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SENTENCING DISPARITIES IN THE JUVENILE JUSTICE SYSTEM

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INTRODUCTION

One of the central issues of contemporary criminology is the extent to which the social characteristics of offenders, principally race and socioeconomic status, affect the severity of sentences. The implications that would flow from a finding that social characteristics do affect the type and severity of dispositions received by offenders are far-reaching.

For example, such a finding would raise questions about the ability of the American criminal justice system to dispense fair and equitable justice for all. In turn, that unfairness would raise questions about the ability of correctional institutions to rehabilitate offenders who doubt the legitimacy of the system because of its perceived bias.[1] A finding of differential handling of offenders would also cast doubt on the validity of official data on offender characteristics and of many research findings based on such data. It would also raise questions about the value of theoretical models that are designed to explain differentials in official delinquency rates, such as the well-known finding that members of the lower socio-economic strata have substantially higher crime rates than members of higher strata. All of these implications, which are only illustrative of a broader range of issues, suggest the importance of addressing and resolving the question of the extent to which legally irrelevant social characteristics affect dispositional outcomes.

An earlier article by this author[2] addressed this question by examining dispositional data from the Philadelphia birth cohort study conducted by Wolfgang, Figlio and Sellin.[3] The major purpose of that article was to see if blacks and members of the lower socio-economic strata (SES) received more severe sanctions in the juvenile justice system once the legally relevant variables of the seriousness of the offense and the individual's prior delinquent record were held constant.

The study concluded that blacks and lower SES subjects were treated more severely than their counterparts, even after the seriousness of the offense and the delinquent history were controlled simultaneously. The racial and SES differences were most evident at the dispositional levels of the police referral to juvenile court and the juvenile court sentence, and were somewhat muted at the level of the intake hearing. Moreover, the data indicated that the legal variables of seriousness and prior record were more strongly related to severity of disposition than were race and SES. Nevertheless, "when the two legal variables were held constant, the racial and SES differences did not disappear. Blacks and low SES subjects were more likely than whites and high SES subjects to receive severe dispositions."[4]

The conclusions of the Thornberry 1973 study contradicted the findings of most prior studies dealing with the issue of the differential sentencing of juvenile offenders. Those earlier studies had typically concluded that race and SES were either unrelated to dispositions or were only spuriously related since their effects could be explained by the legally relevant variables of offense seriousness and prior criminal record.[5] Only one study[6] found sig-

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[1] *See* J. IRWIN, THE FELON 50 (1970) for a detailed discussion of this point.

[2] Thornberry, *Race, Socioeconomic Status and Sentencing in the Juvenile Justice System*, 64 J. CRIM. L. & C. 90 (1973).

[3] M. WOLFGANG, R. FIGLIO & T. SELLIN, DELINQUENCY IN A BIRTH COHORT (1972).

[4] Thornberry, *supra* note 2, at 97.

[5] All of the following studies have reached this conclusion: Ferdinand & Luchterhand, *Inner City Youth, the Police, the Juvenile Court and Justice*, 17 SOC. PROB. 510 (1970); Hohenstein, *Factors Influencing the Police Disposition of Juvenile Offenders*, in T. SELLIN & M. WOLFGANG, DELINQUENCY: SELECTED STUDIES 138 (1969); McEachern & Bauzer, *Factors Related to Disposition in Juvenile Police Contacts*, in M. KLEIN & B. MYERHOFF, JUVENILE GANGS IN CONTEXT (1964); Shannon, *Types and Patterns of Delinquency Referral in a Middle-Sized City*, 4 BRIT. J. DELINQUENCY 24 (1963); Terry, *Discrimination in the Handling of Juvenile Offenders by Social Control Agencies*, 4 J. RESEARCH CRIME & DELINQUENCY 218 (1967); Terry, *The Screening of Juvenile Offenders*, 58 J. CRIM. L. & C. 173 (1967); Goldman, Police Reporting of Offenders to Juvenile Court II (unpublished manuscript, available upon request from the author).

[6] Arnold, *Race and Ethnicity Relative to Other Factors in Juvenile Court Dispositions*, 77 AM. J. SOC. 211 (1971).

nificant racial effects in the sentencing of juveniles. After controlling for the marital status of the parents, the offense history of the offender and the delinquency rate of the census tract of residence, Arnold found that blacks and Latin Americans were treated more severely than whites, especially at the level of juvenile court sentencing.[7]

Since 1973, a number of studies in this area have appeared with essentially the same pattern of results. That is, most of the studies have found race and SES to be either unrelated to dispositional outcome or unrelated after appropriate legal variables were held constant.[8] Given the relative infrequency with which racial and SES effects have been found, then, it is important to assess the methodological rigor of the few studies that have uncovered them. For if these results are based on weak methodological foundations, it might be appropropriate to disregard them and conclude that the "weight of the evidence" suggests that racial and SES differences are minimal or non-existent.[9]

The criticisms of the 1973 Thornberry study[10] center around the data analytic technique that was employed, namely, an analysis of the percentage differences in contingency tables. The critics have claimed that this mode of analysis is neither sensitive enough to the interactions that occur among the variables, nor is it an adequate measure of the strength of the association between each of the independent variables and the severity of dispositions. Although issue could be taken with these criticisms,[11] we prefer to address the question by re-analyzing the same data, using multi-variate techniques that were not generally available when the earlier research was conducted. In this way we can better address the question of whether the variables of race and SES are related to the severity of dispositions and, if they are, we can then examine the strength of the association. If in this analysis these variables are found to be unrelated to the severity of dispositions, we may conclude, as Wellford did, that "the data reflect the minimal contribution of race and SES to criminal justice decision-making—the consistent finding of empirical research on this issue.[12] If, however, these variables are significantly related to the severity of dispositions, the general question of bias in the criminal justice system would remain an open one. These data would indicate that social characteristics do affect case outcomes in at least some jurisdictions and would suggest that an important next step in the research process would be inter-jurisdictional comparisons.

Methodology

Since the data to be analyzed have been described in detail elsewhere,[13] they can be described somewhat more briefly than usual here. The subjects of this study are the 9,945 males who were born in 1945 and who lived in Philadelphia from at least their tenth to their eighteenth birthdays. Of these 9,945 boys, 3,475 had been arrested at least once by the Philadelphia Police Department and, in total, they accounted for 10,214 arrests. Final disposition information is available for 9,601 of the 10,214 cases and these cases will constitute the data set for this study.

The independent variables are race, SES, seriousness of the offense and the number of previous offenses committed by the subjects. In each instance the variables are measured in the same manner as in the earlier article. Race is a dichotomous variable, contrasting white and black sub-

[7] Because of essential procedural differences between adult and juvenile justice systems, only literature related to the juvenile justice system is being reviewed here. Nevertheless, we can point out that Hagan, after reviewing 20 studies dealing with sentencing differentials for adult offenders, concluded that "while there may be evidence of differential sentencing, knowledge of extra-legal offender characteristics contributes relatively little to our ability to predict judicial dispositions." Hagan, *Extra-Legal Attributes and Criminal Sentencing: An Assessment of a Sociological Viewpoint*, 8 Law & Soc. Rev. 357, 379 (1974). In other words, most of the adult studies also concluded that race and SES were unrelated to sentencing after the introduction of legal controls.

[8] For example, *see* Burke & Turk, *Factors Affecting Postarrest Dispositions: A Model for Analysis*, 22 Soc. Prob. 313 (1975); Cohen & Kluegel, Determinants of Juvenile Court Dispositions: Ascriptive and Achieved Factors in Two Metropolitan Courts (Mimeo, Program for Applied Social Statistics, University of Illinois); Dungworth, Discretion in the Juvenile Justice Systems: The Impact of Case Characteristics on Pre-Hearing Detention (paper presented at the meetings of the American Society of Criminology, Tucson, Arizona, 1976). On the other hand, we have uncovered only one article that observed racial and SES differences in sentencing after the seriousness of the charge and the juvenile's prior record were held constant. *See* Thomas & Cage, *The Effect of Social Characteristics on Juvenile Court Dispositions*, 18 Soc. Q. 237 (1977).

[9] In fact, this is precisely the approach taken by a number of authors. *See, e.g.*, Cohen & Kluegel, note 8 *supra*; Wellford, *Labelling Theory and Criminology: An Assessment*, 22 Soc. Prob. 332 (1975).

[10] Thornberry, note 2 *supra*.

[11] *See* Wellford, note 9 *supra*.

[12] *Id.* at 339.

[13] *See* M. Wolfgang, R. Figlio & T. Sellin, note 3 *supra*. *See also* Thornberry, note 2 *supra*.

jects. Socioeconomic Status (SES) is also a dichotomy in which the subjects have been clustered into low and high groups.[14] The seriousness of the offense is measured by the Sellin-Wolfgang seriousness scale[15] with offenses being dichotomized into those with a score of less than 100, the less serious category, and those with a score of 100 or more, the more serious category. Finally, the number of previous offenses committed by the subject have been divided into three groups—none, one or two, and three or more.

There are four basic final dispositions that a juvenile could receive in Philadelphia at the time of this study, and as such, they will constitute the categories of the dependent variable. In ascending order of severity they are:

1. *Remedial Arrest*—cases in which the juvenile is detained by the police until his parents or legal guardians are notified and an official record of the contact is entered in the police files. The case however is *not* referred to the juvenile court. (The disposition in 6,515 of the 9,601 cases).
2. *Adjusted*—cases that are dismissed by an intake hearing officer or juvenile court judge, without the use of probation (1,338).
3. *Probation*—cases in which a juvenile court judge sentences the individual to probation or to pay a fine or make restitution to the victim (1,094).
4. *Institutionalization*—cases in which a juvenile court judge sentences the individual to a correctional institution (654).

The data will be examined by using Goodman's technique of log-linear analysis.[16] This is a multivariate technique that can be used to assess the independent effect of a number of qualitative independent variables on a qualitative dependent variable. Since three of the five variables in this analysis, including the dependent variable, are qualitative, and since we expect the social characteristics and legal variables to interact in relation to the severity of the disposition, this technique seems particularly well suited for our purposes.

There are three basic steps to the analysis. In the first, the data are arranged in an N by N by . . . N contingency table: in this case, race by SES by seriousness by previous offenses by disposition. Then, for each combination of the categories of the independent variables, the natural logarithm of the odds of the dependent variable taking on a particular value is computed. For example, we compute the odds of the case being given a remedial arrest when the independent variables have the values of white, low SES, no previous offenses and low seriousness score, and so forth for all the values of the dependent and independent variables.

These observed log-odds are then compared to expected log-odds, generated by maximum likelihood estimates under a variety of models. Usually the process starts with the "saturated" model, that is, the model that includes all the variables and all of their possible interactions. The objective is to move from the saturated model to the most parsimonious unsaturated model, that is, the one that includes the fewest variables and fewest number of interactions among variables, while still producing a close fit between the observed and expected log-odds. In this way, variables and interactions that are unrelated to the dependent variable are isolated and discarded.[17]

In addition, the expected log-odds can be expressed as a function of the "main effect" parameters of each of the variables in the model plus the interaction effect parameters of the variables. The following formula represents these effect parameters for the saturated model:

$$G_{ijklm} = \theta + \lambda_i^R + \lambda_j^S + \lambda_k^O + \lambda_l^P + \lambda_m^D + \lambda_{ij}^{RS} + \lambda_{ik}^{RO} + \cdots \text{(eight other two-factor effects)} + \lambda_{ijk}^{RSO} + \lambda_{ijl}^{RSP} + \cdots \text{(eight other three-factor effects)} + \lambda_{ijkl}^{RSOP} + \lambda_{ijkm}^{RSOD} + \cdots \text{(three other four-factor effects)} + \lambda_{ijklm}^{RSOPD}.$$ [18]

[14] SES was measured by the median income of the census tract of residence. *See* M. WOLFGANG, R. FIGLIO & T. SELLIN, *supra* note 3, at 47.

[15] T. SELLIN & M. WOLFGANG, THE MEASUREMENT OF DELINQUENCY (1964).

[16] *See* Goodman, *A General Model for the Analysis of Surveys*, 77 AM. J. SOC. 1035 (1972); Goodman, *A Modified Multiple Regression Approach to the Analysis of Dichotomous Variables*, 37 AM. SOC. REV. 28 (1972); Goodman, *The Analysis of Multidimensional Contingency Tables: Stepwise Procedures and Direct Estimation Methods for Building Models for Multiple Classifications*, 13 TECHNOMETRICS 33 (1971).

[17] One could also begin with a theoretically predicted model rather than the saturated one model, but since that is not the case in this analysis, we will not discuss that approach here.

[18] The superscripts in this formula and in the following tables refer to variables contained in the model: R = Race, S = SES, O = Offense Seriousness, P = Previous Offenses and D = Disposition. The constant θ is added to insure that the sum of the expected frequencies equals the number of cases in the analysis, in the present case, 9,601.

G_{ijklm} represents the log of the expected frequency of the cell (i, j, k, l, m) of the five-way contingency table and the λ's represent the effect parameters associated with each of the variables and their various interactions. In the process just described of moving from the saturated to the unsaturated models, one attempts to maximize the number of λ's set equal to zero while still maintaining a close fit between the observed and expected log-odds. In this way a parsimonious explanation of the observed data is achieved, since the information in the five-way table is reproduced by using as few of the effect parameters as possible. This procedure isolates and discards the effect parameters that are not significantly contributing to the association.

The second step of the analysis involves an estimation of the independent or net effect that each of the parameters remaining in the model has on the overall association. The relative importance of each main effect and each interactive effect can be assessed using statistics that are analogous to the partial correlation coefficients of regression analysis.

Finally, the third step, an examination of the effect parameters for each of the independent variables, indicates the direction of the association between the independent and dependent variables. For example, one can determine if being white is positively or negatively related to the severity of disposition.

Results

Table 1 presents the likelihood-ratio chi-squares for a variety of models used to estimate the fit between the observed log-odds and the log-odds expected under each of the models. If the chi-square values are small and non-significant, one can conclude that the expected and observed log-odds are similar and that the particular model fits the data quite well. If the chi-square values are large and the p values are significant however, the model is rejected as being a poor fit.

The second column of the table contains the marginals that were fitted for each model. From this column one can deduce the effect parameters (λ's) that are estimated. The reader should bear in mind that, since the model is hierarchical, all lower level effect parameters contained within a term are automatically estimated in the model. For example, the term *(RSO)* implies that the following parameters are estimated: $\lambda^{R}, \lambda^{S}, \lambda^{O}, \lambda^{RS}, \lambda^{RO}, \lambda^{SO}$, and λ^{RSO}.

The first model in Table 1, M_0, is the saturated model in which all the effect parameters presented in the earlier formula are estimated. Since all the parameters are estimated, the model fits the observed values perfectly. The subsequent models systematically delete levels of interaction to arrive at a more parsimonious model. M_1 eliminates the one five-way interaction term and M_2 eliminates, additionally, the three four-way interaction terms. As can be seen from the low chi-square values and the significance levels, these terms can be safely eliminated while still producing a good fit between the model and the observed data. When M_3, including only the two-way interactions, and M_4, including only the main effects, are considered, however, the chi-square values increase and the differences between the observed and expected frequencies become significant, suggesting that the

TABLE 1

Chi-Square Values for Some Models Pertaining to the Association of Race (*R*), SES (*S*), Previous Offenses (*P*), Offense Seriousness (*O*), and Disposition (*D*)

Model	Fitted Marginals	Degrees of Freedom	Likelihood Ratio χ^2	$p \leq$
M_0	*(RSPOD)*	0	0.0	—
M_1	All 4-way Effects	6	2.10	.5
M_2	All 3-way Effects	29	18.40	.5
M_3	All 2-way Effects	63	87.60	.02
M_4	All Main Effects	87	7459.87	0.0
M_5	*(RSOP) (RD) (SD) (PD) (OD)*	54	65.45	.14
M_6	*(RSOP) (RD) (SD) (PD) (OD) (SPD)*	48	42.14	.5
M_7	*(RSOP) (SD) (PD) (OD) (SPD)*	51	135.67	.00
M_8	*(RSOP) (RD) (SD) (PD) (SPD)*	51	2860.78	.00
M_9	*(RSOP) (RD) (SD) (OD)*	60	666.26	.00
M_{10}	*(RSOP) (RD) (PD) (OD)*	57	75.77	.05

most parsimonious model will contain some three-way interactions.

Since variable *D*, disposition, is specified as the dependent variable, the marginal (*RSOP*) has to be included in the model.[19] The simplest model containing this term is presented in M_5, which includes the marginal (*RSOP*) plus the four two-way effects containing the dependent variable, namely (*RD*) (*SD*) (*PD*) and (*OD*). The chi-square for this model is 65.45 which, with 54 degrees of freedom, is not significant ($p < .14$), indicating a relatively good fit. When the three-way term (*SPD*) that had the highest significance level in the saturated model is added, however, the fit improves considerably. This model, M_6, has a low chi-square value and is not significant at even the .50 level. Furthermore, the addition of other three-way interactions does not significantly reduce the value of chi-square.

We thus conclude that the most parsimonious model for describing the variables under study is the one that contains the interactions between race and disposition, SES and disposition, the number of previous offenses and disposition, offense seriousness and disposition and the three-way interaction between SES, previous offenses and disposition.[20]

The next step in the procedure is to see if each of the terms in M_6 contributes significantly to the model and to estimate the magnitude of the contribution for each of the terms. To do this models 7 through 10 have been generated which, along M_5, systematically delete one of the terms contained in M_6. By comparing the difference in the chi-square values and degrees of freedom between each of these models with the chi-square and degrees of freedom associated with M_6, we can determine if the term that has been deleted has contributed significantly to M_6. In addition, the coefficient of partial determination, which estimates the magnitude of the contribution, can also be computed from these chi-square values. This coefficient is analogous to the partial correlation coefficient of regression analysis.[21] The larger the value of this coefficient, the greater the net contribution of the term under consideration. The appropriate data are presented in Table 2.

The two variables that make the greatest net contributions to explaining the severity of dispositions are the legal ones of seriousness of the offense (*OD*) and the number of previous offenses (*PD*). The coefficients of partial determination for these variables are .982 and .902, respectively, and both are significant at the .001 level. From the perspective of this study however, the most interesting finding is the strong net contribution of race. The coefficient for the term (*RD*) is .689 which is also significant at the .001 level. Thus, the race of the offender does have a significant effect on the severity of the disposition received. The remaining two terms, the three way interaction term involving SES, previous offenses and disposition, and the two-way interaction between SES and disposition, have significant but relatively small net contributions. The coefficients are .356 and .136 respectively and the contribution of SES is significant only at the .025 level. Since SES is contained in the (*SPD*) term however, it cannot be deleted from the model even though it makes a relatively minor net contribution.

We conclude therefore that each of the four independent variables—seriousness, previous offenses, race and SES—have an impact on the severity of dispositions, when the effect of the other three are held constant. The legal variables have the most pronounced impact, race has a strong, intermediate impact and SES has a relatively minor effect.

Finally, we can turn to an examination of the effect parameters to ascertain the direction of the association between the independent and dependent variables. For the dichotomous variables, these parameters are presented in Table 3, and for the variable of previous offenses, the data are presented in Table 4. The effect parameters can be interpreted in the following manner: when the coefficient is negative, there is a less than average chance, controlling for the effect of other variables, that cases with that characteristic will receive the disposition under consideration. When the coefficient is positive, there is a greater than average chance that cases with that characteristic will receive the disposition under consideration and when the coefficient is zero, there is no deviation from the average overall effect.

Examining the two legal variables first, we see that the differences are in the expected direction. Offenses of low seriousness are more likely to receive a remedial arrest ($\lambda = 1.06$, $p < .01$) and are

[19] *See* Goodman, *A Modified Multiple Regression Approach to the Analysis of Dichotomous Variables*, 37 AM. SOC. REV. 28 (1972).

[20] We should also note that the effect parameters associated with the terms contained in M_6 are quite stable as one moves from the saturated model to M_6. In other words, the relative importance of the terms contained in M_6 is not a function of the deletion of the other three-way, four-way and five-way interactions.

[21] *See* Goodman, *supra* note 19, at 42–44.

TABLE 2

COEFFICIENTS OF PARTIAL DETERMINATION AND NET CONTRIBUTIONS OF VARIABLES IN MODEL SIX

Comparison	Source of Difference	Degrees of Freedom	Likelihood Ratio χ^2	Coefficient of Partial Determination	p
$M_6 - M_5$	*OD*	3	2818.64	.982	.001
$M_5 - M_9$	*PD*	6	600.61	.902	.001
$M_6 - M_7$	*RD*	3	93.53	.689	.001
$M_6 - M_5$	*SPD*	6	23.31	.356	.001
$M_5 - M_{10}$	*SD*	3	10.32	.136	.025

TABLE 3

EFFECT PARAMETERS FOR DICHOTOMOUS INDEPENDENT VARIABLES

Disposition	Effect Parameters[a]		
	Seriousness	Race	SES
Remedial	1.06**	.24**	−.07
Adjusted	.08	−.04	−.01
Probation	−.49**	.05	.05
Institutionalization	−.64**	−.25*	.01

* Significant at $p < .05$.

** Significant at $p < .01$.

[a] These effect parameters pertain to the case in which the Seriousness Score of the Offense is Low (less than 100), Race is White and SES is Low. The effect parameters for the other characteristics, *i.e.*, high seriousness, blacks and high SES are of the same magnitude but with sign reversal.

TABLE 4

EFFECT PARAMETERS FOR PREVIOUS OFFENSES

Disposition	Number of Previous Offenses		
	None	One or Two	Three or More
Remedial	.64**	.01	−.65**
Adjusted	.20*	−.04	−.17*
Probation	−.02	−.01	.02
Institutionalization	−.83**	.03	.79**

* Significant at $p < .05$.

** Significant at $p < .01$.

less likely to receive a sentence of probation ($\lambda = -.49$, $p < .01$) or institutionalization ($\lambda = -.64$, $p < .01$). The seriousness of the offense has little effect on the likelihood of receiving an adjusted disposition. The number of previous offenses is directly related to the severity of the disposition (Table 4). Looking at the extremes, we see that first-time offenders are more likely to receive remedial arrests and adjusted cases but are less likely to receive a sentence of institutionalization. Offenders who have committed three or more offenses are less likely to have their cases remedialled or adjusted and are more likely to be institutionalized. The variable of the number of previous offenses committed exerts relatively little influence on the sentence of probation. In general, then, the legal variables, controlling for the impact of the social characteristics, are related to dispositions in the expected manner. Serious offenses and recidivists are less likely to receive minor dispositions and more likely to receive severe dispositions.

Turning to the social characteristics (Table 3) we see that whites are more likely than blacks to be remedialled ($\lambda = .24$, $p < .01$) and less likely to be institutionalized ($\lambda = -.25$, $p < .05$). However, race exerts relatively little influence on the intermediate dispositions of adjusted and probation. As would be expected from the analysis of the low net contribution of SES to the model (Table 2), the effect parameters for SES are not significant.

Finally, we can examine the effect parameters for the three-way interaction between SES, previous offenses and disposition (Table 5). The parameters presented are for the instance in which SES is low. As we would expect, based on the small net contribution this term made to M_6, the effect

TABLE 5

EFFECT PARAMETERS FOR INTERACTION BETWEEN SES AND PREVIOUS OFFENSES WHEN SES IS LOW

Disposition	Previous Offenses		
	None	One or Two	Three or More
Remedial	−.10	.05	.05
Adjusted	.08	.05	−.13*
Probation	.01	.05	−.06
Institutionalization	.02	−.15	.14

* Significant at $p < .05$.

TABLE 6

MODELS AND EFFECT PARAMETERS RELATING TO SES IN THE FOUR-VARIABLE MODEL SES (*S*), PREVIOUS OFFENSES (*P*), OFFENSE SERIOUSNESS (*O*), AND DISPOSITIONS (*D*)

Model	Fitted Marginals	Degrees of Freedom	Likelihood Ratio χ^2	p <
M_1	(*SPO*) (*SD*) (*PD*) (*OD*) (*SPD*)	15	9.60	.5
M_2	(*SPO*) (*SD*) (*PD*) (*OD*)	21	32.58	.05
M_3	(*SPO*) (*PD*) (*OD*)	24	103.13	.00

Effect Parameters for *SD*:

Disposition	Low SES	High SES
Remedial	−.19*	.19*
Adjusted	.03	−.03
Probation	.02	−.02
Institutionalization	.14	−.14

* Significant at p < .01

parameters are small and quite close to zero. Only one coefficient is significant at the .05 level, indicating that low SES subjects who committed three or more offenses are less likely to have their cases adjusted than are comparable high SES subjects.

Thus far, the only major deviation from the results of our earlier work[22] concerns the relationship between SES and disposition. The log-linear analysis indicates that lower SES subjects are slightly, but not significantly, more likely to receive severe dispositions, while in the earlier analysis the relationship between these two variables was substantial. One possible explanation for this discrepancy is that the log-linear model assesses the relationship between SES and dispositions controlling for the effects of seriousness, previous offenses and race, while in the contingency table analysis only seriousness and previous offenses were controlled simultaneously.[23] If this explanation is correct, the log-linear analysis of the four variable table—SES by Previous Offenses by Offense Seriousness by Dispositions—should indicate a significant SES effect. The appropriate data are presented, in abbreviated format, in Table 6.

The model that best fits the observed data is analogous to M_6 of Table 1. It contains the three, two-way interaction terms between the independent variables and the dependent variable, as well as the three-way term (*SPD*). This model has a chi-square of 9.60 (p < .50). Since the effect of interest here, (*SD*), is contained in the three-way interaction term, M_2, which eliminates (*SPD*), has also been generated in order to examine the net contribution of (*SD*). Comparing the difference between the chi-square values of M_3 and M_2, we see that (*SD*) makes a significant net contribution (χ^2 = 70.55, d.f. = 3, p < .01), with a coefficient of partial determination equal to .684. Finally, we note that the effect parameters indicate that low SES subjects are more likely to be institutionalized and are significantly less likely to be remedialled. When the same variables are contained in the analysis therefore, the results of the log-linear and contingency table analyses are quite similar.

DISCUSSION AND CONCLUSIONS

The purpose of this article has been to re-assess the effect that the social characteristics of the offender have on the severity of dispositions in the juvenile justice system. Even though the legal variables of the seriousness of the offense and the juvenile's prior record are most strongly related to the severity of the disposition, the social characteristics of the offender also affect case outcomes. The situation is clearest for the variable of race. When seriousness, prior record and SES were held constant, blacks were significantly more likely than whites to receive more severe dispositions. For the variable of SES, when seriousness, prior record and race were held constant, SES was found to make a rather small net contribution to the explanation of the severity of dispositions. When the variable of race was suppressed however, and only the two legal variables were held constant, SES was found to be significantly related to dispositions such that lower SES subjects were treated more severely than their high SES counterparts.

In general, these conclusions are remarkably similar to the ones reached in this author's earlier

[22] Thornberry, note 2 *supra*.
[23] *Id.* at 97.

study, even though the earlier work was based on less sophisticated analytic techniques. The major difference between the analyses relates to the diminished effect that SES has on case outcomes. Nevertheless, these data suggest that Wellford's alternate conclusion—that: "In fact, the data reflect the minimal contribution of race and SES to criminal justice decision making . . . ."[24]—is overstated. Using multi-variate techniques specifically designed to analyze qualitative data, we found that race, and to a lesser extent SES, do have an impact on the severity of dispositions.

In the brief literature review preceeding this analysis, we noted that previous studies yielded contradictory findings: most found no racial or SES effects, while only a minority did find some effects. We also raised the possibility that if the "minority findings" were based on weak methodological foundations, it might be best to disregard them in any general assessment of differential sentencing. A similar point has been made by Cohen and Kluegel:

> At the outset of this paper we raised the issue of whether contradictory findings in prior research are attributable to the influence of possible court differences in juvenile justice approach, or to methodological inadequacies in these studies. On the basis of our research [which did not find racial or SES effects], we suggest that the best explanation of these findings . . . lie in their lack of methodological rigor.[25]

It would seem that the explanation offered by Cohen and Kluegel is premature. Using the same methodological technique that they did, log-linear analysis, and essentially the same set of variables, race and SES were found, in this study, to be related to case outcomes in Philadelphia. These contradictory findings cannot be attributed to methodological differences.

Unfortunately, at the present time, they cannot be attributed to other factors either. They thus remain contradictory findings. Nevertheless, their contradictory nature suggests that future research in this area should move beyond the simple examination of sentencing disparities within one jurisdiction. It now seems apparent that social characteristics affect sentence severity in some jurisdictions but not in others. Future research, like that conducted by Cohen,[26] should concentrate on inter-jurisdictional comparisons in an attempt to estimate the extent of racial and class differentials in sentencing throughout the country, and isolate factors associated with jurisdictional variations. Especially important in this respect would be studies comparing the dispositional outcomes in cities in which racial and SES differences have been found with the outcomes in cities in which these differences have not been found. Such controlled research is the most direct way of assessing the contradictory nature of past studies and of uncovering structural variables to account for inter-jurisdictional disparities.

[24] Wellford, *supra* note 9, at 339.

[25] *See* Cohen & Kluegel, *supra* note 8, at 22.

[26] *See* COHEN, DELINQUENCY DISPOSITIONS: AN EMPIRICAL ANALYSIS OF PROCESSING DECISIONS IN THREE JUVENILE COURTS (1975) and COHEN, PRE-ADJUDICATING DETENTION IN THREE JUVENILE COURTS: AN EMPIRICAL ANALYSIS OF THE FACTORS RELATED TO DETENTION DECISION OUTCOMES (1975). Both publications are available from the United States Government Printing Office.