability) on levels of school disorder. Community characteristics, according to previous research, may also affect school structure and culture by influencing the quantity and type of resources available to schools located in a community. Such resources may include parental involvement in school activities, community recreational opportunities, support from private businesses in the area, and training and experience of teaching staff. While we do not assess other diverse aspects of school culture in this study (Anderson 1982), the school stability construct incorporates important measures of school culture derived from previous research, including school attendance and turnover rates. School stability and community crime are hypothesized to mediate the effects of community characteristics on school disorder.

Independent Measures

Community poverty and community stability. Community sociodemographic characteristics were obtained through 1990 U.S. census data. Variables examined included poverty rates (median household income), racial composition (percentage non-White), residential stability (percentage resided in the same household for five or more years), and family structure (percentage households with four or more residents; percentage single-parent households). Data from census tracts within each school’s immediate vicinity were used to describe a school’s local community. We located census tracts within a quarter-mile of each school building. We localized the data by using address-matching techniques available in Atlas-AGIS software. We then used measures of central tendency to summarize the immediate area.

The second relevant type of community refers to the census tracts in which the school’s students actually reside (i.e., imported community). For each school, we obtained the addresses for the students and then summarized the data describing their residential areas. This task was made possible by the acquisition of the Pupil Directory File (PDF). The PDF is a database that includes all students enrolled in Philadelphia public schools. It identifies,
among other variables, the school that each student attends and the census tract in which he or she resides. Using a computer-matching program, data describing each student's census tract were attached to each student's PDF record. These data were then aggregated for each school according to the average characteristics of tracts represented in each school. Thus, if a school draws students from several different census tracts, and we wish to characterize the rates of poverty among children between the ages of 5 and 17 years, we multiply the poverty rates of each tract by the number of students living there. These products were then summed across the tracts represented in each school and then divided by the total number of students in the school. This process created a weighted average of the poverty rates in the neighborhoods represented in the school's student population. These neighborhood data were then merged with the school-based data.8

As expected, sociodemographic characteristics of communities were highly correlated. To reduce multicollinearity, we used principal components factor analysis.9 Results of factor analyses are presented in Table 1. The final solutions resulted in two similar, interpretable dimensions each for local community and imported community characteristics. The first factor was labeled community poverty because of its strong link to residential tenure—long-term residents contribute most to the cohesiveness of communities. Our factor results were consistent with other ecological studies of community crime, stability, and economic status, although research findings on poverty are generally more consistent than those on community stability (see Bursik 1988; Bursik and Grasmick 1993; Sampson and Lauritsen 1993:43-64). Both factor solutions were clear and interpretable, and the factor loadings of major variables defining each factor were quite consistent. However, slightly different populations were represented in each type of community,10 and minor differences in factor loadings were found between the local and imported factor solutions.

Minority composition loaded most strongly on the poverty factor in both the local and imported factor solutions, but in the imported solution it also loaded moderately on the community stability factor. Due to the legacy of school desegregation policies, students from neighborhoods with high minority composition are more likely than students from White neighborhoods to attend schools outside of their residential neighborhoods (Wilson 1987), resulting in the moderate loading of minority composition on imported stability but not on local stability.

Residential stability loaded more highly on the community stability factor than any other variable in both the local and imported factor solutions.
### TABLE 1: Factor Solutions for Local Community and Imported Community Characteristics (varimax rotation)

<table>
<thead>
<tr>
<th></th>
<th>Local Factor Solution</th>
<th>Imported Factor Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local Poverty</td>
<td>Community Stability</td>
</tr>
<tr>
<td>Single-parent households</td>
<td>.91</td>
<td>.96</td>
</tr>
<tr>
<td>Minority composition</td>
<td>.79</td>
<td>.72</td>
</tr>
<tr>
<td>Median income</td>
<td>-.77</td>
<td>-.87</td>
</tr>
<tr>
<td>Household size</td>
<td>.83</td>
<td>.78</td>
</tr>
<tr>
<td>Residential stability</td>
<td>.84</td>
<td>.89</td>
</tr>
</tbody>
</table>

NOTE: Absolute values less than .40 are omitted to ease interpretability.

However, household size in the imported factor solution loaded most highly on the poverty factor, whereas in the local factor solution household size loaded most highly on the community stability factor. Three factors partially explain these patterns. First, large households with more children tend to move less frequently than smaller families or unattached individuals. Second, adults move much less frequently as they get older (30+). Third, the majority of adults stay close to home throughout their lives, residing within the same metropolitan area in which they were born (U.S. Census Bureau 2000). Household size and residential stability in local communities may thus be linked by common demographic factors. However, residential mobility is also related to race and income. For example, Blacks and Hispanics have higher total movement rates than non-Hispanic Whites but are more likely to move within the same county. White-collar workers with a college education have higher rates of moves over long distances (U.S. Census Bureau 2000). In the imported factor solution, the relationship of household size to poverty suggests that economic status is more of a driving concern for families living outside the local school area. Those families are also likely to be poor, minority, and headed by a single parent. Slightly different population demographics in local versus imported communities thus offer plausible explanations for slight differences in observed factor loadings.

**School size.** The third exogenous variable included in the path models is a measure of school size. School size (i.e., total student enrollment) provides an important index of school structure that has been linked to school disorder in previous studies. In addition, although precise measures of school resources (e.g., budget figures) were unavailable, school size, as expressed by the
number of students enrolled in a school, acts as a good proxy of school resources due to the formula-derived, per pupil expenditure policy of the school district. School operating budgets are influenced by other factors, including the number of at-risk students qualifying for federal aid and the size of the school's special education population, but budgets are mainly determined by the number of registered students at the beginning of a school year.

Community crime. Measurement of crime, the first endogenous variable, followed the same logic used for distinguishing between local and imported communities. We separated crime occurring in the communities surrounding the schools (local effects) from crime occurring in the census tracts in which students actually reside (imported effects). The data used for this analysis were 1992 offenses reported to the Philadelphia Police Department. Data were address matched and then geocoded to census tracts. They were first aggregated to census tracts by type of offense, merged with individual student records, and then reaggregated to schools. This procedure afforded the opportunity to link aggregate census tract and crime-related data to individual students residing in those census tracts. Crime data were converted into rates expressed in terms of offenses by census tract population per thousand. To simplify this analysis, specific offense categories, organized according to UCR distinctions, were collapsed into the categories of personal, property, and drug-related offenses. The same scheme was used for imported (i.e., aggregated to schools) rates of offenses. Because the personal offense rate (crimes reported to police) reflects the most serious types of crimes reported to police in a given community, it represents the best available measure to examine the effects of community crime on school disorder. Crime rates were examined for both local and imported communities.

School stability. The second endogenous variable is an index of school culture that includes measures of student attendance and turnover at each school. These variables have been related to students' perceptions of school attachment, school safety, fairness of rules, and school outcomes including academic achievement, dropout and truancy rates, and victimization (Gottfredson and Gottfredson 1985; Lawrence 1998). The average daily attendance rate at each school and the percentage of student turnover (i.e., percentage of nongraduating students from the previous school year who did not reenroll) at each school in 1990 were entered into a principal components factor analysis using varimax rotation. A unitary factor (eigenvalue = 1.8) was extracted, accounting for 90.2 percent of the explained variance (intraclass correlation = .80).
TABLE 2: Correlation Matrices: Local Community and Imported Community Models

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local community model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. School disorder (factor score)</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. School stability (factor score)</td>
<td>-.79*</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. School size</td>
<td>.14</td>
<td>-.31*</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Community crime</td>
<td>.03</td>
<td>-.08</td>
<td>-.06</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Community poverty (factor score)</td>
<td>.29</td>
<td>-.43*</td>
<td>.08</td>
<td>.52*</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>6. Community stability (factor score)</td>
<td>.10</td>
<td>-.20</td>
<td>.36*</td>
<td>-.47*</td>
<td>.00</td>
<td>1.0</td>
</tr>
<tr>
<td>Imported community model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. School disorder (factor score)</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. School stability (factor score)</td>
<td>-.79*</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. School size</td>
<td>.14</td>
<td>-.31*</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Community crime</td>
<td>.40*</td>
<td>-.62</td>
<td>.06</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Community poverty (factor score)</td>
<td>.54*</td>
<td>-.67*</td>
<td>.00</td>
<td>.78</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>6. Community stability (factor score)</td>
<td>-.04</td>
<td>.08</td>
<td>.05</td>
<td>-.40*</td>
<td>.00</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*p < .05.

**Dependent Measure**

*School disorder.* School incident and disciplinary data were obtained from the Philadelphia School District. Incident data contain information about incidents in or on school property reported to the school police for the 1992-93 school year, including types of incidents reported to the school police (e.g., property and personal crimes), where the incident took place (e.g., on or off school grounds), the actions taken by the police (e.g., arrest), and information about the date and time of the incident. In addition, we examined dismissals from each school during the 1990 school year. School dismissal and incident rates tend to capture moderately serious levels of disorder much better than do suspension rates, and the variation attributable to differences in school reporting practices should be much less pronounced. Incident rates on school grounds and dismissal rates were entered into principal components factor analysis. A unitary factor (eigenvalue = 1.4) was extracted, accounting for 70.0 percent of the explained variance (intraclass correlation = .49).

**RESULTS**

Intercorrelations of variables in the local and imported models are presented separately in Table 2. Data descriptives for all variables are presented in Table 3. While multivariate analyses are needed to interpret causal effects, the patterns of correlations shown in Table 2 indicate that the variables

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TABLE 3: Descriptive Statistics: Variables Used in Path Models

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>School-level factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School disorder (factor score)</td>
<td>0.00</td>
<td>1.00</td>
<td>-2.06</td>
<td>2.35</td>
<td>42</td>
</tr>
<tr>
<td>School stability (factor score)</td>
<td>0.00</td>
<td>1.00</td>
<td>-2.21</td>
<td>2.54</td>
<td>43</td>
</tr>
<tr>
<td>School size</td>
<td>817.24</td>
<td>305.20</td>
<td>223.00</td>
<td>1,288.00</td>
<td>43</td>
</tr>
<tr>
<td>Local community crime (per 100)</td>
<td>1.66</td>
<td>1.01</td>
<td>0.06</td>
<td>5.01</td>
<td>43</td>
</tr>
<tr>
<td>Local community poverty (factor score)</td>
<td>0.00</td>
<td>1.00</td>
<td>-2.14</td>
<td>2.25</td>
<td>42</td>
</tr>
<tr>
<td>Local community stability (factor score)</td>
<td>0.00</td>
<td>1.00</td>
<td>-3.03</td>
<td>1.58</td>
<td>42</td>
</tr>
<tr>
<td>Imported community crime (per 100)</td>
<td>2.82</td>
<td>1.00</td>
<td>1.12</td>
<td>6.42</td>
<td>43</td>
</tr>
<tr>
<td>Imported community poverty (factor score)</td>
<td>0.00</td>
<td>1.00</td>
<td>-2.34</td>
<td>2.07</td>
<td>41</td>
</tr>
<tr>
<td>Imported community stability (factor score)</td>
<td>0.00</td>
<td>1.00</td>
<td>-2.12</td>
<td>2.00</td>
<td>41</td>
</tr>
</tbody>
</table>

chosen for these models were relevant predictors. Six correlations reached statistical significance in each model, and 8 of 16 correlations exceeded .20. Although school stability correlated significantly with disorder, we retained this variable in path models. First, the construct of school stability is theoretically distinct from the construct of school disorder. This index of school culture was of central theoretical interest in this study, and our measure was a factor score constructed from two well-accepted indicators of school culture (school turnover and attendance rates). Second, correlations less than .80 generally fall within acceptable limits for path analysis (Pedhazur 1982).

As expected, school stability exhibited the strongest bivariate relationship with school disorder, but school stability itself was strongly related to school size and local community poverty. Local community crime was strongly related to local community poverty and stability but not to school disorder. Bivariate results suggest that school culture is strongly related to school disorder, independent of local community characteristics.

Intercorrelations of variables in the imported model exhibit somewhat different patterns. Unlike the local model, school disorder has a strong bivariate relationship not only with school stability but also with imported community crime and poverty. Thus, schools with higher levels of disorder appear to have greater numbers of students imported from poor, high-crime communities. Of course, bivariate relationships cannot be interpreted as causal mechanisms, and further (multivariate) exploration is warranted to examine direct and indirect effects of predictors.
TABLE 4: Regression of Disorder on School and Community Predictors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Local Community Model</th>
<th></th>
<th>Imported Community Model</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>School stability</td>
<td>-0.8482*</td>
<td>0.1162</td>
<td></td>
<td>-0.9096*</td>
</tr>
<tr>
<td>School size</td>
<td>-3.4935-04</td>
<td>3.6540-04</td>
<td></td>
<td>-4.7054-04</td>
</tr>
<tr>
<td>Local community crime</td>
<td>-0.0492</td>
<td>0.1408</td>
<td></td>
<td>-0.1305</td>
</tr>
<tr>
<td>Local community poverty</td>
<td>-0.0454</td>
<td>0.1357</td>
<td></td>
<td>0.2146</td>
</tr>
<tr>
<td>Local community stability</td>
<td>-0.0522</td>
<td>0.1279</td>
<td></td>
<td>-0.3764</td>
</tr>
<tr>
<td>Imported community crime</td>
<td></td>
<td></td>
<td>-0.1305</td>
<td>0.1273</td>
</tr>
<tr>
<td>Imported community poverty</td>
<td></td>
<td></td>
<td>0.2146</td>
<td>0.1999</td>
</tr>
<tr>
<td>Imported community stability</td>
<td></td>
<td></td>
<td>-0.3764</td>
<td>0.2024</td>
</tr>
<tr>
<td>Constant</td>
<td>0.3709</td>
<td>0.3705</td>
<td></td>
<td>1.4629*</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.6431</td>
<td>.6375</td>
<td></td>
<td>.6720</td>
</tr>
<tr>
<td>$F(df)$</td>
<td>12.97(5, 36)*</td>
<td></td>
<td></td>
<td>14.34(5, 35)*</td>
</tr>
</tbody>
</table>

NOTE: All beta (B) coefficients shown are unstandardized. *p < .05.

Prior to testing path models for the local and imported community models, we entered each set of predictors simultaneously into multiple regression equations. The $R^2$ values generated from these two simplified models were then entered into path calculations along with required statistics generated from additional regression equations (see Appendix B). Results are shown in Table 4. Both regression models accounted for substantial portions of explained variance (64 percent to 67 percent) in school disorder. These preliminary regression results indicate that the variables in each hypothesized model offer substantial predictive power. However, tests of path models are needed to determine the magnitude and statistical significance of path coefficients, patterns of direct and indirect effects, and the goodness of fit of each hypothesized model (see Figures 1 and 2).

Local Community Path Model

Figure 1 diagrams the path coefficients and error terms of the variables included in the local community model. Calculations for path models are shown in Appendix B. In the first equation, local crime was a poor predictor of school disorder ($P = -.037$), whereas school stability exerted strong, significant effects ($P = -.79$). In the second equation, local crime was regressed on the exogenous variables local poverty and local community stability. Consistent with social disorganization theory, both local poverty ($P = .523$) and local stability ($P = -.47$) exerted strong, significant effects on local crime. In the third equation, school stability was regressed on local poverty, local community stability, and school size. School stability, a variable that had signifi-
cant direct effects on school disorder, was itself predicted strongly and significantly by poverty (\(P = -.41\)), less so (and nonsignificantly) by school size (\(P = -.24\)) and community stability (\(P = -.12\)). This result confirms a relationship between poverty rates and school disorder, but the impact of poverty on school disorder is mediated by school stability.

Next, we examined the goodness of fit for the local model, \(Q = .945\) and \(W = 2.15\) \((p > .70)\). The evidence, therefore, suggests a very good fit of the proposed causal model to the data. Equations for calculating \(Q\) and \(W\) are shown in Appendix B.

**Imported Community Path Model**

Table 2 suggested potentially stronger relationships between community characteristics and school disorder when community was measured using the area in which students actually reside (imported community) rather than the community surrounding the school itself (local community). Bivariate correlations of imported community variables with school stability, hypothesized to be a critical mediator of community effects on school disorder, exceeded those in the local model. When imported community rather than local community variables were examined, stronger bivariate relationships with school stability were found for poverty (\(-.67\) imported vs. \(-.43\) local) and crime (\(-.62\) imported vs. \(-.08\) local). Moreover, imported crime (\(r = .40\)) was more strongly associated with school disorder than local crime (\(r = .03\)). Thus, bivariate results suggest that community characteristics may have a more direct influence on school stability and disorder when community is measured differently. These possibilities were examined with path analysis (see Figure 2).

In the first equation, school disorder was regressed on crime and school stability. Similar to the local model, school stability exerted a strong, significant effect on school disorder (\(P = -.881\)), but community crime was a weak, nonsignificant predictor (\(P = -.146\)). Note that the previously strong bivariate relationship between imported crime and school disorder (see Table 2) becomes insignificant when pitted against school stability in a multivariate model. When imported crime was regressed on poverty and community stability in the second equation, path coefficients for both community variables were statistically significant. Imported poverty (\(P = .78\)) had somewhat stronger effects on crime compared with the local model, whereas the effects of imported community stability (\(P = -.40\)) were somewhat weaker compared with the local model. Poverty was the stronger predictor of community crime in both the local community and imported community models. In the last equation, school stability was regressed on poverty, community stability, and school size. A pattern similar to that of the local path model was found.
Poverty remained a strong, significant predictor of school stability \( (P = -.67) \), with school size \( (P = -.32) \) exerting slightly stronger, statistically significant effects on school stability compared with the local model. Community stability continued to exert weak, nonsignificant effects on school stability \( (P = .06) \). For the imported model, \( Q = .903 \) and \( W = 3.88 (p > .43) \). The evidence, therefore, suggests that the imported model provides an adequate fit to the data, but not as good a fit as the local model.

**Comparison of Local and Imported Path Models**

Two primary goals of this study were to examine the effects of school and community characteristics on school disorder and to determine which model of community, local or imported, provided the better explanation for school disorder. After \( Q \)-statistics were determined for the local model (.945) and the imported model (.903), we took the \( M \)-values from these equations to test whether the differences between the local and imported models were statistically significant.\(^{16}\) As shown in Appendix B, the null hypothesis that the models fit equally well was rejected \( (W = 55.22, p < .01) \). The evidence suggests that the local community model fit the data significantly better than the imported model.

**Decomposition of Correlation Coefficients**

Using procedures described by Pedhazur (1982), a correlation coefficient can be decomposed into four components: direct effects, indirect effects, unanalyzed due to correlated causes, and spurious due to common causes. The sum of direct effects and indirect effects is the total effect, or the effect coefficient. Note that all four components are rarely present in any hypothesized causal model because paths have been “trimmed” from the overidentified (full) model. The more parsimonious the proposed causal model, the fewer decompositions of correlations are possible. The two endogenous variables in each model, crime and school stability, cannot be decomposed further because the direct effect is the same as the total effect. We thus focus on the three exogenous variables.\(^{17}\) Decomposed correlations are presented in Table 5; calculations are shown in Appendix B.

**Local community model.** First, we examined the relationship between poverty and school disorder. Note that no direct effect of poverty on school disorder was hypothesized (see Figure 1). Whereas poverty has little direct effect on disorder, poverty exerts a substantial indirect effect (see Table 5), mainly through school stability (see Appendix B for calculations). Next, we
examine the relationship between community stability and school disorder. Note that no direct effect of community stability on school disorder was hypothesized. Community stability exerts no substantial direct or indirect effect on school disorder through either crime or school stability. However, its indirect effect through school stability is greater than its indirect effect through crime (see Appendix B), suggesting once again that the effects of community characteristics on school disorder are mediated to a considerable degree by our measure of school culture (school stability). Finally, we examined the relationship between school size and school disorder. Note that no direct effect of school size on school disorder was hypothesized. School size exerts a moderate indirect effect on school disorder through school stability. However, its indirect effect on school disorder is considerably less than the indirect effect of local community poverty. School size alone may not be as crucial a determining factor of school disorder as many have assumed.

Overall, decomposing these correlations leads us to three significant conclusions. First, effects of community characteristics and school size on school disorder are mediated to a considerable degree by school stability. Second, poverty has a considerable indirect effect on school disorder through its influence on school stability. In contrast, school size exerted a moderate indirect effect and community stability a small indirect effect on school disorder. Community crime had no appreciable mediating effects (see Appendix B).

*Imported community model.* First, we examined the relationship between poverty and school disorder. Note that no direct effect of poverty on school disorder was hypothesized. Imported poverty exerts a modest direct effect and a very substantial indirect effect on school disorder, mainly through school stability (see Appendix B). Next, we examined the relationship between community stability and school disorder. Note that no direct effect of community stability on school disorder was hypothesized. Community stability
has a modest (negative) direct effect on disorder but virtually no indirect effect through either community crime or school stability (see Appendix B). Finally, we examined the relationship between school size and school disorder. Note that no direct effect of school size on school disorder was hypothesized. School size exerts a substantial indirect effect on school disorder through school stability. However, its total effect on school disorder is considerably less than that of imported community poverty.

Overall, three conclusions follow from the decomposition of correlations in the imported model. First, effects of community characteristics and school size on school disorder are mediated to a considerable degree by school stability (but not by community crime, the other endogenous variable). Second, imported poverty has a considerable indirect effect on school disorder through its influence on school stability. School size exerted a substantial (but smaller) indirect effect on disorder, whereas imported community stability exerted a modest direct effect only.

**DISCUSSION**

We attempted to improve upon previous examinations of school disorder by distinguishing both local and imported community models and by clarifying direct versus indirect effects of community and school variables. In path models, school stability strongly mediated the effects of community poverty, community stability, and school size on school disorder. Previously strong bivariate relationships between community characteristics and school disorder practically disappeared when pitted against school stability in multivariate models. Neither community crime nor community stability had any significant effects on school disorder in path models, although community poverty and school size both exerted significant indirect effects through their influence on school stability.

Community poverty and community stability strongly predicted community crime in both local and imported community models, as suggested by social disorganization theory. Effects of poverty on community crime rates were particularly strong. However, community crime exerted no appreciable effect on school disorder in either the local community model or the imported community model. Simplistic assumptions that communities with high crime rates automatically commit a school to a high rate of disorder are untenable. Our study suggests, rather, that schools in poor communities vary on disorder, but poverty influences school disorder largely through its indirect effects on school stability.
Decomposition of correlations in both the local community and imported community models clarified the direct versus indirect effects of exogenous variables (community poverty, community stability, and school size). In both models, the effects of community poverty and community stability on school disorder were mediated strongly by school stability. Poverty, however, had a considerable indirect effect on school disorder in both models through its influence on school stability. School size had a lesser but substantial indirect effect on school disorder in both models, consistent with our hypotheses that effects of school size are strongly mediated by school culture and perhaps other variables. While school size remains a potentially important indicator of school structure, any meaningful examination of its effects on school disorder must consider its role within a multivariate framework.

The negative impact of poverty is largely consistent with previous ecological studies of school disorder (see Gottfredson and Gottfredson 1985; Lawrence 1998), as is the finding that community poverty exerts stronger effects on delinquency than residential stability (see Sampson and Lauritsen 1993). In their reanalysis of Safe School Study data, Gottfredson and Gottfredson (1985:133-34) confirmed previous NIE (1978) findings that junior high schools located in areas characterized by poverty, unemployment, and a high proportion of female-headed families experienced more student victimizations, as did schools undergoing desegregation (e.g., busing or court-ordered desegregation programs). They also reported that junior high schools located in high-crime communities did not have higher rates of school disorder, consistent with the findings of the present study. However, our findings that community poverty (both local and imported) is mediated substantially by school culture (stability) are unique.

Local community poverty may affect school structure and culture by severely limiting the social and economic resources available to a school. For example, poverty in the school’s surrounding community influences the social characteristics of students attending the school (e.g., their readiness and interest to learn, their risk of abuse and victimization), the kind of faculty that are recruited and retained, the resources available for educational and recreational programs, and the involvement of parents and other citizens in school planning and activities (Gottfredson and Gottfredson 1985). The property tax base of local communities largely determines the quality and amount of resources available to the school district and limits funding for local schools. At least four conditions contributing to educational failure and delinquency are related to limited resources: inadequate compensatory and remedial education, inferior teachers and facilities, school-community distance (i.e., weak residential and parental involvement in community schools),
and economic and racial segregation (Lawrence 1998:114-15). In these respects, we cannot escape from the negative blows dealt to the economic and social vitality of urban communities by the post-1960s exodus of middle- and upper-income taxpayers (both White and non-White) and jobs from U.S. cities (Wilson 1987). Nor can we ignore the negative effects of poverty on family functioning and social development (McCord 1991), including increased risks of child neglect and abuse (e.g., Widom 1989a, 1989b). Clearly, improvements by school administrators to school structure and culture, while desirable, cannot be expected by themselves to reverse powerful economic and social conditions.

Furthermore, regardless of where they reside, students must travel through the local community, either by foot, car, or bus, to get to and from school. Their perceived exposure to risk may cause them to carry weapons, avoid certain places, or engage in aggressive behaviors that reduce their sense of danger (Lockwood 1997). It is also possible that community norms and socialization patterns in poverty-stricken communities may foster and reinforce aggressive patterns of behavior as forms of adaptation to environmental demands (E. Anderson 1990, 1998; Bernard 1990; Wilson 1987). If we truly desire safer schools, then to some degree we must also focus on building safer communities (see D. C. Anderson 1998).

We found that community stability had minimal effects on school disorder relative to poverty, although a modest direct effect of imported community stability was found. Community stability in our study, like others, was defined mainly by residential tenure (see Table 1 and Appendix A). According to social disorganization theory, long-term residents contribute most to the cohesiveness of communities. While existing research on residential stability is not as extensive or conclusive as that on economic status, a high rate of residential mobility is associated with institutional disruption and weakened community controls on delinquency, particularly in areas characterized by significant changes in mobility over time (Kornhauser 1978; Sampson and Lauritsen 1993; Taylor and Covington 1988). Our findings with regard to community stability are largely consistent with those of previous delinquency studies, but further studies are needed to examine the interactive effects of different community- and school-level variables on different measures of school disorder.

While the indirect effects of poverty on school disorder were strong and consistent in both local community and imported community models, the local community model fit the data significantly better than the imported community model. Simply busing students into a local school from other neighborhoods (i.e., imported community effects) cannot readily explain high levels of school disorder. We emphasize that we cannot make strong
interpretive conclusions with regard to the importation model because it does not provide as strong a fit to the data. Indeed, path analysis can only support rather than prove any model (Pedhazur 1982). However, decomposition of correlations showed that both the direct and indirect effects of community poverty on school disorder were stronger in the imported model. Imported residential instability also had a modest direct effect on school disorder. These findings have important implications for the explanation and prevention of school disorder. While previous studies have suggested that large concentrations of students from high-poverty, low-stability, high-crime communities contribute to a large student body with weakened social constraints against misbehavior, resulting in higher rates of school violence (Gottfredson and Gottfredson 1985), researchers have generally failed to make the distinction between the local community and the community in which students actually reside.

We have suggested that social disorganization in the local community affects school structure and culture through the physical and social resources (and constraints) available to a school. At the same time, however, the relationship between students' residential (imported) community characteristics and their school behavior is not zero. It seems likely that both local community and imported community play a role, but perhaps in different ways. According to social disorganization theory, we would expect that students' attitudes and behaviors are most significantly influenced by their exposure to salient social influences (peers, family, neighbors) in the settings where they reside and spend the most time (i.e., residential or imported communities). However, some (not all) of these students do not attend school in the same neighborhood where they reside. This subpopulation of students is thus exposed to a second set of social influences in the local community surrounding the school that they attend. While the surrounding community of the school that they visit each day is less likely to influence their socialization and development than the one in which they reside, the local community carries significant implications for the school's organizational structure and culture. Our point, then, is that the stronger direct and total effects of imported community poverty on school disorder in this study are consistent with social disorganization theory, although appropriate distinctions between local community and imported community have rarely appeared in the school violence literature.

Measuring both types of community characteristics (local and imported) in future research is advisable. Present results lead us to the conclusion that the local community exerts a greater influence on school disorder than the communities in which students reside, but it is possible that analyses of school disorder in other jurisdictions or analyses based on different measures
of school structure and culture (as well as other school-level differences) may find different patterns of results. For example, more diverse and "proximate" indicators of school culture (e.g., measures based on teacher and student surveys) are possible.\textsuperscript{19} Future studies of school disorder would benefit considerably from the integration of individual-level measures (i.e., individual student characteristics, attitudes, and behaviors) into multilevel studies along with school-level measures (i.e., ecological environment, social milieu, organizational structure, and culture) and community background characteristics of students. The main challenge in so doing is to muster research resources sufficient to obtain large samples of both students and schools (see Welsh, Greene, et al. 1999).

Analyses of institutional processes, broadly conceived, can provide critical links between individual-level and macro-level theories such as social disorganization theory (Messner and Rosenfeld 1997; Welsh, Greene, et al. 1999). Institutions are relatively stable sets of norms and values, statuses and roles, groups and organizations, that regulate human conduct to meet the basic needs of a society (Messner and Rosenfeld 1997). Major institutions include the economy (activities organized around the production and distribution of goods and services), the polity or political system (mobilization and distribution of power), the family (which cares and nurtures children and socializes children into specific values, goals, and beliefs), and education (shares socialization functions with the family, including responsibility for transmitting cultural standards to new generations). As suggested by social disorganization theory, institutions such as schools provide one important means of exercising informal community controls (Welsh, Greene, et al. 1999). Families and schools in poverty-stricken communities can be expected to experience the greatest difficulty in transmitting conventional values and regulating behavior: "Poorly funded or crowded schools also find it difficult to exert effective supervision, especially when students see little or no connection between what is taught in the classroom and what is valued outside of it" (Messner and Rosenfeld 1997:78). A school's ability to influence and control behavior, we have argued, is influenced by but in no way predetermined by community variables (e.g., rates of poverty), and community variables may also shape other local sources of control (e.g., police, social agencies, youth service providers, probation, local business leaders, parents, and other residents). In fact, community-school partnerships have been advocated by many as effective mechanisms to identify and address specific problems related to school disorder and delinquency (Hawkins and Catalano 1992; Howell 1995; Welsh, Jenkins, and Harris 1999). Our results, we emphasize, argue that community effects on school disorder are largely indirect, not that community effects are zero.
School climate theories carry promise not only for the explanation of school disorder but also for prevention and intervention. School climate can be changed by conscious efforts by school administrators, teachers, parents, students, and community groups (e.g., Gottfredson 1989; Owens 1987; Welsh, Jenkins, et al. 1999), but individual schools need to carefully assess their own climate to determine which factors may be contributing to disorder. Excellent examples of how school climate studies have been used for diagnosis, planning, intervention, and evaluation are provided by Gottfredson (1984) and Gottfredson, Gottfredson, and Hybl (1993). For example, the Positive Action through Holistic Education (PATHE) program was developed at four middle schools and four high schools in low-income, predominantly African American urban and rural areas in Charleston County, South Carolina (Gottfredson 1986). The program contained six main components: design and implementation of school improvement programs by teams of teachers, students, parents, and community members; curriculum and discipline policy review and revision; schoolwide academic innovations such as study skills programs and cooperative learning techniques; school climate interventions, including expanded extracurricular activities, peer counseling, and a school pride program; career-oriented activities; and special academic and counseling services for low-achieving and disruptive students. Although experimental and comparison schools were not directly compared in statistical models (see Howell 1995), descriptive results suggested that the PATHE program produced several favorable outcomes. Students in experimental schools reported less delinquency, less drug involvement, and fewer suspensions or other punishments. Students in experimental schools who received special academic and counseling services scored significantly higher on standardized tests and were less likely to report drug involvement or repeat a grade than were control group students.

We recommend that close scrutiny of school climate and community characteristics (both imported and local) be included in future efforts to explain and prevent school disorder. Even in poor communities, schools vary in their levels of disorder, as well as their strategies and successes in reducing disorder. While the effects of poverty are pervasive and significant, those effects are mediated by the organizational structure and culture of the school and can potentially be managed in different ways. Efforts to change individuals, in the absence of attention to school policies and community influences that may be contributing to high levels of misconduct, are likely to be unproductive or even counterproductive. The impediments to creating safer schools are familiar, but the stakes are high and the status quo is unacceptable. As yet, "The will remains to be seen" (D. C. Anderson 1998:360).
APPENDIX A
Descriptive Statistics for Variables Used to Create Factor Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of school incidents</td>
<td>39.67</td>
<td>27.22</td>
<td>5.00</td>
<td>145.00</td>
<td>43</td>
</tr>
<tr>
<td>Number of school dismissals</td>
<td>116.74</td>
<td>65.30</td>
<td>4.00</td>
<td>255.00</td>
<td>42</td>
</tr>
<tr>
<td>Average daily attendance rate</td>
<td>85.14</td>
<td>4.34</td>
<td>75.00</td>
<td>95.00</td>
<td>43</td>
</tr>
<tr>
<td>Percentage student turnover</td>
<td>13.22</td>
<td>5.03</td>
<td>0.30</td>
<td>22.60</td>
<td>43</td>
</tr>
<tr>
<td>Local community measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median household income</td>
<td>$23,146</td>
<td>$8,719</td>
<td>$9,275</td>
<td>$46,608</td>
<td>42</td>
</tr>
<tr>
<td>Percentage households with single parents</td>
<td>16.65</td>
<td>8.55</td>
<td>2.78</td>
<td>36.07</td>
<td>42</td>
</tr>
<tr>
<td>Percentage households with four or more people</td>
<td>28.11</td>
<td>8.09</td>
<td>10.69</td>
<td>51.33</td>
<td>42</td>
</tr>
<tr>
<td>Percentage residents in same house five or more years</td>
<td>62.51</td>
<td>14.20</td>
<td>22.62</td>
<td>82.04</td>
<td>42</td>
</tr>
<tr>
<td>Percentage non-White residents</td>
<td>61.80</td>
<td>39.34</td>
<td>0.64</td>
<td>100.00</td>
<td>42</td>
</tr>
<tr>
<td>Imported community measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median household income</td>
<td>$20,521</td>
<td>$6,191</td>
<td>$10,559</td>
<td>$33,647</td>
<td>41</td>
</tr>
<tr>
<td>Percentage households with single parents</td>
<td>26.62</td>
<td>8.04</td>
<td>8.98</td>
<td>46.97</td>
<td>42</td>
</tr>
<tr>
<td>Percentage households with four or more people</td>
<td>17.15</td>
<td>4.23</td>
<td>8.97</td>
<td>29.12</td>
<td>42</td>
</tr>
<tr>
<td>Percentage residents in same house five or more years</td>
<td>64.91</td>
<td>11.03</td>
<td>0.00</td>
<td>74.71</td>
<td>43</td>
</tr>
<tr>
<td>Percentage non-White residents</td>
<td>72.06</td>
<td>25.55</td>
<td>16.00</td>
<td>99.00</td>
<td>41</td>
</tr>
</tbody>
</table>

APPENDIX B
Calculation of Statistics for Path Analysis

General Calculations for the Path Model

(i) \( Q = \frac{1 - R_m^2}{1 - M} \)

(ii) \( R_m^2 = 1 - (1 - R_1^2)(1 - R_2^2)\ldots(1 - R_p^2) \)

(iii) \( M = 1 - (1 - R_1^2)(1 - R_2^2)\ldots(1 - R_p^2) \)
Calculations for the Local Community Model

(i) \( Q = \frac{1 - [1 - (1 - .64312)(1 - .50080)(1 - .27486)]}{1 - [(1 - .62635)(1 - .49552)(1 - .27486)]} \)

\( 1 - (.35688)(.4992)(.72514) \)
\( 1 - (.37365)(.5045)(.72514) \)

\( R_m^2 = .870813 \)
\( M = .863312 \)
\( Q = .945 \)

Test of Significance of Q for the Local Model

\( W = -(N - d) \log_e(Q) \)

where \( N \) is the sample size, \( d \) is the number of overidentifying restrictions (i.e., the number of path coefficients hypothesized to equal zero), and \( \log_e \) is the natural logarithm.

\( W = -(42 - 4) \log_e(.945) \)
\( = 2.14967 \ (p > .70) \)

Based on the nonsignificance of \( W \), the null hypothesis that the fully identified model and the overidentified (local) model are equal is not rejected. The local model (\( Q = .945 \)) provides a good fit to the fully identified model (\( Q = 1.0 \)).

Calculations for the Imported Model

(i) \( Q = \frac{1 - [1 - (1 - .67201)(1 - .76801)(1 - .56448)]}{1 - [(1 - .63799)(1 - .76724)(1 - .56448)]} \)

\( 1 - (.32799)(.23199)(.43552) \)
\( 1 - (.36201)(.23276)(.43552) \)

\( R_m^2 = .966861 \)
\( M = .963302 \)
\( Q = .9030 \)

Test of Significance of Q for the Imported Model

\( W = -(N - d) \log_e(Q) \)
where $N$ is the sample size, $d$ is the number of overidentifying restrictions (or the number of path coefficients hypothesized to equal zero), and $\log_e$ is the natural logarithm.

$$W = -(42 - 4)\log_e(.9030)$$
$$= 3.877243 \ (p > .43)$$

Based on the nonsignificance of $W$, the null hypothesis that the fully identified model and the overidentified (imported) model are equal is not rejected. The local model ($Q = .903$) provides an acceptable fit to the fully identified model ($Q = 1.0$).

**Calculations for the Comparison of the Local Model versus the Imported Model**

$$Q = \frac{1 - \text{Imported M}}{1 - \text{Local M}}$$

$1 - .963302$
$1 - .863311$

$$Q = .2685$$

**Test of Significance of $Q$**

$$W = -(N - d)\log_e(Q)$$

where where $N$ is the sample size, $d$ is the number of overidentifying restrictions (or the number of path coefficients hypothesized to equal zero), and $\log_e$ is the natural logarithm.

$$W = -(42 - 0)\log_e(.2685)$$
$$= -(42)(-1.3149)$$
$$= 55.226 \ (p < .01)$$

The null hypothesis that the imported and local models are equal is rejected based on the significance of $W$. The local model ($Q = .945$) provides a better fit than the imported model ($Q = .903$).

**Decomposition of Correlations between Exogenous Variables and School Disorder: Local Community Model (see Figure 1)**

$$r_{14} = p_{14} + p_{12}p_{24} + p_{13}p_{34}$$

Direct Effect (DE) + Indirect Effect (IE) + IE

$$= (-.0454) + (.037)(.523) + (-.793)(-.410)$$
\[ r_{15} = p_{15} + p_{12} p_{25} + p_{13} p_{35} \]
\[ \text{DE} + \text{IE} + \text{IE} \]
\[ = (-.0521) + (-.037)(-.47) + (-.793)(-.116) \]
\[ = -.0521 + .01739 + .091988 \]
\[ = 0.0573 \]

\[ r_{16} = p_{16} + p_{13} p_{36} \]
\[ \text{DE} + \text{IE} \]
\[ = (-.1066) + (-.793)(-.237) \]
\[ = .0813 \]

**Decomposition of Correlations between Exogenous Variables and School Disorder: Imported Community Model (see Figure 2)**

\[ r_{14} = p_{14} + p_{12} p_{24} + p_{13} p_{34} \]
\[ \text{DE} + \text{IE} + \text{IE} \]
\[ = (.2119) + (-.146)(.779) + (-.881)(-.673) \]
\[ = (.2119) + .113734 + .592913 \]
\[ = 0.6910 \]

\[ r_{15} = p_{15} + p_{12} p_{25} + p_{13} p_{35} \]
\[ \text{DE} + \text{IE} + \text{IE} \]
\[ = (-.1299) + (-.146)(-.399) + (-.881)(.063) \]
\[ = -.1299 + .058254 + -.055503 \]
\[ = -.00279 \]

\[ r_{16} = p_{16} + p_{13} p_{36} \]
\[ \text{DE} + \text{IE} \]
\[ = (-.1389) + (.881)(-.321) \]
\[ = 0.1439 \]

**NOTES**

1. In a survey of students from 10 inner-city high schools, almost half of the male students said they could borrow a gun from friends or family if they wanted to and 40 percent of all students said they have a male relative who carries a gun (Sheley, McGee, and Wright 1995).

2. According to Sheley and Wright (1998), “Though communities may gain schools that serve as safe havens and permit education to occur, schools are less a source of violence than a
place where disputes arising in the neighborhood are acted upon’” (p. 6 [emphasis added]). In the widely cited, four-volume National Research Council report on violence, Reiss and Roth (1993) state, “Violence rates in secondary schools are highest in school districts marked by higher crime rates and more street fighting gangs—an indication that the school reflects the community, and evidence that is consistent with the importation of violent behaviors into the school, by both students and intruders” (p. 155 [emphasis added]). See also Hellman and Beaton (1986). Lawrence (1998:4-6), and Sheley et al. (1995).

3. The School Crime Supplement surveys nationally representative samples of 10,000 students age 12 to 19. Surveys gather data on victimization at school, drug availability at school, street gangs at school, and fear of attack at school.

4. In available studies examining relationships between school attendance and disorder, attendance rates have been treated as unique dimensions of school climate (i.e., culture). None of the studies reviewed here or elsewhere treats school attendance rates as alternative measures of school disorder. Rather, school attendance is consistently treated as a distinct and important dimension of school culture and assessed by numerous school climate instruments (see Anderson 1982; Fox et al. 1975; Owens 1987).

5. Gottfredson and Gottfredson (1985) emphasize that social and educational disadvantage, rather than race per se, are primary causal factors.

6. There are a handful of specific exceptions in which schools teach either Grades 5-8 or K-8.

7. It is impossible to determine from aggregate-level school district data exactly how many individuals were suspended. In other words, of the 11,000 suspensions issued, a certain number of individuals may have been suspended more than once.

8. After local community and imported community data were aggregated to schools, student identifiers were removed to protect student confidentiality. School-based data cannot be disaggregated to individuals.

9. Descriptive statistics for the variables used to create factor scores are presented in Appendix A.

10. Some schools are neighborhood schools; that is, almost all students come from the surrounding neighborhood. There is little difference between local community and imported community characteristics in such schools. In other schools, some proportion of students (which varies) are bussed from other areas. Even in schools where students are bussed in, however, there is still a substantial overlap between local and imported, since that figure is one and the same for students who live in the neighborhood. Empirical and conceptual concerns prevent the estimation of a single model containing both local community and imported community characteristics. The two are inevitably highly correlated but not identical. No previous studies have made this distinction; consequently, we have no idea how previous results with regard to the effects of community characteristics on school disorder might have been different.

11. Personal offense categories include murder, rape, robbery, assaults and aggravated assaults, prostitution, gambling, loitering, driving while intoxicated, and weapons offenses. Property offense categories include auto theft, theft, burglary, arson, forgery, fraud, embezzlement, and vandalism.

12. Serious personal offense rates were highly correlated with other types of offense rates in local communities (Pearson correlation coefficients ranged from .58 to .72) and somewhat less so in imported communities (correlation coefficients ranged from .04 to .56).

13. Dismissals represent expulsions from school, providing a very useful index of serious offending at each school. The most recent year for which school district data on dismissals were available was 1990. However, dismissal rates do not vary dramatically from one year to the next.
and can reasonably be expected to have remained stable during the two-year time period in question.

14. See Note 4.

15. The reported path coefficients are taken from the standardized beta coefficients produced from the regression equations throughout the path model. The error term \( e_\alpha \) is derived by taking the square root of \( 1 - R^2 \), with the \( R^2 \) statistic being generated from each regression equation. Error terms can fall between zero and one, with an error term closer to zero indicating a more predictive model (see Pedhazur 1982).

16. The logic for this procedure is identical to that for using the \( W \)-statistic to compare the goodness of fit of an overidentified model to a fully recursive model (see Pedhazur 1982). Here, we simply undertake a comparison of two models with no overidentifying restrictions (see Appendix A).

17. No further decomposition of correlations is warranted. First, decomposition procedures should be explicitly guided by the particular theoretical model under examination, that is, the overidentified (path) model rather than the fully recursive (i.e., all possible paths) model (see Asher 1983; Pedhazur 1982). As Asher (1983) correctly points out, “If a linkage has been omitted from the model, implicitly we have said that we expect the magnitude of the path coefficient to be zero. Thus, the test of the model becomes whether the omitted coefficient is indeed zero, the magnitude of the omitted linkage being determined by estimating the model with the linkage under question included” (p. 36). Indeed, this is exactly what path analysis accomplishes: We eliminate certain possible paths and then compare our overidentified (reduced) model with the full model. Second, it is not meaningful to decompose every possible correlation:

Thus, all indirect effects are compound paths, but not all compound paths are substantively interpretable indirect effects. This is an important point since there is much confusion in the literature about direct and indirect effects. Some investigators have defined the indirect effect of one variable on another to be equal to the correlation between the two variables minus the direct effect. In many instances this definition is incorrect since it includes in the indirect effect those compound paths arising from the impact of some common prior variable that directly or indirectly affects both of the variables of interest. Hence some analysts talk of decomposing correlations into three components: direct effects, indirect effects, and spurious effects, the latter referring to those compound paths that are mathematically part of the decomposition but that do not represent substantively meaningful indirect effects. . . . [Indeed] path analysis provides us with a numerical estimate of indirect and direct effects after we have specified the direction of the linkages. (Asher 1983:34, 43)

18. Poverty has been strongly associated with high levels of violence in ecological studies, but differences in results and conclusions have been found with regard to the independent and interactive effects of poverty relative to other community factors such as density of housing, residential mobility, and family structure (for reviews, see Bursik 1988; Sampson and Lauritsen 1993). Of course, different community studies have used many different areal definitions including census tract, street block, neighborhood, city, county, and Standard Metropolitan Statistical Area. Community characteristics such as poverty and stability have also been measured in different ways, and dependent variables have encompassed a wide range of measures including fear, victimization, and offending (self-reports as well as official statistics). Needless to say, our results are not directly comparable to studies employing different definitional, measurement, or methodological techniques.
19. In analyses of school disorder reported elsewhere, we have examined such survey measures of school culture (Welsh 2000; Welsh, Greene, et al. 1999; Welsh et al. 1997). However, too few schools (11) were surveyed to use such measures here.

REFERENCES


