Do Schools Affect Delinquency?

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Do schools affect the development of the children in their charge? Studies giving varied answers to that question have influenced major legal controversies for thirty years, from the decision to end segregation in public schools1 to the current debates over the use of a local property tax as the principal source of funds for public education.2 Michael Rutter and his research team3 set out to

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2 See, e.g., San Antonio Indep. School Dist. v. Rodriguez, 411 U.S. 1, 36-37 (1973) (dictum) "where only relative differences in spending levels are involved and where . . . [the state apparently] provide[s] each child with an opportunity to acquire the basic minimal skills necessary for the enjoyment of the rights of speech and full participation in the political process," the state's education financing system is constitutional); Lujan v. Colorado State Bd. of Educ., 649 P.2d 1005 (Colo. 1982) (refusing to venture "amidst a raging controversy . . . into the realm of social policy under the guise that there is a fundamental right to education which calls upon [the court] to find that equal educational opportunity requires equal expenditures for each school child," id. at 1018; holding unequal school finance violates neither state nor federal equal protection clauses, id. at 1023); Pauley v. Kelly, 255 S.E.2d 859, 878 (W. Va. 1979) (education is a fundamental right under state constitution; state constitution's equal protection clause prohibits discriminatory education finance unless justified by compelling state interest), on remand, N.Y. Times, May 15, 1982, at 8, col. 6 (midwest ed.) (W. Va. Cir. Ct. May 14, 1982) (school finance system favoring rich counties over poor counties held void under state constitution).

3 Rutter is a child psychiatrist; Maughan is a social worker; Mortimore is a developmental psychologist; Ouston is an educational psychologist and veteran schoolteacher; and
answer the question through an empirical study intended to measure the impact of schools on a variety of phenomena. Although Rutter writes primarily for educators, his work speaks to lawyers as well because one of his measures concerns the interaction between schools and juvenile delinquency.

_Fifteen Thousand Hours_ reports the results of Rutter's study. Rutter followed the progress of a cohort of approximately two thousand pupils in twelve of London's inner city schools from just before their entry until the completion of their fourth year. The book's title is thus somewhat misleading (the study concerns only the final 5000 hours of a child's schooling), but its immodesty does not detract from Rutter's important conclusion: "Schools do indeed have an important impact on children's development[,] and it does matter which school a child attends."

Rutter identifies the characteristics most likely to be found in a successful school. Factors largely dependent upon the availability of financial resources, such as size of the school, age of the build-

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Smith is a statistician. Rutter directed the study. For reasons of style and convenience, this essay will refer to all five authors collectively as "Rutter."

4 M. Rutter, B. Maughan, P. Mortimore, J. Ouston & A. Smith, _Fifteen Thousand Hours_ 1 (1979) [hereinafter cited as M. Rutter].

5 Id.

6 The term "cohort" is used in social research to refer to an aggregate of individuals . . . who experienced the same event within the same time interval. In almost all cohort research to date the defining event has been birth, but . . . [t]he approach can be generalized beyond the birth cohort to cohorts identified by common time of occurrence of any significant and enduring event in life history. Cohorts may be defined in terms of the year in which they completed their schooling, the year they married, the year in which they migrated to the city, or the year in which they entered the labor force full time.


Rutter's original defining characteristics for the study's cohort were pupils who participated in a 1970 study of 10-year-olds in one inner London borough and in 1971 entered one of the 20 secondary schools selected for study. This sampling frame collected only 43% of the freshman intake at the selected schools, however, largely because of lack of congruency between London grade school and high school districts. Accordingly, Rutter administered tests identical to those used in the 1970 study to all children entering the selected schools. As no significant differences were found between the 1970 sample children and those not originally surveyed, Rutter redefined the cohort as the "complete age group" entering the schools in 1971. See M. Rutter, _supra_ note 4, at 23-25.

7 Rutter uncharacteristically fails to stipulate the exact number of students in the cohort. Compare M. Rutter, _supra_ note 4, at 25 (intake at twenty schools was 3485) with id. at 28 (sample reduced to twelve schools) and id. at 75 (delinquency data gathered for the 2352 fourteen-year-olds enrolled at the twelve schools).

8 Id. at 1.
ings, or staffing ratios, make little difference.9 Less expensive factors make a school successful: an emphasis on homework;10 high expectations concerning academic performance;11 lessons starting promptly and running their duration;12 courses being planned by senior personnel;13 and a consistently enforced set of standards for classroom discipline.14 Moreover, Rutter suggests that these features are probably "less important in their own rights . . . than in the part they play in contributing to a broader school ethos or climate of expectations and modes of behaving."15 Finally, establishing such a beneficial climate depends more upon the actions of the staff than upon the attitudes and expectations which students bring to the school.16

The "school ethos" theory is important for students of juvenile delinquency for two reasons. First, by emphasizing the importance of the secondary school for delinquency, the theory disparages the importance of other potential influences on crime, such as class, neighborhood, race, criminal parents, child rearing, and primary schools, which other studies have highlighted.17 Where other studies have suggested that delinquency prevention should focus on factors largely independent of schools, Rutter's conclusions imply that schools might be the best institution to prevent youth crime.

Second, the conclusion that schools, independent of other factors, can affect delinquency suggests that prevention, not rehabilitation, should be the centerpiece of delinquency policy. Programs aimed at rehabilitating known delinquents are labor-intensive and expensive means of treating a limited number of offenders. The substantial resources required to institute, maintain, and coordinate a diverse set of activities in community-oriented rehabilitation programs restrict these programs to a few communities. Fur-

9 Id. at 100-03.
10 Id. at 109.
11 Id. at 110-11.
12 Id. at 115, 118.
13 Id. at 112.
14 Id. at 120-23.
15 Id. at 55-56; see id. at 182-84.
16 Id. at 178.
ther, the data accumulated to date on patterns of delinquency do not permit confident identification of the children most likely to benefit from such programs or the features of those communities where the programs are likely to be the most efficacious. If Rutter is correct, a school-oriented program, in comparison, would be a more efficient means of reducing delinquency among all schoolchildren; through relatively costless emulation of the characteristics seen in successful schools, teachers might dramatically lessen the likelihood of delinquency.

Educators' reviews of *Fifteen Thousand Hours* have praised Rutter for measuring the effects of schooling on a broad spectrum of outcomes. Those reviews, however, have not adequately considered Rutter's inferences concerning the schools' influence on juvenile delinquency. This review will reflect the opposite bias; it will focus exclusively on the reliability of the methodology underlying the book's conclusions concerning juvenile delinquency. Because Rutter's methodology was too crude to support his findings unequivocally, *Fifteen Thousand Hours* overstates the effect of schools on delinquency. Nevertheless, the book compels greater attention to the issue and provides the basis for more conclusive work in the future.

I. DEFICIENCIES IN MEASURING DELINQUENCY

To determine the effects of schools on delinquency, it is necessary to have a valid and reliable measure of delinquent behavior. The measure of delinquency used in the study was derived from the records of the Metropolitan Police Juvenile Bureau. The study classified a student as delinquent if he had been officially cautioned or found guilty of an offense in a juvenile court on at least one occasion during the four-year span of the study.

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18 There is evidence that some youthful offenders are persistent wrongdoers and that the elimination of their illicit behavior would significantly decrease the total number of offenses committed by youths overall. However, no criteria have been developed to enable early identification of these repeat offenders. Petersilia, *Criminal Career Research: A Review of Recent Evidence*, 2 CRIME & JUST. 321, 358 (1980).


20 M. RUTTER, supra note 4, at 75. It was a prudent decision to include cautions as well
The virtue of using data from the Juvenile Bureau is that it allows comparisons of the levels of illicit activity among the different schools without bias arising from data collection by individual schools. The data for each school were collected in the same manner, were subject to the same processing, and thus contain the same types of errors. It is doubtful that bias resulting from differences in schools' methods of reporting delinquency to the police could prevent reasonable comparisons among the schools, because schools are an insignificant source of delinquency referrals for offenses other than truancy.21

There are risks, however, in using agency-generated data to measure delinquent behavior.22 The most widely recognized disadvantage is that official records seriously undercount the number of delinquent acts committed; victim surveys show that reported crimes represent only a small proportion of those actually committed.23 Similarly, self-report surveys24 indicate that only three to fifteen percent of all juvenile offenses result in police contact.25

as convictions in the definition of a delinquent. For the past decade, the British police have been disposed to caution, rather than prosecute, persons under 17. See Farrington, Longitudinal Research on Crime and Delinquency, 1 CRIME & JUST. 289, 299 (1979).

21 Elliott, Delinquency, School Attendance and Dropout, 13 Soc. Probs. 307, 311 (1966) ("After excluding truancy offenses, it was found that less than one-half of one percent of the referrals identified the school as the source of referral.").


23 See R. Sparks, H. Genn & D. Dodd, Surveying Victims 2 (1977); Biles & Braithwaite, Crime Victims and the Police, 14 Austl. Psychologist 345, 347-48 (1979); Ennis, Crimes, Victims, and the Police, in LAW AND ORDER POLICE ENCOUNTERS 85-86 (M. Lipsky ed. 1970). For an analysis of why people fail to report crime to the police, see Skogan, Citizen Reporting of Crime: Some National Panel Data, 13 CRIMINOLOGY 547 (1976). A further problem that can arise in using official records for the study of schools and delinquency is that there is a time lag of up to four months between the commission of an offense and the eventual recording of the conviction or caution. Thus, on the one hand, a significant proportion of offenses recorded early in the pupils' freshman year probably had occurred before they attended the schools under study; on the other hand, many crimes committed by students late in their fourth year had not yet reached the official records. Rutter makes no mention of adjusting for this problem.

24 A self-report survey involves administering questionnaires to subjects about their own behavior. See Short, The Study of Delinquency, in 4 INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCES 76 (D. Sills ed. 1968); see also infra notes 36-38 and accompanying text.

25 Farrington, supra note 20, at 321. See also D. Elliott & H. Voss, Delinquency and Dropout 201 (1974); M. Gold, Delinquent Behavior in an American City 102 (1973); D. West & D. Farrington, Who Becomes Delinquent? 2 (1973); Elmhorst, Study in Self-
Self-report studies also indicate that official police records contain an unrepresentative sample of illicit juvenile behavior. First, certain offenses have a higher probability of resulting in arrest: crimes of violence are more likely to lead to an arrest than are property crimes, such as vandalism, or victimless crimes, such as drug offenses. Second, official record coding systems collapse a diverse set of delinquent acts into a limited number of classifications. As a result, official data exaggerate the homogeneity of juvenile criminal activities.

A more important problem for this study is the sex bias of official juvenile records. The study reports official delinquency rates per school ranging from sixteen to forty-four percent for boys and from one to eleven percent for girls. Due to this low incidence of female delinquency, Rutter excluded data from the three all-girl schools.

The low incidence of delinquency reported among females is consistent with prior research using official data, but widespread public opinion that girls who violate the law are not as bad as boys who do so results in a systematic underreporting of delinquent girls to the police. Rutter's need to confine the delinquency anal-

Reported Delinquency Among School Children in Stockholm, 1 SCANDINAVIAN STUD. CRIMINOLOGY 117, 130 (1965); Erickson & Empey, Court Records, Undetected Delinquency and Decision-Making, 54 J. CRIM. L. CRIMINOLOGY & POLICE SCI. 456, 462 (1963); Williams & Gold, From Delinquent Behavior to Official Delinquency, 20 SOC. PROBS. 209, 213 (1972). The likelihood of the police contact depends on the nature of the offense involved, the people reporting it, and the definition of "police contact." Farrington, supra note 20, at 321. Self-report studies show that convicted delinquents tend to have committed more than one criminal act. Id. At best, the official records identify the most delinquent minority in the sample.

Petersilia, supra note 18, at 352.

See id. at 350-54. See generally sources cited supra note 25. But see J. Petersilia, P. Greenwood & M. Lavin, Criminal Careers of Habitual Felons 20 (1978), where 40% of the interviewees while juveniles committed three or more types of crime. The sample in this study, however, was small and unrepresentative: all the interviewees were serving their second prison terms for robbery, id. at v.

M. Rutter, supra note 4, at 76.

Id. at 98-99.


J. Conklin, Criminology 125 (1981); see also Williams & Gold, supra note 25, at 226; Wise, Juvenile Delinquency Among Middle-Class Girls, in MIDDLE-CLASS JUVENILE DELINQUENCY 179, 180 (E. Vaz ed. 1967). Furthermore, the same attitude makes it more likely that
ysis to the boys' data was more likely caused by his use of official records, therefore, than by any real difference between boys' and girls' delinquency rates.\(^3\) The loss of twenty-five percent of the schools sampled, however, seriously limited the power of the statistical procedures used to examine the differences among the schools' delinquency rates.

The study also was limited unnecessarily by using only a single measure of delinquency. Rutter's data indicated that "the schools with the lowest and highest rates for any delinquency were also the ones with the lowest (or highest) rates for repeated delinquency,"\(^3\)yet his delinquency measurement did not distinguish between frequent and occasional offenders. Schools may have a differential effect upon these two classes of delinquents, but Rutter's variable was not capable of measuring such a difference.

Similarly, a better understanding of the impact of schooling upon delinquency would have resulted from closer attention to the diversity of juveniles' illicit behavior. Students involved in serious crimes, such as burglary, assault, shoplifting, vandalism, or drug-

a girl, if caught, will not be brought to court. See J. Conklin, supra, at 125. But see Chesney-Lind, Judicial Enforcement of the Female Sex Role: The Family Court and the Female Delinquent, Issues Criminology, Fall 1973, at 51, 52 (suggesting females are more severely sanctioned than males). For certain status offenses, such as drinking alcoholic beverages and having sexual relationships, a girl is as likely as, or more likely than, a boy to be arrested and to be brought before a juvenile court. Id. at 55. This probably also relates to social norms. As Conklin states, "boys are expected to 'raise hell' but girls are expected to be 'well behaved.'" J. Conklin, supra, at 125.

Girls are more likely to be processed informally through a diversion program. Probably many male first offenders, particularly status offenders, would also be diverted from the official court process. Unless these diverted offenders were later charged with another offense, Rutter's measurement would underestimate the proportion of delinquents at a school. For a discussion of diversion programs for delinquents, see D. Cressey & R. McDermott, Diversion from the Juvenile Justice System (1973); Klein, Deinstitutionalization and Diversion of Juvenile Offenders: A Litany of Impediments, 1 Crime & Just. 145 (1979); Nejelski, Diversion: Unleashing the Hound of Heaven?, in Pursuing Justice for the Child 94 (M. Rosenheim ed. 1976).

\(^3\) Although self-report studies indicate that sex differences in delinquency seem to be narrowing gradually, the studies tend to confirm official findings that rates of offending are lower among girls than among boys. See Empey, Juvenile Lawbreaking: Its Character and Social Location, in Juvenile Justice: The Progressive Legacy and Current Reforms 71, 90 (L. Empey ed. 1979). But see M. Hindelang, T. Hirschi & J. Weis, Measuring Delinquency 14 (1981) (self-report studies sometimes fail to find any association between sex and delinquency). The most persistent sex difference found in both official and self-report data is associated with violent crime. The magnitude of this difference suggests that sex differences in delinquency cannot be attributed completely to the differential response of the criminal justice system to boys and girls. See Greenberg, Delinquency and the Age Structure of Society, 1 Criminology Rev. Y.B. 586, 603-05 (1979); Zimring, American Youth Violence: Issues and Trends, 1 Crime & Just. 67, 84 (1979).

\(^3\) M. Rutter, supra note 4, at 75 (emphasis in original).
related offenses, were classified as delinquents, but so were the stu-
dents who committed trivial status offenses, such as truancy or
under-age drinking. Rutter’s variable could not detect whether the
incidence of different offenses varied from school to school,
whether multiple offenders were involved in one or many types of
illicit behavior, and if the latter were true, whether this varied by
school.\textsuperscript{34}

A related problem concerns the group nature of delinquency. Rutter
observed “a strong tendency for first offenses to be commit-
ted in groups,”\textsuperscript{35} but he failed to report data on the extent to
which delinquent activities were an individual or group phenome-
non. It is conceivable, for example, that drug use and other off-
fenses influenced by peer-group pressures are more likely to be
committed as a group activity; Rutter should have determined
whether such joint enterprises are committed with schoolmates or
with outside acquaintances.

To improve the quality of his delinquency data, Rutter could
have polled the students about their involvement in illicit activi-
ties.\textsuperscript{36} As all pupils in the study completed a questionnaire con-

\textsuperscript{34} Research indicates little specialization among juvenile multiple offenders. See D. West & D. Farrington, \textit{The Delinquent Way of Life} 11-13 (1977); D. West & D. Farrington, \textit{supra note} 25, at 7-9; M. Wolfgang, R. Figlio & T. Sellin, \textit{supra note} 6, at 188-90, 254 (1972); Hindelang, \textit{Age, Sex and the Versatility of Delinquent Involvements}, 18 \textit{Soc. Probs.} 522, 533-34 (1971); Mott, \textit{London Juvenile Drug Offenders}, 13 \textit{Brit. J. Criminology} 209, 211-12 (1973); Petersilia, \textit{supra note} 18, at 352-53. However, it should be noted
that the above studies contain little data on juvenile sex offenders.

\textsuperscript{35} M. Rutter, \textit{supra note} 4, at 201. The group nature of delinquent behavior, particu-
larly first offenses, is a well-recorded phenomenon. For a classic discussion on adolescent
crime as group behavior, see Shaw & McKay, \textit{Male Juvenile Delinquency as Group Behav-
of Crime} 191 (1931) (popularly known as the Wickersham Commission Report). For a gen-
eral review of the literature on this subject see G. Geis, \textit{Juvenile Gangs} (1965); R. Hood &
R. Sparks, \textit{Key Issues in Criminology} 80-109 (1970); Sveri, \textit{Group Activity}, 1 \textit{Scandinavian
Stud. Criminology} 173 (1965). The failure of measurements of delinquency, particularly
official records, to take adequate account of this evidence that juveniles tend to offend in
groups leads to frequent overestimation of youth crime. See Zimring, \textit{Kids, Groups, and

\textsuperscript{36} Self-reports, however, also have methodological shortcomings. See Hindelang, Hir-
schi & Weis, \textit{Correlates of Delinquency: The Illusion of Discrepancy Between Self-Report
and Official Measures}, 44 \textit{Am. Soc. Rev.} 995, 997-98 (1979) (self-report surveys’ use of triv-
ficial offenses results in overstatement of delinquency); Natalino, \textit{Methodological Problems in
(G. Jensen ed. 1981) (uneven response rate among racial groups renders conclusions of some
self-report studies doubtful); Reiss, \textit{Inappropriate Theories and Inadequate Methods as
211, 214-18 (N. Demerath, O. Larsen & K. Schuessler eds. 1975). The reliability of the stu-
dents’ responses is jeopardized by problems of recall and by students either fabricating
cerning other variables, this device could have been extended easily to obtain self-reports of their offenses. Research indicates that individual self-reports have a high degree of accuracy, and such inaccuracy as exists is more likely to be due to underreporting than overreporting.

At the least, Rutter could have used self-reports to check the validity of the police records. Where necessary, a scheme for correcting inaccuracies in the official services could have been devised to produce a better estimate of the extent of delinquency among the students in the sample. Self-reports also might have allowed for a more detailed analysis of the types of criminal behavior involved and might have produced enough information about girls' behavior to restore the three all-girl schools to the delinquency analyses.

II. DEFICIENCIES IN CONTROLLING FOR NON-SCHOOL INFLUENCES

The validity of the inferences drawn from a longitudinal study depends on how carefully the researchers have screened their data to prevent the results from being explained plausibly by events to impress the researchers or failing to mention certain activities for fear that the information will be forwarded to authorities, despite promises of anonymity. In addition, the questions themselves can produce flaws in the data collection. First, students may interpret the questions differently. Second, as the student is asked about more types of illicit behavior, it is more likely that he will admit at least one delinquent act. See Elliott & Ageton, Reconciling Race and Class Differences in Self-Reported and Official Estimates of Delinquency, 45 Am. Soc. Rev. 95, 96 (1980) (discussing problems of deliberate falsification, poor recall, faulty design, and poor administration). See also Braithwaite, The Myth of Social Class and Criminality Reconsidered, 46 Am. Soc. Rev. 36, 47 (1981) (discussing self-reports by middle-class adolescents).

Another problem with self-reports of schoolchildren is that it is difficult to obtain data from students who were truant or had dropped out of school at the time of the survey. As these are the groups especially prone to delinquency, see M. Rutter, supra note 4, at 93 (77% correlation between delinquency and attendance); D. Elliott & H. Voss, supra note 25, at 202-03; Elliott, supra note 21, at 313, their exclusion leads to an underestimation of the aggregate number of delinquent acts committed by students of the particular school. Although information could be collected from the absentees when they return, it is difficult and expensive to obtain retrospective data from students who had left school prior to the survey.

The format of the pupil questionnaire and some of the questions are reproduced in M. Rutter, supra note 4, at 214-16.

See Clark & Tiff, Polygraph and Interview Validation of Self-Reported Deviant Behavior, 31 Am. Soc. Rev. 518, 522 (1966); supra note 36.

A longitudinal study follows a single group of subjects through several stages of development in a given period of time. The leading rival methodology, cross-sectional study, analyzes several different groups of subjects, each representing a particular stage, at only one point in time. See R. Rosenthal & R. Rosnow, Primer of Methods for the Behavioral Sciences 71-73 (1975); Farrington, supra note 20, at 317-19.
factors other than those intended to be measured.\(^4^0\) In the case of Rutter's research, for example, it is important to isolate the effects of the characteristics of the students when they enter secondary school. Only after this is done is it safe to conclude that the differences observed among the children when they leave school were caused by the schools, not by peripheral influences.

To control for outside influences, Rutter attempted to identify the characteristics of entering students, measured by "intake" variables, which "had the strongest statistical correlation or association with the relevant outcome."\(^4^1\) After finding that intake characteristics could not account for all of the variation in outcomes, Rutter postulated that the residual variance could be explained by what took place in the schools.\(^4^2\) Although this strategy is sound, poor selection and poor use of intake variables probably exaggerated the residual variance to be explained. Overstating the residual variance to be explained by schools weakens the report's conclusion that schools make a difference.

A. Intake Variables Used by Rutter

Rutter concluded that one or more of three variables could control for the differences the children brought with them to school: scores from standardized tests of verbal reasoning at age ten; behavioral scores as rated by primary school teachers; and parental occupations.\(^4^3\) Based on associations of variables in his data and on prior research, Rutter concluded that a variable combining measurements of verbal reasoning and parental occupation could control for the influence that differences among intake characteristics can have on delinquency outcomes.\(^4^4\)

The measurements of the verbal reasoning and parental occupation variables, however, display crude categorization and prevent powerful analysis. Rutter initially had several categories available for each control variable, but he collapsed the data into only three categories for analysis.\(^4^5\) By reducing the spread of the data, he discarded information without cause and rendered his measure-

\(^{4^0}\) For a discussion of the factors that can lead to competing explanations of the results of quasi-experimental research, such as longitudinal studies, see Campbell, Reforms as Experiments, 24 Am. Psychologist 409, 410-12 (1969).

\(^{4^1}\) M. Rutter, supra note 4, at 67.

\(^{4^2}\) Id. at 92-94.

\(^{4^3}\) See id. at 44-47, 67.

\(^{4^4}\) Id. at 77-80.

\(^{4^5}\) Id. at 45-46.
ments less sensitive to variation in the underlying phenomena. Children from professional and managerial backgrounds, for example, are likely to have attitudes, expectations, and dispositions towards delinquency different from those of children whose parents hold clerical jobs, yet all of these children were classified "white-collar" for purposes of the parental occupation variable. Similarly, children with the highest scores on a seven-scale reading test may have different dispositions from those of the children with lower scores with whom they are classified when the scale is collapsed to three categories. The deficiencies in each variable are compounded when the two are used in combination.

The power of the analysis also suffered because the parental occupation variable failed to take account of the mother's occupation. The mother's occupation would be important when it falls in a category different from that of the father's; for example, when the paternal occupation is manual, but the maternal occupation is nonmanual, Rutter would classify the background as "working class," although the influence of a "white-collar" mother could result in children holding "middle class" attitudes and aspirations. Defining family background solely in male terms could lead incorrectly to attributing the residual effect to schools rather than to social conditions not adequately measured by the social background variable.

B. Inadequate Consideration of Other Influences on Delinquency

It is hard to believe that verbal reasoning and parental occupation, even if measured more carefully than Rutter measured them, can account adequately for all the influences on delinquency.
that are not related to schools. For example, the Cambridge Study, a longitudinal study of a cohort of English males from the age of eight to twenty-one, has shown that in addition to IQ and parental occupation, other factors such as large family size, criminal parents, and poor child-rearing are closely associated with future convictions. Further, these influences are additive: as a boy encounters more adversities, he is more likely to become a delinquent. The additional influences identified by the Cambridge Study are associated with both family background and social class. Although it is possible that Rutter's parental occupation variable accounts for family background, it is unreasonable to expect it to reflect all of the variance associated with social class as well.

Children spend seventy thousand hours of their formative years outside of school, suggesting that environmental factors might dispose children to delinquency. For example, prior research indicates that neighborhoods influence delinquency. Neighborhoods are physical environments that can be differentially conducive to crime, but Rutter measured only the social class aspects of neighborhoods, and he did this poorly. Using a variable derived

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53 See Robins & Hill, supra note 19, at 8.


55 See K. HARRIES, supra note 54, at 92-105; Baldwin, supra note 54, at 54-58.

56 Surprisingly, neighborhood differences were not considered as intake characteristics, but as "ecological influence[s]." See M. RUTTER, supra note 4, at 145-53. In examining the relation between delinquency and the environment, it is important to avoid the error of
from categorization of the characteristics of the electoral wards (relatively large areas with populations of 10,000 to 20,000 people) in which the children lived, Rutter found that differences among neighborhoods did not explain the different delinquency rates in the schools. Over half of the children studied, however, lived in a single neighborhood category; it is not surprising that a category containing such a large portion of the sample was not as good as schools were as a predictor of delinquency. It would also not be surprising for electoral wards in general to be too large to discover neighborhood-level influences on delinquency.

Another environmental factor that could affect delinquency is the primary school that the pupil attended. To a certain extent, the primary school attended is another indicator of family background and class, but because primary schools play an important independent role in the development of moral judgment, they also may influence attitudes and dispositions toward delinquency. Moreover, it is quite possible that each of Rutter's secondary schools was served by a distinct group of primary schools, leaving him a problem that his high school data cannot resolve: does the delinquency variable reflect the influence of the high school or of the primary school?

assuming that correlations involving an aggregate measurement of the social class of a neighborhood are relevant at the family and individual offender levels. This phenomenon is known as the "ecological fallacy." See K. Harries, supra note 54, at 67; Baldwin, supra note 54, at 35, 43-44. For the classic discussion of the ecological fallacy, see Robinson, Ecological Correlations and the Behavior of Individuals, 15 Am. Soc. Rev. 351 (1950). For a review of the many and varied aspects of this fallacy, see Alker, A Typology of Ecological Fallacies, in QUANTITATIVE ECOLOGICAL ANALYSIS IN THE SOCIAL SCIENCES 69 (M. Dogan & S. Rokkan eds. 1969).

57 M. Rutter, supra note 4, at 147-48.
58 Id. at 149-50.
59 Id. at 148.
61 Child development literature indicates that rudimentary knowledge about the rules and conventions of society are acquired in the home in early childhood, but the primary school influences moral values and judgment as well. Because it is a more formal representative of community values, the primary school introduces different standards, more impartial than those found in the home. See Hoffman, Moral Development, in 2 CARMICHAEL'S MANUAL OF CHILD PSYCHOLOGY 261 (3d ed. P. Mussen ed. 1970); Kohlberg, Development of Moral Character and Moral Ideology, in 1 REVIEW OF CHILD DEVELOPMENT RESEARCH 383 (M. Hoffman & L. Hoffman eds. 1964).
62 The Cambridge Study data indicate that differences in male delinquency rates among schools can be explained largely by differing intakes; high delinquency rates were found in high schools with boys who had been troublesome at primary school. See Farrington, Delinquency Begins at Home, 21 New Soc'y 496, 497 (1972); cf. Farrington, Truancy, Delinquency, the Home and the School, in TRUANCY: PROBLEMS OF SCHOOL ATTENDANCE AND
III. THE INTERACTION BETWEEN SCHOOLS AND DELINQUENCY

After controlling for intake differences, Rutter hypothesized that the remaining differences among student outcomes could be accounted for by the differences among the schools in his sample. To test this hypothesis, Rutter systematically compared the outcome variables with each of the forty-six "school process" variables (measuring in-school characteristics), looking for significant associations between pairs of outcome and process variables. Fur- ther, Rutter studied simultaneously the intake and school process variables to gauge the relative importance of school influences.

Before addressing his findings, two further caveats should be noted.

A. Caveats

1. Lack of Repeated Measurements. The major aim of longitudinal research is to observe the effects of different factors on the outcome variable over time. By definition, analyses of repeated measures are required for all outcome variables. Rutter, however, analyzed the delinquency variable based on only one observation period. The failure to examine the data at least annually was an inexplicable oversight and was contrary to the philosophy of the study; it prevented testing the hypothesis that the school affects the onset and duration of a stage of adolescent development during which, for example, there is a greater tendency for children to commit shoplifting, vandalism, or drug-related offenses. Further, the lack of repeated measures prohibited Rutter's detecting any corrective influence of schools on children who committed offenses early in their high school career.

2. Sample Too Small. Rutter used rank-order correlations to identify significant associations between the schools' delinquency and the social-process variables.

References


See generally M. Rutter, supra note 4, at 106-44.

See generally id. at 163-76.

See Farrington, supra note 20, at 290. Repeated measures are required to assure that the course of development of delinquency can be measured and that each student acts as his own control. See supra notes 39-40 and accompanying text.

See M. Rutter, supra note 4, at 75-76; see also supra note 20 and accompanying text.

M. Rutter, supra note 4, at 97. Rutter used Spearman's rank-order correlations. Id.
that the schools be ranked according to each variable. The rankings for pairs of variables are then compared to determine whether any associations found between the two sets of rankings are due to chance or to some systematic influence.\textsuperscript{68} Rank-order correlation, however, is not a powerful procedure when the sample size is only nine,\textsuperscript{69} as was the case for tests on delinquency.\textsuperscript{70} When the sample size is so small, the test is less able to identify subtle systematic associations, leading the researcher to dismiss important information.

B. Findings

1. Physical Features. Only two physical features of schools correlated significantly with delinquency. Greater floor space per pupil was associated with higher delinquency, while lower delinquency rates were associated with split-site schools.\textsuperscript{71} In light of the fact that total space per pupil\textsuperscript{72} was not significantly associated with delinquency, the authors quite reasonably drew no conclusions from the floor space finding.\textsuperscript{73} As to the four split-site schools, the study noted that the practice was to house specific ages at each site.\textsuperscript{74} Rutter suggested that split-site schools had less delinquency because each location could be used "to create separate environments, particularly adapted to the needs of specific age groups of children."\textsuperscript{75} Although this is a rational inference, any assertions based on a statistic derived from a sample of four is inherently risky.

2. School Processes. Among the forty-six school process variables, eight were significantly related to lower delinquency: group

Correlation provides a measure of the tendency for particular pairs of variables to occur simultaneously. Rank-order correlation is described generally in text. For a more technical discussion of the method, see H. Blalock, Social Statistics 433-43 (rev. 2d ed. 1979).

\textsuperscript{68} Rutter adopted the five percent level as the test for statistical significance. M. Rutter, supra note 4, at 97. This means that for a correlation to be found significant, the probability must be less than five percent that the correlation is due to chance. But this also means that there is a probability that chance will cause the researchers erroneously to find significant five percent of the total number of correlations examined. See H. Blalock, supra note 67, at 157-66.

\textsuperscript{69} See H. Blalock, supra note 67, at 161-62, 299-303.

\textsuperscript{70} See supra notes 28-29 and accompanying text.

\textsuperscript{71} M. Rutter, supra note 4, at 100-01 (size of building), 101-02 (number of sites).

\textsuperscript{72} The total space includes playgrounds and areas outside of the school building itself.

See id. at 101.

\textsuperscript{73} See id.

\textsuperscript{74} See id. at 102.

\textsuperscript{75} Id.
or supervised course planning;\textsuperscript{76} teachers teaching more than their specialty subjects;\textsuperscript{77} discipline standards set by the school, rather than left to the individual teacher;\textsuperscript{78} frequent imposition of "lines" or extra work as a form of punishment;\textsuperscript{79} expectation that students will take responsibility for their own educational materials;\textsuperscript{80} more pupils remaining together in the same English class since the start of secondary school;\textsuperscript{81} more pupils remaining together in the same form or teaching group;\textsuperscript{82} and number of friends outside of the student's class.\textsuperscript{83} Due to chance factors associated with testing for significance, two or three spurious correlations would be expected from comparing the forty-six school process variables with delinquency,\textsuperscript{84} perhaps explaining the difficulty of inferring a rational connection among these factors.

When Rutter analyzed intake and school process variables simultaneously, moreover, he found that the school processes added virtually nothing to predictions of delinquency based solely on the intake variables. Quite clearly, the most important variable was the proportion of the entering class that scored lowest in verbal reasoning; the schools with the largest relative concentrations of least able students had the highest incidence of delinquency.\textsuperscript{85} In sum, delinquency differed from the other outcome variables in that it was affected little by school processes. After evaluating the multivariate analysis, Rutter pleads that "[p]erhaps . . . it is going too far to say that school process factors were of no importance,"\textsuperscript{86} but only perhaps.

3. The Contra-School Peer Group Hypothesis. Rutter noted that the proportion of entering students with poor academic abilities was associated with delinquency, as were the number of students who stayed together for English class, the number who stayed together in the same teaching group, and the number of friends students had outside of their teaching groups.\textsuperscript{87} From these associations, Rutter inferred that "peer group influences of some

\textsuperscript{76} Id. at 112-13.
\textsuperscript{77} Id. at 113.
\textsuperscript{78} Id. at 121.
\textsuperscript{79} Id. at 120.
\textsuperscript{80} Id. at 132.
\textsuperscript{81} Id. at 134-35.
\textsuperscript{82} Id. at 135.
\textsuperscript{83} Id.
\textsuperscript{84} One could expect five percent of 46, or 2.3, spurious correlations. See supra note 68.
\textsuperscript{85} See M. Rutter, supra note 4, at 173-74, 175-76.
\textsuperscript{86} Id. at 174.
\textsuperscript{87} See supra notes 76-83 and accompanying text.
kind were serving to shape children’s behaviour.\textsuperscript{78}

The inference of peer group pressures led Rutter to hypothesize further that “contra-school peer groups” push children toward delinquency.\textsuperscript{89} His hypothesis entailed some speculation about how these groups form. He rejected the notion that mixing with delinquents increases the likelihood of becoming delinquent\textsuperscript{90} because it was the balance of academic ability, not the balance of sociocultural backgrounds, that seemed to predict delinquency.\textsuperscript{91} Instead, he postulated that “part of the explanation lies in the effects of scholastic failure on feelings of personal worth.”\textsuperscript{92} When children experience failure, they will tend to cluster in groups of students who are indifferent or opposed to academic success. This will lead to rejecting the authority of the school and its teachers, and eventually these groups will set their goals in other directions, possibly towards criminal behavior.\textsuperscript{93} Moreover, this link between failure and delinquency is consistent with the finding that delinquency was associated with schools whose entering class contained dispro-

\textsuperscript{78} M. Rutter, \textit{supra} note 4, at 176.

\textsuperscript{89} Id. at 199-203.


\textsuperscript{91} M. Rutter, \textit{supra} note 4, at 200.

\textsuperscript{92} Id. at 201.

\textsuperscript{93} Id. at 201-02. This proposition is very similar to Hirschi’s control theory of delinquency. See T. Hirschi, \textit{Causes of Delinquency} (1969). The school plays an important role in Hirschi’s theory: the most academically successful students are the least likely to be delinquent because they are most attached to the school, its teachers, and its values. On the other hand, the lack of academic success leads to detachment from the school and to delinquency. See id. at 110-34, 170-83. Other researchers suggest that the interrelation of variables is more complex than Hirschi proposed; poor performance not only directly results in delinquency, but it also indirectly encourages delinquency through strain in the family and greater peer identification with similarly disposed pupils. See L. Empey, \textit{American Delinquency} 528-39 (1978); Wiatrowski, Griswold \& Roberts, \textit{Social Control Theory and Delinquency}, 46 Am. Soc. Rev. 525 (1981). With the emphasis upon contra-school peer groups as a mediating factor between low achievement and delinquency, Rutter’s proposition is closer to these more complex models of bonding and attachment. Cf. Hirschi \& Hindelang, \textit{Intelligence and Delinquency: A Revisionist Review}, 42 Am. Soc. Rev. 571, 584 (1977) (pupils with low IQ may be more delinquent because they are less likely to achieve academic success); Tagliametti, \textit{Reading Failure: A Predictor of Delinquency}, 2 Crime Prevention Rev. 24, 29 (1975) (inability to read was the paramount factor associated with school failure and correlated highly with delinquency).
portionately large numbers of the least able students.

Rutter is meticulous to point out that his link is a matter of speculation and not theory tested directly by his data analysis, but these speculations are probably Fifteen Thousand Hours's best contributions to the literature on schools and delinquency. The proposition that schools affect delinquency through contra-school peer groups deserves to be tested against an alternative view—for example, that delinquency results from deviant neighborhoods and families and that schools are unlikely to stem delinquency, although they might offset some extra-school influences. Rutter's work both invites such a test and provides the basis for a data bank for a more comprehensive and reliable longitudinal study of the impact of schools on delinquency.

**Conclusion**

Michael Rutter and his research team deserve praise for the conceptualization and reporting of their study. Their holistic approach to schools produced a promising methodology for gathering a rich data base and has provoked important questions concerning education. Although the book is highly technical and filled with numbers, the main text is lucid and easily readable because the principal conclusions are summarized in the final chapter and the details of the statistical work are placed in appendices.

Fifteen Thousand Hours is likely to be of immediate use for educators because its most persuasive material concerns the in-school effects of school processes. But Rutter is candid in admitting that his data are inconclusive concerning the effects of schools on delinquency. Because his focus is on education and because his data do not support sweeping policy changes, Rutter never addresses the questions of whether schools are the best institution to

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94 M. Rutter, supra note 4, at 177.
96 Some of the problems noted here concerning data collection and intake control could be rectified retrospectively. For example, the official delinquency records could be reappraised to glean further information. Finer classifications of verbal reasoning, parental occupation, and neighborhood differences could be developed. Data could be collected on the primary schools students attended, and the delinquency data could be subdivided chronologically and explored longitudinally to assess developmental trends and to examine the proposition that poor educational performance leads indirectly to delinquency. In addition, returning to the data source at this later date provides the opportunity to examine the existence, extent, and duration of schools' residual effect on the illicit behaviors of their former pupils, whether dropouts or graduates.
97 See M. Rutter, supra note 4, at 174-75.
prevent youth crime and whether prevention, rather than rehabilitation, should be the centerpiece of delinquency policy. Until an analysis is made based on data which, when compared to Rutter's, are more sensitive to the range of observed delinquent behavior and are better controlled for background influences, one should be hesitant to use this report's findings as the basis for new, school-centered policies for juvenile delinquency.

* At a minimum, extensive reanalysis of Rutter's data should precede any reliance on Rutter's findings. See supra note 96 and accompanying text.