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THE PREDICTIVE EFFICIENCY OF THE GLUECK SOCIAL PREDICTION TABLE

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The dialogue concerning the efforts of Sheldon and Eleanor Glueck to devise a method for the prediction of juvenile delinquency will continue at least until long-range validation studies have either proved or disproved the value of the Gluecks' Social Prediction Table, to the satisfaction of critics and supporters alike. In the following article, Dr. Voss discusses the progress of the validation studies which have been undertaken to date, with particular attention to that of the New York City Youth Board, which initiated a prospective validation study in 1952. The author appraises the predictive efficiency of the tables used in that study, on the basis of the most recent information made available by the Board.—EDITOR.

In an article in this *Journal*¹ Professor Sheldon Glueck has presented his reply to some of the many criticisms lodged against *Unraveling Juvenile Delinquency*² since its appearance in 1950. The critiques by Rubin and others have, in this writer's opinion, adequately demonstrated the inadequacies in the Gluecks' research design, methodology, interpretation of findings, construction of prediction tables, and the so-called causal law.³ No attempt will be made to cover these areas.

One section of Glueck's paper was devoted to the retrospective and prospective validation studies of the Glueck Social Prediction Table. This instrument has been applied to some 1,600 young, predominantly male, children and adolescents, and "in each study the table has given highly encouraging results."⁴ The general conclusion

reached by Dr. Eleanor T. Glueck in her analysis of the results is:

"The accumulated evidence thus far gathered from 'retrospective' and 'prospective' studies both in the United States and in foreign countries all seems to be tending in the same direction. A total of 18 inquiries in which the Social Prediction Table has been applied, are all suggestive of its usefulness."⁵

The purpose of this paper is to analyze the validity of the Social Prediction Table, using the criterion of predictive efficiency. This requires consideration of the validation studies, particularly the prospective investigation of the New York City Youth Board, which was designed to test whether potential delinquents can be distinguished from potential nondelinquents by the Gluecks' prognostic instrument.

RETROSPECTIVE STUDIES

Sixteen of the 18 investigations referred to by Mrs. Glueck are retrospective, involving an *ex post facto* design. These studies do not establish the validity of the Social Prediction Table, for they merely involve demonstration that some selected groups of delinquents receive high scores. Herzog states that:

"Such studies tend to show that the majority of delinquents would have been rated as potential delinquents by the Glueck system. They do not

⁵ E. Glueck, *Efforts To Identify Delinquents*, 24 Fed. Prob. 54 (June 1960).

¹ S. Glueck, *Ten Years of UNRAVELING JUVENILE DELINQUENCY: An Examination of Criticisms*, 51 J. CRIM. L., C. & P.S. 283 (1960).

² S. & E. GLUECK, *UNRAVELING JUVENILE DELINQUENCY* (1950).

³ Rubin, *UNRAVELING JUVENILE DELINQUENCY. I. Illusions in a Research Project Using Matched Pairs*, 57 AM. J. SOCIOLOGY 107 (1951); Reiss, *UNRAVELING JUVENILE DELINQUENCY. II. An Appraisal of the Research Methods*, 57 AM. J. SOCIOLOGY 115 (1951); Shaplin & Tiedeman, *Comment on the Juvenile Delinquency Prediction Tables in the Gluecks' UNRAVELING JUVENILE DELINQUENCY*, 16 AM. SOC. REV. 544 (1951); Hincks *et al.*, *Symposium on the Gluecks' Latest Research*, 15 Fed. Prob. 52 (March 1951); Gault *et al.*, *UNRAVELING JUVENILE DELINQUENCY: A Symposium of Reviews*, 41 J. CRIM. L. & C. 732 (1951).

⁴ S. Glueck, *supra* note 1, at 303.

show whether the majority of boys who would be so rated by that system do in fact become delinquent."⁶

Such retrospective analyses fail to determine whether the scores reflect experience as a delinquent or conditions antecedent to the onset of delinquent behavior.

Numerous arrests by police officers, confinement in the detention home or jail, appearance in the juvenile court, probation, and institutionalization usually involve a series of traumatic experiences for the adolescent. Although the effects of official processing are not fully known, the result may be a reorientation of the adolescent's self conception and an alteration of his interpersonal relations. Nye suggests that such experiences affect both the adolescent and his parents and "are very likely to reorient the feelings of each toward the other and may transform the entire family structure and attitudes."⁷ Burgess' comments, though elicited by the Social Prediction Table, apply equally to the retrospective "validation" studies and are worth repeating:

"These factors obviously are associated with delinquency, but which is cause and which is effect?"

"Earlier the point is made [by the Gluecks] that the delinquent behavior of the boy may influence the discipline of the father. It should be kept in mind that the delinquent boys, being so continually involved in misbehavior, might have called forth more rigid or more erratic controls on the part of their parents' (p. 133). But the authors forget their own advice. Certainly because the father is strict or erratic in his recent discipline of the boy does not mean that he exerted the same type of discipline at the time the child first entered school and before he had an official record of juvenile delinquency.

"Also the authors present evidence to prove that the indifference or hostility of the parents to the boy and lack of cohesiveness of the family cause juvenile delinquency. They may likewise, to a greater or less degree, be a result of it. The authors did not, and of course could not, accurately ascertain the parents' attitude to the boy when he was 6 years of age. It would

⁶ HERZOG, IDENTIFYING POTENTIAL DELINQUENTS 1 (1960).

⁷ NYE, FAMILY RELATIONSHIPS AND DELINQUENT BEHAVIOR 10 (1958). See also Clinard, *Research Frontiers in Criminology*, 7 BRITISH J. DELINQUENCY 120 (1956).

seldom be the same then as after years of serious delinquencies and one or more commitments to correctional institutions."⁸

The final validity of any predictive instrument must be established by a prospective study.⁹ The Gluecks recognize that only prospective validation provides a rigorous test of the prognostic device, and that empirical validation is necessary before the table can be regarded as anything more than an experience table, or summary description of the presence of the weighted cluster of five factors in the sample of delinquents and the comparison group of *Unraveling*.¹⁰

In that volume the Gluecks introduced three prediction tables.¹¹ As usual, however, they did not attempt to validate these prediction devices, despite their assertion that "it is also our intention to test out the series of prediction tables that have been developed in *Unraveling Juvenile Delinquency*, Chapter XX, on one or more series of children at the point of or soon after school entrance in schools not only in 'underprivileged areas' but in middle and upper middle-class neighborhoods, both urban and rural."¹² Consequently, the tables must be regarded as a set of experience tables from which predictions may be made for later samples.¹³

Attention can be confined to the predictive efficiency of the Glueck Social Prediction Table. Mrs. Glueck has noted that the other prediction tables introduced in *Unraveling*, based on the Rorschach and psychiatric data, are of limited utility, since their administration must be confined to experts in these areas.¹⁴ This practical limitation is not insurmountable, however, because the Gluecks established that the Social Prediction Table would do as good a job of selecting potential delinquents as either of the other two tables, or any combination of the 15 factors in the three tables originally presented in *Unraveling*.¹⁵

⁸ Burgess, *Symposium on the Gluecks' Latest Research*, *supra* note 3, at 53-54.

⁹ Stott, *The Prediction of Delinquency from Non-Delinquent Behavior*, in *THE SOCIOLOGY OF PUNISHMENT AND CORRECTION* 301 (Johnson, Savitz & Wolfgang eds. 1962).

¹⁰ E. Glueck, *Toward Improving the Identification of Delinquents*, 53 J. CRIM. L., C. & P.S. 165 (1962).

¹¹ S. & E. GLUECK, *op. cit. supra* note 2, at 257-71.

¹² S. & E. Glueck, *Note on Plans for Further "Unraveling" Juvenile Delinquency*, 41 J. CRIM. L. & C. 761 (1951).

¹³ Reiss, *supra* note 3, at 118.

¹⁴ E. Glueck, *Spotting Potential Delinquents: Can It Be Done?* 20 Fed. Prob. 8 (Sept. 1956).

¹⁵ S. & E. Glueck, *Early Detection of Future Delinquents*, 47 J. CRIM. L., C. & P.S. 174 (1956).

The development of prognostic instruments represents only the first stage of development of prediction tables, namely, the establishment of criteria.¹⁶ The next major stage involves application of the criteria prospectively to an independent new sample.

PROSPECTIVE STUDIES

Critics have questioned the application of the Social Prediction Table as a screening device. The basic question is whether such an instrument, constructed retrospectively, will identify potential delinquents and nondelinquents in a new sample of 5½ to 6 year old boys in a prospective test of the instrument. The table was constructed from information gathered in an investigation of 493 institutionalized delinquents and 7 persistent offenders and a comparison group of 500 Boston school boys who had not been officially designated delinquents. The ages of the boys ranged from 11 to 17 years and averaged 14.6 years of age. It is not idle to speculate whether such a table would be applicable to boys at the age of 6 years.

Mrs. Glueck argues that such criticism is inappropriate because one of the criteria used in the selection of the five factors in the table was that they be "in operation and clearly ascertainable by the time a child was six years old."¹⁷ In a more recent article she indicates that "although there were discriminating factors other than the five included in the Social Prediction Table, the aforementioned five were selected because they were clearly operative in the lives of children *before* school entrance."¹⁸

The problem is that the Gluecks confuse a possible objective or goal of research with the technique, or in this case, instrument, by which such a goal is to be achieved. The Gluecks' objective is the development of prognostic instruments to predict delinquency among six or seven year old boys. This may be a praiseworthy objective. Resolution of the issue whether it is possible, or as some critics maintain, patently impossible, to predict the behavior of children entering the first grade through instruments developed from information obtained from boys whose ages ranged from 11 to 17 years must come from a prospective test of the Glueck Social Prediction Table.

If one accepts the idea that a prospective appli-

cation is the only way to validate the table, then one may ask the following question: What evidence is offered by Glueck? Two prospective validation studies are discussed—the Maximum Benefits Project and the New York City Youth Board investigation.

The Maximum Benefits Project

The Maximum Benefits Project, initiated in 1954 in Washington, D. C., involves the prospective application of the Glueck Social Prediction Table only in the sense that it was applied prior to the recurrent appearance of the youngsters in official police or court records. This is not an application of the Gluecks' experience table to a random sample of boys entering first grade. Rather, the study involves 179 youngsters selected for treatment and study in a three-year period for behavioral difficulties. The subjects presented various classroom problems, and their teachers considered them to be in need of professional help. Of the 179, 158 (88.3%) had scores of more than 250, which the Gluecks "deem to be a satisfactory cut-off point for distinguishing between children unlikely, and those likely, to become delinquent."¹⁹

If one assumes for the moment that the predictions based on the Gluecks' table are correct, then it is highly unlikely that this proportion of potential delinquents would be found in any unselected population in any American city. No mention is made of a control group of nondelinquents from the same population.

The Maximum Benefits Project was not designed to validate the Glueck Social Prediction Table, and it is a far cry from the kind of investigation required to do so.

The Youth Board Study

The New York City Youth Board investigation is the only prospective application of the Glueck Social Prediction Table currently underway. All boys who entered the first grade of two public schools between September, 1952, and May, 1953, were considered for inclusion in this study.²⁰ The

¹⁹ S. Glueck, *supra* note 1, at 305.

²⁰ Of the 236 boys, 224 were included in the study. One boy was lost by the time Whelan's paper appeared in 1954. Whelan, *An Experiment in Predicting Delinquency*, 45 J. CRIM. L., C. & P.S. 436 (1954); NEW YORK CITY YOUTH BOARD, AN EXPERIMENT IN THE VALIDATION OF THE GLUECK PREDICTION SCALE: PROGRESS REPORT FROM NOVEMBER, 1952 TO DECEMBER, 1956, at 9 (1957).

¹⁶ Shaplin & Tiedeman, *supra* note 3, at 548.

¹⁷ E. Glueck, *supra* note 14, at 10.

¹⁸ E. Glueck, *supra* note 10, at 164.

age range was 5½ to 6½ years. The schools are situated four blocks apart in areas of high delinquency rates in the Bronx Borough. The population in both areas is declining, and the composition of the population has undergone rapid change due to a large influx of Negroes and Puerto Ricans. Whelan describes the areas as marginal, since large sections are zoned for industry or commerce, or both.

The study was designed to include a large proportion of Negro and Puerto Rican boys, groups which were not included in the Gluecks' samples. This investigation therefore provides a rigorous test of whether the prediction table is applicable to a wider variety of ethnic and racial groups than that from which the device was derived.

Of the 223 boys initially selected, 51 or 22.9 per cent were Caucasians, and 23 of these boys were of Jewish parentage.²¹ This is also in striking contrast to the Gluecks' original samples, in which only 2 per cent of the boys were of Jewish parentage. Boys of Puerto Rican ancestry were classified separately for the purposes of the Youth Board investigation, and the 41 Puerto Rican boys comprised 18.4 per cent of the sample. The 131 Negro boys constituted the largest segment of the sample, 58.7 per cent. As indicated above, the Gluecks did not include Negro boys in their original samples.

Clearly, this sample was quite different in its ethnic and racial composition than the samples from which the Gluecks' original prediction instruments were developed. An attempt was made to remedy this by increasing the number of non-Jewish Caucasian boys. Additional cases were selected from the first grade students in the two original schools during the next two academic years, and in the spring of 1956 older kindergarten children and first graders in two neighboring schools were included to provide a sample somewhat comparable in racial and cultural background to the Gluecks' original samples.²²

²¹ It is noted below that only 9 of the 51 Caucasians were classified as potential delinquents. The figures on ethnic background released by the Youth Board and those reported by Whelan do not agree. Whelan indicates that there were 131 Negroes; 41 Puerto Ricans; and 51 "white" boys, of whom one-half were of Jewish parentage. Whelan, *supra* note 20, at 438. The Youth Board indicates that there were 131 Negroes; 40 Puerto Ricans; and 53 "white" boys, of whom 23 were of Jewish parentage. NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 20, at 9.

²² The expanded sample of 303 boys included 130 Caucasians, 132 Negroes, and 41 Puerto Ricans. NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 20, at 10.

TABLE I
PREDICTIVE SCORE CLASSES

Weighted Failure Score	Chances of Delinquency per hundred
Under 200	8.2
200-249	37.0
250-299	63.5
300 and over	89.2

The supervisor of the project and "another qualified person" rated and scored each boy according to the five social factors in the table.²³ Each boy was placed within one of four categories on the basis of his total failure score. These four predictive score classes were constructed from the total weighted failure scores. These categories are shown in Table I.

Boys whose total failure scores were under 200 are said to have only 8.2 chances of delinquency per hundred, while those in the 200 to 249 range presumably have 37 chances of delinquency per hundred. Those with scores between 250 and 299 and the boys with scores of 300 and over are claimed to have 63.5 and 89.2 chances, respectively, per hundred of becoming delinquent.

The concept of maximum likelihood is used in making categoric predictions. Boys whose chances of delinquency are held to be more than 50 per 100 are classified as potentially delinquent; thus, boys with total failure scores of 250 or more are classified as potential delinquents. The nondelinquent range includes the first two categories, or those boys with total failure scores of less than 250.

The two raters placed 90 per cent of the boys in the same predictive score class. In one-half of the remaining cases the raters placed the boys in adjacent score classes within either the delinquent or the nondelinquent range. Whelan states that "all cases on which the raters differed, as to predictive score class were sent to Dr. Eleanor Glueck

²³ Whelan, *supra* note 20, at 437. In *Unraveling*, the Gluecks derived a weighted failure score for each of the categories within a factor. This weight was the percentage of boys in a category who were delinquent. The total failure score was a summation of these individual scores. This method of constructing predictive scores has been severely criticized. Reiss, *supra* note 3, at 118-19; Shaplin & Tiedeman, *supra* note 3, at 545-48; Anderson, UNRAVELING JUVENILE DELINQUENCY: A Symposium of Reviews, *supra* note 3, at 745-48. See S. & E. GLUECK, *op. cit. supra* note 2, at 257-71.

for final rating."²⁴ No information is provided regarding how Mrs. Glueck divined the assignment of the cases, nor is the reader informed what her assignment was.

Seventy-one boys, or 31.8 per cent of the sample, were assigned failure scores of 250 or more and thus were classified as potential delinquents.²⁵

The potential delinquents were distributed unequally among the ethnic and racial categories utilized. Only 9 of the 51 Caucasian boys were categorized as potential delinquents, in contrast with 50 of the 131 Negro boys, or 38 per cent of this group. Among the Puerto Ricans, 12 of the 41 boys, or 29 per cent of the total, were classified as potential delinquents.

Problems. The Youth Board indicates that problems arose during the course of the study which it was not possible to anticipate initially.²⁶ This is probably true of all research projects to some degree, but some problems could have been foreseen, such as that of rating boys from single-parent families. In discussing the factor, cohesiveness, it is observed that "it was our original thinking that a home could not be given the 'best rating' on this factor unless there were two parents in the home. This automatic judgment was not based on experience."²⁷ Nor was it based on adequate acquaintance with the relevant literature. The high percentage of matriarchal families among Negroes certainly should have been anticipated. Elliott and Merrill estimated that women were the heads of Negro families in large northern cities in 21 to 34 per cent of the cases.²⁸ Similar comments could be made about the limited knowl-

edge of certain cultural influences among the Puerto Ricans.²⁹

Some of the many difficulties encountered by the Youth Board, particularly in the rating and scoring of cases, might well have been avoided if an adequate pre-test had been conducted.

"There may have been inaccuracies and inadequacies in information secured in what was for the most part a one-interview operation. Some distortions may have stemmed from deliberate falsification of the family situation . . . [or] the limitations of parental comprehension and awareness (either through dullness or emotional factors) An understandable tendency on the part of many parents is to 'protect' the child."³⁰

The experience gained in the *pre-test of eight cases* obviously was inadequate to anticipate these problems.³¹

Results Reported by Glueck. The basic question, now, concerns the extent to which the predictions have been realized. Glueck presents the results of the follow-up on these cases for some seven years: "On the 223 boys involved, the findings to date show that of 186 predicted at school entrance to be *nondelinquents*, 176, or 94.6 per cent, are still (1960) in fact *nondelinquent* Of 37 boys predicted as *delinquents*, 13 are already adjudicated delinquents and 4 more are 'unofficial' offenders, making a total of 46 per cent."³²

The *nondelinquents* apparently include not only those boys who have no official records but also those against whom the field workers could find no other evidence of delinquency. As Sutherland pointed out long ago, "it is possible to demonstrate that a person is a delinquent, but it is never possible to demonstrate that he is a non-delinquent."³³ If official records had been the only source of information, then the percentage of boys predicted as delinquents, who were known or adjudicated delinquents, would be 35 per cent, not 46 per cent as reported by Glueck. If one holds Glueck to the definition of delinquency accepted in the Youth Board study,³⁴ and does not permit

²⁴ NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 20, at 18.

²⁵ *Id.* at 17.

²⁶ *Id.* at 13.

²⁷ S. Glueck, *supra* note 1, at 304-05.

²⁸ SUTHERLAND, *Later Criminal Careers, THE SUTHERLAND PAPERS* 305 (Cohen, Lindesmith & Schuessler eds. 1956).

²⁹ This is, of course, the definition of delinquency

²⁴ Whelan, *supra* note 20, at 437. Prigmore's research indicates that the ratings of the social factors in the Glueck's table lack reliability. Prigmore, *An Analysis of Rater Reliability on the Glueck Scale for the Prediction of Juvenile Delinquency*, 54 J. CRIM. L., C. & P.S. 30 (1963).

²⁵ *Id.* at 438. Early in the study it was decided to re-score 40 cases. One of the three criteria used in the selection of these cases was that agreement between two raters was lacking. This was required before a score was considered final. The net result was a change in the rating of 16 boys, but only 3 boys were shifted from the delinquent to the *nondelinquent* category. This reduced to 68 the number of predicted delinquents. NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 20, at 16-17, 35, 47-48.

²⁶ NEW YORK CITY YOUTH BOARD, DELINQUENCY PREDICTION: 1952-1960, A PROGRESS REPORT 7 (1961).

²⁷ *Id.* at 8-9.

²⁸ ELLIOTT & MERRILL, SOCIAL DISORGANIZATION 412 (3d ed. 1950).

him to include unofficial offenders at his convenience, then the accuracy of the predictions of potential delinquents is lowered considerably.

Furthermore, the proportion of the sample initially predicted as delinquents has been reduced. Whelan indicates that 71 boys, or 31.8 per cent, of the 223 boys were identified as potential delinquents. However, Glueck reports that 37 boys (16.6%) were predicted to be potential delinquents. No explanation is given for the shift of the 34 boys from the delinquent to the non-delinquent category.

The solution to this problem can be derived from an interim report released by the Youth Board. After the Youth Board study had been in progress for five years, experimentation with two-factor and three-factor tables was initiated.³⁵ In both of these abbreviated tables the factors, supervision of the boy by his mother and cohesiveness of the family unit, were included, and in the three-factor scale discipline of the boy by his father was also used. The three-factor table was applied to the 196 boys from intact families and the two-factor scale was used for the 28 cases in which the father was not a significant figure in the family. Re-rating the cases on these shortened scales reduced to 37 the number of predicted delinquents.³⁶

This, then, is the source of the 37 predicted delinquents Glueck uses. Glueck fails to note, however, that the results he presents are not based on the five-factor Glueck Social Prediction Table, but on two- or three-factor tables. It is misleading to present results based on abbreviated tables without specifying clearly that the original prognostic instrument has been superseded.

Predictive Efficiency of the Abbreviated Tables. Glueck emphasizes the high percentage (94.6%) of the predicted nondelinquents who, as of 1960, remained nondelinquent, rather than calculating

TABLE II
PREDICTED DELINQUENTS AND NONDELINQUENTS
AND OUTCOME

Predicted	Number of Cases	Outcome	
		Number of Delinquents	Number of Nondelinquents
Delinquent.....	37	13	24
Nondelinquent.....	186	10	176
Total.....	223	23	200

the predictive efficiency of the tables. This calculation requires some criterion.

Consider the "criterion" against which Glueck assesses the tables. Glueck's criterion, as well as his masking of the use of the two- and three-factor tables, is evident in the question which he poses: "To what extent is the Glueck table an 'efficient' predictive instrument; that is, to what degree does it improve on a 'prediction' made by simply calling every boy in the community nondelinquent?"³⁷

It is asserted that "the Glueck table is indubitably much more correct in identifying potential delinquents and potential nondelinquents than the method suggested by the critics [to forecast that all cases will be nondelinquent] which does not *identify* any child but supplies only the proportion of nondelinquents to delinquents that was estimated at the outset."³⁸

Introduction of this goal is irrelevant in a discussion of the predictive efficiency of the tables. It is quite obvious that the consequence of identifying every boy in a sample as a nondelinquent does not identify any particular child as a potential delinquent. But this is not an answer to the question, which pertains to the predictive efficiency of the tables. Rather, it is a plea for the identification of specific children as potential delinquents. Whether this is the goal toward which research efforts should be directed is another question. It is a goal toward which one might logically expect action-oriented workers to strive.

The assertion is not correct that the tables do a better job of identifying potential delinquents and nondelinquents than a "prediction" that all cases will be nondelinquent. Examination of Table II, which was constructed from the data given by Glueck, reveals that use of the two-factor and

accepted by the Gluecks. Cf. S. & E. GLUECK, *op. cit. supra* note 2, at 13; Whelan, *supra* note 20, at 439-40.

³⁵ NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 26, at 12. Cf. E. Glueck, *supra* note 10, and E. Glueck, *Toward Further Improving the Identification of Delinquents*, 54 J. CRIM. L., C. & P.S. 178 (1963).

³⁶ *Id.* at 13-14. See note 25, *supra*. Although one perhaps cannot expect Glueck to provide a detailed explanation for the shift of the 34 cases, obviously some comment was needed. At least Glueck could have provided a footnote reference to the Youth Board's then forthcoming report, but the reader looks in vain for such a reference. Cf. S. Glueck, *supra* note 1, at 283-308.

³⁷ *Id.* at 306.

³⁸ *Ibid.*

three-factor tables results in an erroneous prediction regarding 34 cases. Of the 37 boys predicted as delinquents, 24 are nondelinquent, and of the 186 predicted to be nondelinquent, 10 are delin-

TABLE III
PREDICTED DELINQUENCY AND NONDELINQUENCY
AND RESULTS NINE YEARS LATER

Original Predictions ^a	Total Cases	Ethnic Group ^b		
		Caucasian	Negro	Puerto Rican
Delinquent.....	70	9	50	11
Nondelinquent.....	151	44	81	26
Cases Lost ^c	3	—	—	3
Total.....	224	53	131	40

CAUCASIAN

Predicted	Total Cases	Results	
		Delinquent	Nondelinquent
Delinquent.....	9	2	7
Nondelinquent.....	44	—	44
Total.....	53	2	51

NEGRO

Predicted	Total Cases	Results	
		Delinquent	Nondelinquent
Delinquent.....	50	18	32
Nondelinquent.....	81	6	75
Total.....	131	24	107

^a This table was constructed from the information given in NEW YORK CITY YOUTH BOARD, DELINQUENCY PREDICTION: 1952-1960, A PROGRESS REPORT 19 (1961). Five Negro boys identified as predicted nondelinquents, who were actually delinquent, were assumed to have been predicted originally as potential delinquents.

^b This table is based on the Youth Board report of 53 Caucasian, 131 Negro, and 40 Puerto Rican boys. See note 21.

^c Two of these boys were predicted to be nondelinquent, and one was considered a potential delinquent. The schools reported that these boys had returned to Puerto Rico. Personal communication from Maude M. Craig, Director of Research, New York City Youth Board, dated October 29, 1962.

TABLE III—Continued

PUERTO RICAN

Predicted	Total Cases	Results	
		Delinquent	Nondelinquent
Delinquent.....	11	4	7
Nondelinquent.....	26	—	26
Total.....	37	4	33

quent. In contrast, "prediction" that all 223 boys will be nondelinquent leads to 23 errors, that is, the number of boys who were delinquent as of 1960.

Use of the abbreviated tables results in correct predictions in 84.8 per cent of the cases, while the accuracy of the forecast that all of the boys will be nondelinquent is 89.7 per cent.³⁹ It must be granted that the results on which these calculations are based were gathered in 1960, when the boys were 12 or 13 years old. The follow-up on this sample should be continued until the boys reach the age limit of the juvenile court.

Predictive Efficiency of the Original Table. The current status of the boys is not reported according to the initial predictions. Consequently, assessment of the efficiency of the Glueck Social Prediction Table must be based on a recasting of the data reported according to the two- and three-factor tables. This is possible because the use of the abbreviated tables resulted in the unilateral shifting of cases from the delinquent to the nondelinquent category.⁴⁰ However, this requires an arbitrary assumption regarding the original pre-

³⁹ However, the data released by the Youth Board in October, 1961, indicates that the abbreviated tables are slightly more efficient than the forecast that all boys will be nondelinquent. Nineteen of the 36 predicted delinquents and 11 of the 185 predicted nondelinquents were reported to be delinquent. Therefore, use of the tables developed by the Youth Board leads to 28 predictive errors, in comparison with 30 errors made in calling all boys potential delinquents. The percentage of cases predicted correctly is 87.3 per cent, in comparison with 86.4 percent success by forecasting that all cases will be nondelinquent. One might well ask whether this negligible improvement in predictive accuracy is worth the effort required to apply the tables. Furthermore, an investigator cannot change his predictions after several years in the light of inadequacies in the original predictions. If this were permissible, anyone would be able to "predict" with 100 per cent accuracy. One would, of course, not be predicting at all, but again would be following an *ex post facto* design. See NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 26, at 19-20.

⁴⁰ *Id.* at 14.

dictions for the 11 Negro boys who, on the basis of the shortened tables, are now classified as potential nondelinquents and are actually delinquent. Five of the 11 boys are assumed to have been predicted originally as nondelinquents. The rationale for this assumption is that the Youth Board shifted 23 Negro boys, or slightly less than one-half (23 of 50) of the predicted delinquents to the nondelinquent category by using the two- and three-factor tables.

Further, boys identified by the Youth Board as pre-delinquents and unofficial delinquents are considered as nondelinquents, since they do not fit the definition of delinquency originally accepted in the Youth Board study.⁴¹ The results are presented in Table III.

The predictive accuracy of the Gluecks' table was 100 per cent for the Caucasian and Puerto Rican boys and 92.6 per cent for the Negro boys predicted to be nondelinquents. On the other hand, the accuracy of the table was very low for those predicted as potential delinquents: Caucasians, 22.2 per cent; Negroes, 36.0 per cent; and Puerto Ricans, 36.4 per cent. The predictions were correct for 76.5 per cent (169 of 221) of the cases.

This assessment of the accuracy of the Social Prediction Table may be either too high or too low for the Negro boys, and depends on whether more or less than five of the boys initially predicted as delinquents are among those who were reclassified as potential nondelinquents and are already delinquent.

Berkson argues that the efficiency of a predictive device cannot be assessed by a single comprehensive measure of effectiveness, such as the percentage of correct predictions. He suggests measurement of a test's utility and cost.⁴² In these terms, the utility of the Social Prediction Table as a selection device, at the suggested critical score of 250, is 80 per cent (24 of 30), or the percentage of delinquent boys who are correctly identified as potential delinquents. This is obtained, however, at a cost of incorrectly identifying as potential delinquents 24.1 per cent (46 of 191) of the nondelinquent boys.

Duncan questions whether any agency interested in the prevention of delinquency can afford this cost.⁴³ Use of the Glueck Social Prediction Table

⁴¹ See note 34, *supra*.

⁴² Berkson, "Cost-Utility" *As a Measure of the Efficiency of a Test*, 42 J. AM. STATISTICAL ASS'N 246 (1947).

⁴³ Duncan, Book Review, PREDICTING DELINQUENCY AND CRIME, 65 AM. J. SOCIOLOGY 538 (1960).

identifies 70 of the 221 boys (31.7%) in the sample as potential delinquents, and thus requiring treatment. Such efforts would be unnecessary for 46 of these boys, or two-thirds of the treatment group. Further, one in five (6 of 30) of the potential delinquents are missed by the Gluecks' screening device and would not receive treatment.

Discussion. The Gluecks indicate that "the average age at the onset of misbehavior that proved to be persistent was 8.35 years," and in 87.6 per cent of the cases misbehavior began at the age of 10 years or younger.⁴⁴ Professor Glueck emphasizes that "these are not theoretical speculations but carefully verified facts."⁴⁵ In addition, 98.2 per cent of the delinquents had their first court appearance by the age of 15 years, and the first conviction of 98 per cent of the boys occurred by the age of 15 years or younger.⁴⁶

After the New York City Youth Board study had been in progress for nine years, 86.4 per cent of the boys were still nondelinquent, although they ranged in age from 14½ to 15½ years.⁴⁷ This is in striking contrast to the 1.8 per cent of the delinquents in *Unraveling* who were nondelinquent at the age of 15 years and supports the criticism that the delinquents in *Unraveling* represent institutionalized delinquents, not delinquents in general.⁴⁸ The Gluecks' definition of delinquency excludes boys who are placed on probation and unofficial delinquents whose behavior does not come to the attention of law-enforcement agencies. Bordua indicates that a shift in the composition of the population between the expectancy and the validation samples may have the effect of changing the outcome being predicted.⁴⁹ A predictive device constructed from an experience sample of institutionalized offenders faces this problem when it is used to predict delinquency, as measured by police or court contact, in the general population.

Initially, both the Youth Board and the Gluecks were quite satisfied with the prediction that nearly one-third of the boys were potential delinquents.⁵⁰

⁴⁴ S. & E. GLUECK, *op. cit. supra* note 2, at 28.

⁴⁵ S. Glueck, *Theory and Fact in Criminology: A Criticism of Differential Association*, in THE SOCIOLOGY OF CRIME AND DELINQUENCY 93 (Wolfgang, Savitz & Johnson eds. 1962).

⁴⁶ S. & E. GLUECK, *op. cit. supra* note 2, at 293.

⁴⁷ NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 26, at 18-19.

⁴⁸ Rubin, *supra* note 3, at 108-09.

⁴⁹ BORDUA, PREDICTION AND SELECTION OF DELINQUENTS 6 (1961).

⁵⁰ S. & E. GLUECK, PREDICTING DELINQUENCY AND CRIME 134 (1959); NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 20, at 11.

However, after the boys were re-rated on the two- and three-factor tables with the consequent reduction to 37 in the number scored as potential delinquents, it was stated that "this appeared to be much more realistic, even though it was still a little higher than the delinquency rates reported for the areas from which our boys emanate."⁵¹

Use of the Gluecks' table as a predictive device has precisely the limitation anticipated by Shaplin and Tiedeman and by Reiss.⁵² The table was constructed on the basis of equal numbers of delinquents and nondelinquents, and is inefficient as a prognostic device when only a relatively small proportion of the boys in the population become delinquent. A reasonable approximation of the actual delinquency rate must be used in the construction of a prediction table.

Hindsight is undoubtedly a great boon in the face of inadequate foresight. Failure to anticipate rating problems for boys whose fathers had deserted the family led to the development of a two-factor table. But the father was missing in only 28 families.

The problem of assessing parental affection for the child in a sample of young children from diverse racial and ethnic groups led to the development of a three-factor table. Considerably less data on which to base judgment were available to the Youth Board than were possessed by the Gluecks in *Unraveling*,⁵³ inasmuch as the Youth Board was applying the Social Prediction Table to young children, rather than to boys between the ages of 11 and 17. These difficulties indicate that the feasibility of applying the Gluecks' prognostic instrument to children entering the first grade is questionable.

Further, the Youth Board found that the Gluecks' table was of limited utility for a sample which included racial and ethnic groups other than those on which the instrument was developed. If this is the case, then one must conclude that the validity of the Gluecks' prognostic instrument is, at best, confined to lower-class Caucasian boys. Lower-class culture may define the limits of the table, but the designs of the Youth Board investigation and *Unraveling* do not permit assessment of social class as a limiting condition.

⁵¹ NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 26, at 14.

⁵² Shaplin & Tiedeman, *supra* note 3, at 545-47; Reiss, *supra* note 3, at 118-19.

⁵³ NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 26, at 7-8.

If predictions are made regarding future delinquency and nondelinquency when boys enter the first grade, and then are altered several years later, the prospective nature of the inquiry is destroyed. In essence, the initial prospective study is terminated, and a new prospective investigation is initiated using the predictions made at a later date.⁵⁴

After the development of a predictive device and the prospective application of the instrument to an independent second sample, one may find it necessary to analyze the sources of error if predictive accuracy proves to be disappointingly low. The result of this analysis will be a refined predictive instrument; however, its validity must be established in another prospective study. The prediction of juvenile delinquency undoubtedly requires a long term longitudinal study involving such successive stages.

CONCLUSION

Retrospective investigations do not establish the validity of the Social Prediction Table, for they merely demonstrate that some selected groups of delinquents receive high scores. Such analyses cannot differentiate between experience as a delinquent and conditions antecedent to delinquent behavior.

The validity of a predictive instrument must be established by a prospective study. The only current study of this type is the New York City Youth Board investigation. Glueck's presentation

⁵⁴ It is reported that the original Social Prediction Table will be used in the final report, which will include an analysis of the total sample of 303 cases. It is hoped that the Youth Board will report separately on the 220 (of the 224) boys initially selected. Only if this is done will it be possible to assess the validity of the Glueck Social Prediction Table when applied to diverse ethnic groups. NEW YORK CITY YOUTH BOARD, *op. cit. supra* note 26, at 2, 5.

Since this paper was completed, the Youth Board has published its final report. Unfortunately, the five-factor Social Prediction Table and the original predictions were not used in reporting the outcome of the 220 boys initially selected. The results of the five-factor table are given for 240 boys with a total of 57 boys predicted to be potential delinquents. (Originally, 71 boys were designated as potential delinquents, and one of these was lost when he returned to Puerto Rico.) These 240 boys include the 220 boys initially selected and 20 of the 79 more recent additions to the sample who were 17 years old. The outcome of the 220 boys originally selected is reported separately, but the results are given according to a new three-factor table based on supervision of the boy by his mother, cohesiveness of the family unit, and discipline of the boy by his mother. Craig & Glick, *Ten Years' Experience With the Glueck Social Prediction Table*, 9 CRIME & DELINQUENCY 256, 258 (1963).

of the results of this study is misleading, because he fails to indicate that the original five-factor prediction table was replaced after five years by two- and three-factor tables. Contrary to Glueck's optimistic assertion, the abbreviated tables on which he reports do not do as good a job of identifying potential delinquents and nondelinquents as the "prediction" that all cases will be nondelinquent. The number of erroneous predictions is increased by using the tables.

When the original predictions are employed, predictive efficiency is reduced drastically. The utility of the Glueck Social Prediction Table, that is, the percentage of boys correctly identified as potential delinquents, is 80 per cent, but this is obtained at a cost of identifying 24.1 per cent of the nondelinquent boys as future delinquents. After nine years, the boys were $14\frac{1}{2}$ to $15\frac{1}{2}$ years old, and 86.4 per cent were still nondelinquent. The Gluecks' table has precisely the defect antic-

ipated by earlier critics. The table was constructed on the basis of equal numbers of delinquents and nondelinquents, and is inefficient as a prognostic device when only a small percentage become delinquent. A reasonable approximation of the actual delinquency rate must be used in the construction of a prediction table. Otherwise, the labelling of every boy in the sample as a nondelinquent delivers a higher degree of predictive accuracy. Although the utility and cost of such a procedure is nil, this type of accuracy is magnified as the rate of delinquency declines.

Systematic application of the Social Prediction Table to boys entering the first grade is highly questionable in the light of the accuracy of the predictions to date. The validity of the Gluecks' predictive instrument is still in doubt, and only an amazing reversal of the current results in the Youth Board investigation will validate the Glueck Social Prediction Table.