

THE INFLUENCE OF INCOME AND OTHER FACTORS ON WHETHER CRIMINAL DEFENDANTS GO TO PRISON*

STEVENS H. CLARKE
GARY G. KOCH

The experiences of 798 burglary and larceny defendants in the criminal courts of Mecklenburg County, North Carolina, in 1971 were studied to identify the factors having the greatest influence on the defendant's likelihood of emerging from court with an active prison sentence. The following variables were found to have a significant effect, listed in order of importance: (1) severity of offense (defined in terms of value of property taken and degree of skill required)—positive effect; (2) defendant's income—negative effect; (3) prior arrest record—positive effect; (4) strength of case against defendant as determined by promptness of arrest—positive effect. The influence of the defendant's sex could not be measured because there were too few females in the sample. Race, age, and employment were found to be of little or no importance. The four most important variables had a generally additive effect on prison probability.

Further analysis showed that the defendant's income affected not whether he was convicted of an offense, but the likelihood of going to prison after conviction. Most of this effect could be explained by the low-income defendant's poorer opportunity for pretrial release and greater likelihood of having a court-appointed rather than privately retained attorney. This suggests that the apparent disadvantage of the low-income defendant could be overcome by improvement of pretrial release and defense service.

The study's implications with regard to sentencing procedures are discussed. Judges' wide latitude in imposing sentence may enable the defendant's income to exert the large influence that it apparently does, but narrowing judicial discretion may not reduce the effect of income if present plea bargaining practices continue.

INTRODUCTION

What factors influence whether a person arrested and charged with a crime receives an active prison sentence? In particular, how does "who you are," in terms of race and socioeconomic status, compare with "what you have done" in determining a prison outcome? Imprisonment is usually the greatest pain and stigma that the criminal justice system can inflict—from the

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defendant's viewpoint (whether he is in fact guilty or innocent) and probably from society's as well. The question of which factors influence whether a criminal court will convict a defendant and impose an active sentence¹ is of increasing concern not only to lawyers (Frankel, 1972) but also to citizens generally, whose respect for law may well be affected by how just they believe the courts to be. This question is also relevant to a continuing controversy over whether the disproportionate numbers of low-income and racial minority groups in prisons indicate more actual criminal behavior in these groups or discriminatory treatment on the part of the police and courts (Chiricos and Waldo, 1975; Terry, 1967).

RESEARCH ON FACTORS AFFECTING PROSECUTION AND COURT DISPOSITION

Although the summary of research that follows does not represent a comprehensive search of the literature, it provides some representative examples. The concluding section of this article will compare the summarized findings with those of the present study.

1. Studies Concerning Juvenile Delinquents

Goldman (1963). This study, conducted in the late 1940s, dealt with the police decision to refer apprehended juvenile delinquents to court, and with police behavior and community relations in general, in Pittsburgh and Allegheny County, Pennsylvania. The sample was 1,083 arrested juveniles. Goldman found a positive relationship between seriousness of the juvenile's al-

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1. The term "active sentence" refers to actual imprisonment, as opposed to suspended imprisonment or some other disposition not involving prison. The approach of this paper—focusing first on whether defendants went to prison, and thereafter examining trial (or plea) and sentencing as separate phases—does not require the assumption that all defendants are guilty, and we make no such assumption. The approach recognizes that the defendant charged with a non-trivial property crime, whether guilty or innocent, is probably most concerned to avoid imprisonment, even though avoiding conviction is also quite important. Law enforcement officials usually regard suspects against whom there exists enough evidence to justify arrest and prosecution as "tentatively guilty," and they too are probably more concerned with whether the person accused of a nontrivial crime receives a sufficient punishment than with whether he is convicted. (It is also important, of course, for police to know when they have arrested innocent people, although the fact that a defendant is not convicted does not necessarily indicate that he is innocent.) Although an arrested person is innocent in the eyes of the law unless convicted, it is still possible to regard the proportion of arrested persons who go to prison as an indication of one aspect of the deterrent effectiveness of law enforcement. This does not mean that deterrence should be achieved by arresting innocent people, but it does recognize that potential offenders are influenced by the likelihood that they will go to prison if caught as well as by the likelihood of being caught. (See the studies of deterrence cited in note 9, *infra*.)

leged offense and the likelihood the police would refer his case to juvenile court; he also found that blacks were more likely to be referred to court than whites, a difference that was more pronounced where minor offenses, such as violation of local ordinances, property damage, malicious mischief, and status offenses, were involved (53.2 percent of blacks charged with such offenses were referred, versus 22.6 percent of whites) than where more serious offenses, such as larceny and burglary, were involved (87.5 percent of blacks were referred, versus 79.3 percent of whites). Age was also found to have a positive relationship, although no attempt was made to adjust for seriousness of offense, which may well have been higher for older offenders.

Thornberry (1973). Using the birth cohort data of Wolfgang, Figlio, and Sellin (1972), which tracked until 1973 the official records of 9,945 boys who were age 10 and residing in Philadelphia in 1955, this study dealt with three stages in the juvenile justice process: (1) the police decision to refer to court or release; (2) the decision by court intake officers to release or proceed with a court hearing; and (3) the decision by the juvenile court to place the boy on probation or commit him to an institution. Offense seriousness, as measured by the Wolfgang-Sellin index, was positively related to a more severe decision at each of the three stages, as was juvenile record (number of previous offenses). When seriousness of present offense and juvenile record were controlled for, racial differences were quite apparent. Blacks were more likely than whites to be referred to court by police and to be committed rather than placed on probation by the court, but not more likely to be referred to a court hearing by intake officers. A similar result was obtained in comparing boys of "low" and "high" socioeconomic status as measured by median income of census tract of residence.² The effects of race and socioeconomic status combined additively with those of offense seriousness and juvenile record.

Terry (1967). This study involved 9,023 boys and girls who came into contact with the police in "a heavily industrialized Midwest community of slightly less than 100,000" from 1958 through 1962. Terry found that the seriousness of the instant offense, and the number of prior offenses, had important effects. But in contrast to Thornberry, he found that when these variables were controlled, neither race (black, Mexican-American, or other) nor socioeconomic status (father's occupation) affected the decisions of the police, court intake officers, or juvenile judge,

2. The present study also uses median income of census tract of residence as a proxy for individual income.

and that sex affected only the disposition of the court (girls were more likely to be institutionalized).

2. Studies Involving Criminal Trial and Sentencing

*Landes (1974).*³ In an analysis that included bond-setting, pretrial release, and commission of new crime and failure to appear while free on pretrial release, Landes formed a multiple regression model of the length of active sentence received, using 857 male defendants age 21 or over, tried in New York during 1971, all of whom were indigent clients of the Legal Aid Society. (Those not convicted or sentenced to probation were assigned a sentence length of zero.) Landes emphasized the relationship of the amount of the bail bond to sentence length. He found that the bond amount was positively related to factors that could be expected to influence sentence: seriousness of charge, criminal record, and pending charges. Employment status and weekly earnings—however unjust this may seem—were *negatively* related to bond amount. He then showed that the amount of bond set by the court had a strong positive relationship to eventual sentence length, whether or not the defendant obtained pretrial freedom (61 percent of his sample did not).

The defendant's success in obtaining pretrial release had a negative effect on the sentence, which disappeared when the bond amount was included in the model; however, the number of days the defendant was held in detention had an independent, positive effect on sentence length. These findings support the view that inability to obtain pretrial release may increase the likelihood that a defendant will be convicted and imprisoned, but they also reveal that the factors making conviction and imprisonment more likely also increase the likelihood of pretrial detention. In addition, they support the theory that bond-setting is based partly on a prediction of ultimate court disposition. It should be pointed out that the reason why so many of these defendants failed to obtain pretrial release was not their low income (all were indigent) but rather their failure to qualify for release on recognizance. Eighty-seven percent of those who man-

3. Other studies of the same data set and a later but similar data set were performed by the New York Legal Aid Society in its lawsuits to have the bail system in New York declared unconstitutional (Kasanof and Single, 1972a; 1972b). The methodology of the study is criticized in "On the Methodological Rigor of the Bellamy Memorandum," 8 *Criminal Law Bulletin* 507 (1972). The Bellamy Memorandum confused the independent effect of pretrial detention on trial outcome with the relationship of detention to trial attributable to the perception of guilt by those setting bond. A later study (Herman *et al.*, 1975) attempted to solve this problem by adjusting for variables associated with likely guilt or offense severity. Landes's analysis of the Legal Aid data is by far the best.

aged to obtain pretrial freedom were released on recognizance.

Landes found that age had no effect on sentence length. Prior arrests for felonies and "violations" (e.g., traffic offenses) were positively associated with sentence length, although prior misdemeanor arrests were not; felony arrests ceased to be a significant factor when bond amount was included in the model, probably because the latter masked its effect. The seriousness of the current charge, whether the defendant was on probation or parole, and whether he had earlier charges still outstanding were all found to be positively related to sentence length. The study did not indicate the effect of income (weekly earnings) and employment status on sentence length without controlling for bond amount; when bond amount was included in the model, they had no effect on sentence, but this may have been because bond amount is negatively related to income and employment, as explained earlier. In any case, the study provides limited insight into the role played by the defendant's income, because all the defendants were indigent.⁴

Greenwood, et al. (1973). The sample in this study consisted of defendants charged with felonious assault, robbery, burglary, forgery, and sale and possession of narcotics, in Los Angeles County in 1970. No attempt was made to form a multivariate model. The type of offense charged had some relation to mode of disposition and conviction rate (for example, assault and robbery cases were twice as likely to go to trial as other offenses, and drug offenses were more likely to be dismissed), and a strong relationship to whether convicted defendants received active prison sentences. Of those initially charged with robbery and then convicted (not necessarily of that charge) 26 percent went to prison; comparative figures were 0.3 percent for possession of marijuana, 1 percent for possession of dangerous drugs, and 6 to 8 percent for all other offenses.⁵ Criminal record (measured in terms of prior arrests, convictions, and imprisonment) was positively related to the chance of being convicted, and of being imprisoned. The effects of offense charged and criminal record were generally additive. Mode of disposition was related to likelihood of imprisonment. For example, 62 percent of convicted burglary defendants with prior prison records who received a jury trial went to prison, as compared with 10 to 26 percent of those who pleaded guilty, 10 percent of those who were convicted

4. Landes notes that Legal Aid represents 70 percent of the defendants in New York's criminal courts; his study does not deal with the other 30 percent who are presumably not indigent (Landes 1974: 289).

5. The Los Angeles figures on prison sentences do not include those sentenced to jail, whereas those of the present (Charlotte) study do.

by a judge on submission of their preliminary hearing transcript, and 20 percent of those who were tried and convicted by a judge.

Analyzing just the 2,617 defendants charged with robbery, without adjusting for criminal record, it was found that whether the defendant received pretrial release and the type of attorney he had were related to disposition and sentence. Released defendants were twice as likely (19.4 percent) to avoid conviction as unreleased defendants (10.1 percent), and were somewhat less likely to receive a felony sentence (41.0 versus 51.6 percent). Defendants represented by private attorneys or the Public Defender's Office were about equally likely to avoid conviction (13.4 and 16.9 percent, respectively); surprisingly, those represented by court-appointed private attorneys (appointed for indigents when the Public Defender had a conflict of interest) were more likely to avoid conviction (21.9 percent). With regard to race, black defendants were somewhat more likely to be acquitted (17.3 percent) than Mexican-Americans and whites (13.5 and 12.7 percent, respectively), and less likely than whites to be sentenced for a felony. The defendant's income was not included in the study.

Burke and Turk (1975). This study involved a 20 percent random sample of adult males arrested in Indianapolis in 1964 (a total of 3,941). The dependent variable was court disposition, which consisted of six categories: not prosecuted in court; dismissed or not guilty; judgment withheld; suspended sentence or probation; fine; and prison. The five independent variables were age (younger than 25, 25-34, 35-49, 49 or older); race (white, non-white); occupational status (high, medium, and low); prior incarceration (yes or no); and offense category (violence, theft, vice, disorderly conduct, traffic, and other). Offense category was assumed to be strongly related to disposition and was taken into account by standardization; the independent contributions to disposition of each of the other four variables were then analyzed. Prior incarceration was most important; previously institutionalized defendants were significantly more likely to be prosecuted in court, convicted, and imprisoned if convicted. Age had a significant but not strong effect on disposition; defendants younger than 35 were more likely to receive a fine than older ones, and those 49 or older were more likely to be prosecuted in court but also more likely to avoid conviction than younger defendants. Occupational status and race did not have significant independent effects. In a preliminary model excluding offense category but including the other four independent variables, status and race showed significant effects. High status made nonconviction

more likely and prison less likely. The only effect of race was contrary to what one might expect: nonwhites were more likely to avoid conviction than whites. Both the status and race effects disappeared completely when type of offense was controlled for, which was interpreted to mean that type of criminal behavior rather than the defendant's race or status was what mattered.

3. Studies Involving Sentencing

Wolfgang and Riedel (1973). The study involved men convicted for rape from 1945 to 1965 in eleven Southern states, a total exceeding 3,000, but the published portion deals with an analysis of 1,265 cases from seven Southern states (Alabama, Arkansas, Florida, Georgia, Louisiana, South Carolina, and Tennessee) in which the race of the defendant and the sentence were known. Thirteen percent of the convicted blacks received the death penalty, compared with 2 percent of convicted whites. The death penalty rate was even higher (36 percent) for blacks whose victims were white. An attempt was made to explain the apparent racial discrimination by controlling separately for a number of other factors, such as whether another offense had been committed along with the rape, criminal record, prior imprisonment, defendant's age, victim's age, victim's criminal record, victim's reputation for chastity, whether there had been prior defendant-victim sexual relations, and a variety of others. None of the other factors accounted for the enormous difference between blacks and whites in likelihood of receiving the death penalty. Income, which was not considered (presumably due to lack of data) might have explained some of the race effect. The cited publication is highly summarized, and it is not clear whether a multivariate analysis involving all factors, racial and nonracial, was performed.

Tiffany, Avichai, and Peters (1975). The study's subjects were 1,248 men tried in 1967 and 1968 in federal courts throughout the country who were convicted of bank robbery, auto theft, interstate transportation of forged securities, or miscellaneous forgery. Defendants who pled guilty were excluded. The dependent variable, sentence, was measured using a scale of values ranging from zero for suspended sentence without probation, 1 for fine, and 1, 2, or 3 for probation depending on the term, through values of 3 and upward for periods of imprisonment, with a maximum of 50 for over 120 months imprisonment. A multivariate model was formed involving type of offense, age (25 or younger, 26-35, and 36 or older), race (black and white), criminal record (no prior conviction, prior conviction resulting

in not more than one-year imprisonment, and prior conviction resulting in more than one-year imprisonment), type of counsel (court-appointed and privately retained), and mode of trial (by judge or by jury). Type of offense had the strongest relationship to sentence, with mean sentence score values ranging from 30.9 for bank robbery to 10.9, 7.6, and 6.0 for transportation of forged securities, auto theft, and forgery, respectively. Criminal record also had a strong positive relationship to sentence, and (as in other studies involving these two variables) one that combined additively with type of offense. Defendants convicted by a jury trial had a mean sentence score of 17.2, compared with 10.5 for those convicted by a judge. Looking at all twelve combinations of offense type and criminal record, those convicted by juries had distinctly higher mean sentence scores than those convicted by judges. Various explanations for the judge-jury difference were discussed. One was that the defendant with a weak defense knows he will get a high sentence on a plea or judge trial anyway, and so decides to risk a jury trial; another was that jury trial may bring out aggravating circumstances concerning the crime (or perjured statements by the defendant) that make for a stiffer sentence. However, the researchers felt there was more support for the explanation that defendants who waive jury trial are given preferential treatment in sentencing because of the cost and inconvenience they have spared the state.

Whether the defendant had appointed or retained counsel had some relation to his sentence if he was tried by judge, but not if he was tried by jury; in judge trials, defendants with appointed counsel had considerably higher mean sentence scores. (This seems to disagree with the findings of Greenwood, *et al.* 1973, summarized earlier, but their analysis did not control for type of offense and criminal record.) Age had no important relationship to sentence. Race had no overall relationship, but interacted with criminal record; among defendants with no criminal record, blacks had considerably higher mean sentence scores. Among those with criminal records, there was no apparent race effect.

A separate analysis of bank robbery defendants was performed. Criminal record and mode of trial remained the major contributors to the sentence. Age had more of an effect, with younger bank robbers receiving some leniency when they had no prior convictions; the age effect may have shown up with bank robbery because of the generally high sentence levels. Type of counsel and race had the same effects as in the sample as a whole.

Chiricos and Waldo (1975). This study examined the length of sentence received by 10,488 persons convicted of felonies and sent to state prison in North Carolina (from January 1, 1969, to April 30, 1973), South Carolina (January 1, 1969, to June 30, 1971), and Florida (June 1, 1969, to May 30, 1970). The analysis focused on socioeconomic status, measured by a score that compared each subject's income, education, and occupation to national distributions. (The status of these prison inmates was generally quite low; 97 percent were below 70 on a 100-point scale, and the mean values were from 32 to 37 for the three states, with standard deviations of about 16.) Examining each felony category separately, not one significant negative correlation (Pearson r) was found between socioeconomic status and sentence length; in fact, a few positive correlations showed up that were significant but small (ranging from .09 to .19). Looking just at the 2,486 Florida inmates, for whom more data were available, correlations were again computed between socioeconomic status and sentence length, controlling separately for each of several other variables: offense category, criminal record, race, age, and whether the county of sentencing was urban or nonurban. Very few significant correlations were found, and all but one were positive (the single negative r , -.36, was for those convicted of auto theft who had a record of institutionalization as juveniles). Multiple correlations were then computed, stepwise, for all the variables just mentioned; in each offense category, socioeconomic status added no more than .01 to the R^2 value (none of the final R^2 values exceeded .19). A comparison of beta coefficients showed that prior convictions made a substantial positive contribution to sentence length in seven out of thirteen Florida felony categories. Race had no significant coefficients. Age and "urbanness" of county of sentencing had either nonsignificant coefficients or inconsistent coefficients of both positive and negative value. Socioeconomic status had no significant coefficients except with regard to inmates convicted of burglary, where its value was positive (.093). The authors conceded that lower status persons are the most likely to be officially designated as criminals or delinquents, but concluded that their data and that of other studies they reviewed failed to show class or racial bias in the legal process.

DATA USED IN PRESENT STUDY

The data used here were drawn from police and court records of Mecklenburg County, North Carolina (Charlotte and its suburbs), reflecting criminal prosecutions begun during 1971 against

defendants arrested for burglary, breaking and entering, and larceny, but excluding theft of automobiles and thefts involving less than \$5. The term "burglary" as used here refers not only to common law burglary—breaking into and entering a dwelling at night with the intent to commit any felony or larceny—but also to any breaking into and/or entering of buildings with such intent. Burglary is categorized here as "residential" (involving a home) and "nonresidential" (involving a store, office building, factory, etc.). In North Carolina at the time of the study, except for the comparatively rare common law burglary (punishable by death or life imprisonment depending on whether the home broken into was occupied at the time), most burglaries were punishable by a maximum of ten years in prison. Felonious larceny (usually involving more than \$200 in value) was also punishable by up to ten years in prison, and misdemeanor larceny by up to two years.⁶

Table 1 gives the general characteristics of the 798 arrested defendants studied. Because information on individual incomes was not available, income was determined from the median income of the census tract where the defendant resided.⁷ Only a weak relationship was evident between income, as defined here, and employment; 28 percent of the low-income defendants were unemployed, based on what the arresting officer wrote on his arrest report, compared with 20 percent of other defendants.⁸ This weak relationship is due to the fact that "low income"—defined as residing in a tract whose median family income is below \$7,000, the approximate citywide median in 1969—has such a high maximum that many defendants were employed and still fell into the low-income category.

"Private attorney" refers to a lawyer hired by the defendant,

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6. Misdemeanor larceny here consists mainly of larceny of goods worth \$200 or less; due to police coding errors, it also includes 30 misclassified cases and 45 cases of "misdemeanor breaking or entering"—unauthorized entry without the intent to commit a crime inside the building.
 7. This index of income has been used and defended in a major study of delinquency (Wolfgang *et al.*, 1972: 47-52). It is an objectively defined variable that is not subject to the unreliability of asking people what their incomes are. In a densely populated area where census tracts are compact and homogeneous, it seems a good index of social status. The authors are now carrying out a study of juvenile court dispositions in which data on individual income as well as census tract income are being obtained. Correlation between the two will be examined.
 8. For the two-by-two contingency table, chi-square was 5.11 and the odds ratio was 1.58. The odds ratio is discussed in Fleiss (1973: 43-52). The more the ratio exceeds one, the larger the relationship involved.

and "assigned attorney" refers to a lawyer appointed by the court to represent an indigent defendant.

TABLE 1

GENERAL CHARACTERISTICS OF 798 BURGLARY AND LARCENY DEFENDANTS					
	Num- ber	Per- cent- age	Type of offense charged	Num- ber	Per- cent- age
<i>Sex</i>					
Male	728	(91)	Nonresidential burglary	164	(21)
Female	70	(9)	Residential burglary	175	(22)
Total	798	(100)	Felonious larceny	157	(20)
			Misdemeanor larcency ^b	302	(38)
			Total	798	(100)
<i>Age</i>			<i>Prior Arrests (Criminal History)</i>		
Younger than 21	322	(40)	None	320	(40)
21 or older	476	(60)	One or more	478	(60)
Total	798	(100)	Total	798	(100)
<i>Race</i>			<i>Arrest Promptness</i>		
Black	439	(55)	Arrest same day as alleged offense	324	(41)
Other	359	(45)	Later day	474	(59)
Total	798	(100)	Total	798	(100)
<i>Income^a</i>			<i>Bail Status</i>		
Low	434	(54)	Bailed (i.e., released before court disposition)	587	(74)
High	190	(24)	Not bailed	211	(26)
Unclassified	174	(22)	Total	798	(100)
Total	798	(100)			
<i>Employment</i>			<i>Attorney Status</i>		
Employed or student	479	(60)	Private attorney	340	(43)
Unemployed	149	(19)	Assigned attorney	226	(28)
Unknown	170	(21)	No attorney	232	(29)
Total	798	(100)	Total	798	(100)

a. Income is defined in terms of median income of census tract of residence; "low" is \$0-6,999; "high" is \$7,000 and over; and "unclassified" refers to suburban residents who are mostly "high" income and are treated as such in the analysis.

b. Includes 30 nonlarceny misdemeanor defendants misclassified by police coders (12 are charged with vandalism) and 45 defendants charged with misdemeanor breaking or entering.

THE PATTERN OF COURT DISPOSITIONS

Table 2 shows the court dispositions received by the 798 defendants and the length of prison sentences imposed. The most frequent court dispositions were (1) the dropping of charges by the prosecutor, and (2) pleading guilty. Full trials with a formal finding of fact by a judge or jury accounted for only 10 percent of the dispositions. Of the 363 defendants convicted, including both those who pled guilty and those convicted by trial, 40 percent received active prison sentences; this amounts to 18 percent of all (798) defendants. Most prison sentences imposed did not exceed two years, and the median was between one and two years.

TABLE 2
COURT DISPOSITIONS AND SENTENCES

<i>Disposition at or before Trial</i>	<i>Num-ber</i>	<i>Per-cent-age</i>	<i>Sentence of Convicted Persons</i>	<i>Num-ber</i>	<i>Per-cent-age</i>
Charges dropped by prosecutor	301	(38)	Fine	30	(8)
Other nonconviction without complete trial	101	(13)	Suspended (usually with probation)	186	(51)
Acquittal after trial	33	(4)	Prison	147	(40)
Plea of guilty	319	(38)	Total	363	(100)
Convicted after trial by judge or jury	44	(6)			
Total	798	(100)			
<i>Prison Outcome for All Defendants</i>	<i>Num-ber</i>	<i>Per-cent-age</i>	<i>Maximum Length of Imposed Prison Sentence</i>	<i>Num-ber</i>	<i>Per-cent-age</i>
Prison	147	(18)	6 months or shorter	41	(28)
Conviction without prison sentence	216	(27)	6 months to 1 year	18	(12)
Nonconviction	435	(54)	1 to 2 years	42	(29)
Total	798	(100)	2 to 3 years	2	(1)
			3 to 5 years	18	(12)
			5 to 10 years	22	(15)
			Longer than 10 years	2	(1)
			Total	145	(100)
			[2 missing cases]		

Depending on one's point of view, these figures on the relative frequency of various court dispositions have various implications. If one assumes that most arrested defendants are in fact guilty of the crime charged, it may appear that the criminal court studied is providing a poor deterrent to theft crimes, since 82 percent of those arrested avoided prison. Even if one assumes that only the convicted defendants were in fact guilty, the probability of avoiding prison still may seem high; 60 percent of those convicted did not go to prison, and 53 percent of the convicted defendants initially charged with burglary avoided prison (as will be shown later, this charge was the most likely to result in imprisonment). If one does not assume that most of those arrested are guilty, the low proportion of convictions (45 percent) may suggest that better screening of charges by the prosecutor is needed. No systematic prosecutorial screening existed in Charlotte until 1973. In some cities, a large number of cases presented by the police are rejected as unsuitable for prosecution; for example, in Los Angeles, 28 percent of those arrested for felonies were released without charge (Greenwood *et al.*, 1973:61-68). Obviously, no study of this type can determine what proportion of arrested defendants were actually guilty. A better perspective on the pattern of court dispositions could be obtained if there were some way to determine the likelihood that the defendant

is in fact guilty, or at least the strength of the case for the prosecution and defense. In the present study, the only available measure of the strength of the case is arrest promptness (discussed below). In future research, the authors hope to be able to measure the strength of the case for and against the defendant more sensitively.

VARIABLES AND HYPOTHESES

The dependent variable in the study is whether a defendant arrested for burglary or larceny emerged from criminal court with a prison sentence, and is here referred to as "prison outcome."⁹ Defendants are thus divided into two outcome categories: (1) those who were convicted and received prison sentences; and (2) all others, including those who were convicted and received nonprison sentences (probation or fine), as well as those who were found not guilty or whose charges were dismissed by the court or withdrawn by the prosecution. We treat conviction not as a dependent variable but as an intermediate step in the process that leads from arrest to a prison sentence or to a non-prison disposition.

Eight independent variables were chosen for the study:

- Sex (this variable was eliminated for reasons explained later)
- Age
- Race
- Income
- Employment
- Type of offense charged
- Criminal history (prior arrests)
- Arrest promptness (a proxy for strength of evidence against defendant)

The first-order relationships of all these variables to prison outcome are shown in Table 3.

As Tables 3 and 4 indicate, bail status and attorney representation have a strong association with prison outcome. Rather

9. Although length of sentence is an important variable and deserves study, it has not been dealt with here. Because only 147 of the 798 defendants received any sort of active prison sentence, a multivariate analysis would have been rather limited by the data. Appeals were not studied.

In any case, from a deterrence point of view, whether a defendant is imprisoned at all may be more important than how long his prison term is. Available evidence suggests that certainty of punishment has a greater deterrent effect than severity, "certainty" being defined as the joint probability of being apprehended once one has committed a crime and of going to prison once one is apprehended. On the issue of "certainty vs. severity" with regard to deterrence, see Bailey *et al.* (1974), Antunes and Hunt (1973), Erickson and Gibbs (1973), and Tittle (1969). For a comparison of the deterrent effectiveness of chance of apprehension with that of chance of an active prison sentence, using multiple regression across California counties, see Kobrin *et al.* (1972). The authors conclude that both the likelihood of being arrested and the likelihood of certain court dispositions affected per capita crime, and that these factors accounted for 10 to 33 percent of the variation in per capita crime.

TABLE 3
FIRST-ORDER RELATIONSHIPS BETWEEN INDEPENDENT VARIABLES
AND PRISON OUTCOME

<i>Sex</i>				<i>Employment</i>			
	<i>Prison</i>	<i>No Prison</i>	<i>Total</i>		<i>Prison</i>	<i>No Prison</i>	<i>Total</i>
Male	146 (20%)	582 (80%)	728 (100%)	Employed or stu- dent	70 (15%)	409 (85%)	479 (100%)
Female	1 (1%)	69 (99%)	70 (100%)	Unemployed	40 (27%)	109 (73%)	149 (100%)
<i>Age</i>				Unknown	37 (22%)	133 (78%)	170 (100%)
	<i>Prison</i>	<i>No Prison</i>	<i>Total</i>		<i>Prison</i>	<i>No Prison</i>	<i>Total</i>
20 or younger	62 (19%)	260 (81%)	322 (100%)	Unemployed or un- known	77 (24%)	242 (76%)	319 (100%)
21 or older	85 (18%)	391 (82%)	476 (100%)	<i>Type of Offense Charged</i>			
<i>Race</i>					<i>Prison</i>	<i>No Prison</i>	<i>Total</i>
	<i>Prison</i>	<i>No Prison</i>	<i>Total</i>	Nonresiden- tial bur- glary	59 (36%)	105 (64%)	164 (100%)
Black	99 (23%)	340 (77%)	439 (100%)	Residential burglary	35 (20%)	140 (80%)	175 (100%)
White and other	48 (13%)	311 (87%)	359 (100%)	Felonious larceny	12 (8%)	145 (92%)	157 (100%)
<i>Income</i>				Misde- meanor larceny	41 (14%)	261 (86%)	302 (100%)
	<i>Prison</i>	<i>No Prison</i>	<i>Total</i>	All larceny	53 (12%)	406 (88%)	459 (100%)
Low	104 (24%)	330 (76%)	434 (100%)	<i>Criminal Record (Prior Arrests)</i>			
High	19 (10%)	171 (90%)	190 (100%)		<i>Prison</i>	<i>No Prison</i>	<i>Total</i>
Unclassified	24 (14%)	150 (86%)	174 (100%)	No prior arrests	38 (12%)	282 (88%)	320 (100%)
High or un- classified	43 (12%)	321 (88%)	364 (100%)	One or more	109 (23%)	369 (77%)	478 (100%)
<i>Bail Status</i>				<i>Arrest Promptness</i>			
	<i>Prison</i>	<i>No Prison</i>	<i>Total</i>		<i>Prison</i>	<i>No Prison</i>	<i>Total</i>
Released	70 (12%)	517 (88%)	587 (100%)	Arrested same day as offense	71 (22%)	253 (78%)	324 (100%)
Detention	77 (36%)	134 (64%)	211 (100%)	Arrested later day	76 (16%)	389 (84%)	474 (100%)
<i>Attorney Representation</i>					<i>Prison</i>	<i>No Prison</i>	<i>Total</i>
				Private attorney	40 (12%)	300 (88%)	340 (100%)
				Assigned attorney	85 (38%)	141 (62%)	226 (100%)
				No attor- ney	22 (9%)	210 (91%)	232 (100%)

than consider these independent variables, we prefer to treat them as intermediate or codependent variables for two reasons: (1) both are strongly associated with income, which is a causally prior variable; and (2) the decision by judicial officials to set bail high, thus putting pretrial release beyond the defendant's reach, may be due to a perception that the defendant is likely

to be convicted and sent to prison eventually, and therefore may be partially explainable as a result, rather than a cause, of whatever factors make a prison sentence likely.

Because only one out of 70 females in the sample went to prison and because the total number of women was small, sex was dropped from the analysis. We did not exclude females from the data because the one woman who did go to prison fit the profile of the typical male who went to prison (she was charged with burglary and was of low income), and because the other women generally fit the low prison-risk profile.

We theorized that age would have a strong effect on sentencing, in that judges would be more merciful with defendants under 21 than with older defendants. This theory was not supported by the data even after other variables were adjusted for, as Table 3 and subsequent analysis show.

The hypothesis regarding employment was that if a defendant were employed or a student, he would have an advantage over the defendant who was neither; the sentencing judge would be more reluctant to use the prison sanction when loss of a job or educational opportunity would result, and more likely to assume that the unemployed defendant made his living by stealing. Table 3 indicates that the employed or student defendant was only about half as likely to go to prison as the unemployed defendant. However, this apparent effect of employment status disappears when other factors are controlled.

The type of offense charged proved to be a major factor in determining prison outcome. We theorized that the more serious the original charge, the more serious would be the charge of which the defendant was convicted (if convicted), and the more punitive the sentence received.¹⁰ We also theorized that the seriousness of the charge would affect the chance of being *convicted*, because the police and prosecutor would tend to have better evidence when charging a defendant with a more serious crime. But how does one define "serious"? We assumed that

10. In this analysis, we deal only with the original offense charged in court. Persons charged with an offense may be convicted of that offense or a lesser included offense. For example, we found that of the 159 persons charged with burglary who were convicted by a plea of guilty, only 45 percent pled guilty to the actual offense charged; most of the rest pled to misdemeanor breaking or entering, which does not involve the intent to commit a serious crime inside the building entered. Only 33 percent of those who were charged with felonious larceny and later pled guilty, actually pled guilty to felonious larceny; the rest pled to misdemeanor larceny. We hypothesized that the more serious the offense initially charged, the greater is the likelihood of prison, because the chance of being convicted for a serious offense is greater. Also, the seriousness of the initial charge may affect the process leading to conviction for the reasons indicated in the text.

burglary would generally be more serious than larceny because the value of property stolen¹¹ was considerably greater for burglaries involving completed theft (two-thirds of the total) and because burglary involved the additional element of violating the security of a home or store. Felonious larceny is more serious than misdemeanor larceny because of the greater property value involved. Residential burglary could be considered more serious than nonresidential burglary because it entails invasion of someone's home, and because North Carolina allows a higher penalty for residential burglary committed at night. However, most residential burglaries in our sample probably occurred when the residents were away, and about half were committed in daylight. Residential burglaries may generally be more opportunistic and amateurish; nonresidential burglary may involve greater skill (because stores, office buildings, and the like are usually better secured than the average home) and thus incur more disapproval from police, prosecutors, and judges.

The data in Table 3 indicate that the highest likelihood of arrest resulting in prison is associated with nonresidential burglary (36 percent), the next highest with residential burglary (20 percent), and the lowest with larceny (12 percent). There was little difference in the proportion going to prison between those charged with felonious larceny and those charged with misdemeanor larceny (8 and 14 percent, respectively), despite the difference in property loss involved. Actually, those charged with felonious larceny had a lower chance of being convicted than those charged with misdemeanor larceny (24 versus 49 percent), but a slightly higher chance of being sentenced to prison if convicted (32 versus 28 percent). For defendants charged with nonresidential burglary, residential burglary, and larceny, the respective fractions convicted were 63, 43, and 40 percent, and the fractions of those convicted who were sentenced to prison were 57, 47, and 29 percent. These figures are generally consistent with our notions of offense seriousness.

Criminal history is defined in terms of whether the defendant's local police record showed prior arrests for offenses other than public drunkenness or minor traffic or administrative violations. Prior arrests are an important variable because police and prosecutors may tend to work harder to convict and punish a defendant who has a substantial arrest record, whether or not the arrests resulted in convictions. Frequently, the only infor-

11. The estimated median values of property taken were: misdemeanor larceny, \$64; felonious larceny, \$397; burglary accompanied by larceny, \$500.

mation they have to work with in the early stages of a case is arrest history with no indication of court disposition. Prior arrests also serve as a proxy for prior convictions and it is well known that judges usually consider prior convictions in sentencing. Table 3 shows that the defendant with one or more prior arrests was twice as likely to go to prison as the defendant with none.

The actual guilt or innocence of the arrested defendant is, or should be, of major importance in determining conviction, even though a plea of guilty or conviction after trial is not necessarily an indication of actual guilt, and dismissal of charges or acquittal is not necessarily an indication of innocence. Since it was impossible to determine whether the defendant was actually guilty, the best approach seemed to be to find some measure of the strength of the evidence against the defendant.¹² The available data provided only one rather crude measure, "arrest promptness," which we defined as whether arrest occurred on the same day as the alleged offense. It is reasonable to believe that if the arrest occurred very soon after the offense, the likelihood was greater that the defendant was caught in the act, or that there was an eyewitness who notified the police, or that evidence of the crime would be recoverable. If the arrest occurred later, the trail might have grown cold, and the case might perhaps be purely circumstantial. Arrest promptness did prove to have a relationship to prison outcome (see Table 3), but the relationship was weaker than that of several other variables. This result probably reflects the crudeness of this index more than the importance of evidence in the criminal process.

Income and race may be related to court disposition in a variety of ways.¹³ A person of low income will have more difficulty in obtaining a good lawyer than a person of high income; even if he is legally indigent and has the right to appointed counsel he may not exercise that right intelligently, or the court-appointed lawyer may not be as competent as the private lawyer a person with more money might retain. A low-income defendant will be less able to raise bail and obtain pretrial freedom;

12. In a study of felony prosecution outcomes in Alaska now being carried on, the authors will be able to test the usefulness of a number of other measures of strength of the case; for example, whether a witness can identify the defendant, whether an automobile was identified that can be traced to the defendant, whether stolen property was recovered and identified, whether the defendant made an incriminating statement, etc.

13. Income and race are, as one might expect, highly correlated; 82 percent of black defendants were low-income, compared with 20 percent of whites. For the two-by-two table, chi-square is 305.02 (D.F. = 1); the odds ratio is 18.13, and phi is .38.

this may cause him to lose his job, thus adding to his difficulty in paying an attorney, and also will make it harder for him to find favorable witnesses and otherwise prepare his defense. Both of these factors may make conviction more likely; lack of an attorney or a poor attorney may also affect sentence. The low-income defendant may also suffer from social class prejudice on the part of the court. Race may have an influence either because of cultural differences between the defendant and the judge, who is likely to be white, or simply because of racial prejudice.

Both income and race have a substantial first-order relationship to whether the defendant goes to prison (see Table 3), but race ceases to be of substantial importance when income and other factors are adjusted for. As will be shown, income affects sentencing rather than conviction. (The role of attorney representation and bail status in relation to income will be discussed later.) Income continues to show a strong effect when other variables are taken into account.

METHOD

This paper sets out to relate the probability that arrest will result in imprisonment to the independent variables described earlier, and to determine how much these variables affect the probability of a prison sentence and what their relative importance is. The data are treated in descriptive fashion in order to form a tentative model. Since the data do not constitute a random sample of any well-defined larger population, tests of statistical significance are used to flag important relationships or sources of variation, rather than to determine whether observed relationships could be an accident of sampling.

In the Appendix at the end of the paper, the method used is described in more detail, and an explanation is provided of how the amount of variation explained by the final model can be measured.

RELATION OF PRISON OUTCOME TO OTHER VARIABLES

The first step in the analysis is to reduce the number of categories of some variables. Since our measure of a variable's effect is chi-square per degree of freedom [see Appendix], it is desirable to eliminate degrees of freedom not mandated by initial hypotheses. High and unclassified income categories were combined because defendants of unclassified income generally resided in the suburban ring of Mecklenburg County where median income was generally high (i.e., over \$7,000). Confirmation of this decision was provided *a posteriori* by the fact that the unclassified defend-

ants had about the same chance of going to prison as those of high income residing in the city.¹⁴ Defendants whose employment status was indicated as “unknown” on the police report were included with the unemployed because we believed that most were, in fact, unemployed; this merging was also supported by similarity in the proportions imprisoned. The two larceny categories were combined because both were considered much less serious than either form of burglary; again the merging was supported by the proportions imprisoned. Table 4 (part 1) indicates the relative first-order importance of the independent variables. Offense type has the highest chi-square per degree of freedom (D.F.) and thus is our first selection for inclusion in the model. (Its chi-square is significant at the .01 level, which means that we are not yet ready to stop selecting variables; see Appendix.)

TABLE 4
PEARSON CHI-SQUARES FOR FIRST-ORDER CROSSTABULATIONS
OF PRISON OUTCOME^a WITH INDEPENDENT VARIABLES

1. <i>Independent Variables</i>	X ²	D.F.	X ² /D.F.	p ^b
Prison x Offense	48.35	2	24.18	.01
Prison x Criminal History	15.23	1	15.23	.01
Prison x Arrest Promptness	4.43	1	4.43	.05
Prison x Income	19.45	1	19.45	.01
Prison x Race	11.08	1	11.08	.01
Prison x Age	.34	1	.34	NS
Prison v Employment	11.56	1	11.56	.01
2. <i>Intermediate or Codependent Variables</i>				
Prison x Attorney Representation ^c	77.79	2	38.90	.01
Prison x Bail Status ^c	62.34	1	62.34	.01

a. This dependent variable has only two values: prison and no-prison.

b. If P value is less than .01, .01 is shown; if it is between .01 and .05, .05 is shown; if it is between .05 and .10, .10 is shown; and if it is greater than .10, “NS” is shown.

c. Bail status and attorney representation are not treated as true independent variables in the study for reasons mentioned in the text, even though their first-order chi-squares are given here.

The next step is to determine which of the remaining six variables is most important with respect to prison sentencing once type of offense is adjusted for. Part 1 of Table 5 shows the results of crosstabulating prison outcome with offense type and criminal history, offense type and arrest promptness, and so on. The crosstabulation of offense and income shows the highest chi-square per D.F. (13.31); this makes income our next choice for inclusion in the model. We are not ready to terminate selection at this point because statistic (a), defined in the Appendix, is significant at .01 with regard to income, when offense type is adjusted for.

14. To the extent that we are building a model here, rather than testing one, *a posteriori* justification is legitimate.

The next step is to include both offense type and income in the model and compute the relative importance of the five remaining variables. Part 2 of Table 5 shows chi-squares for cross-tabulations of prison outcome, offense, and income with each of the other five variables. Of these remaining independent variables, criminal history (prior arrests) has the highest chi-square per D.F. (7.27), making it our next choice for inclusion in the model—unless our termination criteria have been satisfied [see Appendix]. But they have not been; statistic (a), shown in part 2 of Table 5, is significant at .10; and statistic (b), not shown in the table, is 8.00 (D.F. = 1) and is significant at .01.

Carrying this stepwise procedure further indicates that at

TABLE 5

PEARSON CHI-SQUARES FOR CROSSTABULATIONS OF PRISON OUTCOME WITH TWO-, THREE-, AND FOUR-WAY COMBINATIONS OF INDEPENDENT VARIABLES

Variables	X ²	D.F.	X ² /D.F.	"Termination Statistic"		
				(X ²)	D.F.	P
<i>1. Two-Way Combinations</i>						
Prison x Offense x Criminal History	59.61	5	11.32			
Prison x Offense x Arrest Promptness	56.34	5	11.27			
Prison x Offense x Income	66.57	5	13.31	17.70 ^x	3	.01
Prison x Offense x Race	56.42	5	11.28			
Prison x Offense x Age	48.24	5	9.65			
Prison x Offense x Employment	58.49	5	11.70			
<i>2. Three-Way Combinations</i>						
Prison x Offense x Income x Criminal History	79.92	11	7.27	12.27 ^x	6	.10
Prison x Offense x Income x Arrest Promptness	75.14	11	6.83			
Prison x Offense x Income x Race	70.04	11	6.37			
Prison x Offense x Income x Age	69.48	11	6.32			
Prison x Offense x Income x Employment	73.34	11	6.67			
<i>3. Four-Way Combinations</i>						
Prison x Offense x Income x Criminal History x Arrest Promptness	91.43	23	3.98	5.42 ^y	1	.05
Prison x Offense x Income x Criminal History x Race	90.47	23	3.93			
Prison x Offense x Income x Criminal History x Age	88.57	23	3.85			
Prison x Offense x Income x Criminal History x Employment	86.77	23	3.77			

x. This is "termination statistic (a)," described in the Appendix; its degrees of freedom and significance level for certain added variables are in the columns to the right.

y. This is "termination statistic (b)," described in the Appendix.

the fourth step, the best choice for inclusion would be arrest promptness, which has the largest chi-square per D.F. (3.98) of the remaining four variables when crosstabulated with prison outcome, offense, income, and criminal history (see part 3 of Table 5). Statistic (b) does not rule out including arrest promptness, because it is significant at .05 for this variable, when the others already selected are adjusted for.

A fifth step in this procedure is not productive. With regard to each of the remaining variables (race, age, and employment), statistic (b) is not significant when the variables previously included in the model are controlled for; this means that none of the remaining variables is statistically important.

So far, the analysis indicates that offense, income, and criminal history are of major importance; arrest promptness is of moderate importance; and race, age, and employment are of slight or no importance. Could a better three-variable model be formed by retaining offense type—our first choice—but replacing income or criminal history with arrest promptness, race, or employment? The answer is no. There are ten two-way combinations of these last five variables, of which four appear in part 2 of Table 5; the remaining six, when crosstabulated with offense and prison outcome, all have chi-squares below the chi-square of 7.27 for Prison Outcome x Offense x Income x Criminal History. Further checking was done to verify that employment matters very little when income is included in the model.¹⁵

The second phase of the analysis involves fitting a model. We generated two models of prison outcome—one using the three most important independent variables (offense, income, and criminal history) and one using the four most important (offense, income, criminal history, and arrest promptness). In both models, the predicted values were close to the observed ones, the residual goodness-of-fit statistic was quite small, and the proportion of variation explained by the model, given our choice of variables, was 98 percent and 93 percent respectively [see Appendix]. This article will discuss only the four-variable model.

15. Four variables have emerged as important thus far: offense, income, criminal history, and arrest promptness. If we replace income with employment and compute statistic (b) [see Appendix] for income while controlling for offense, employment, criminal history, and arrest promptness, we find that income is still significant at .001 (chi-square = 11.27). This means that even if employment is included, income still matters. Conversely, if we compute statistic (b) for employment while controlling for offense, income, criminal history, and arrest promptness, we obtain a value *not* significant at .05 (chi-square = 2.91), which indicates that employment is of little or no importance once income and the other three variables are in the model.

In forming the model, defendants were assigned to one of four "risk groups," determined by calculating, for each defendant subgroup formed by the combinations of the four factors, the fraction who went to prison. (This *a posteriori* approach would be incorrect if we were testing a model, but it is appropriate in constructing one.) The four risk groups were used as the four categories of a single "artificial" independent variable, but can be understood in common-sense terms, as will be explained presently. First it is helpful to look closely at the actual proportions of various groups of defendants which received active prison sentences.

Graph 1 is a pictorial representation of observed proportions sent to prison. Each vertical bar represents one of the groups of defendants defined according to the four factors identified as most important—offense, income, criminal history (prior arrests), and arrest promptness. (The four shades of the bars on Graph 1, ranging from black to white, signify the "risk group" of the four-factor model to which each of the defendant groups belongs.) The height of the bars generally drops from left to right, passing from the most serious to the least serious offense. Within each type of offense, bars on the left are generally higher than those on the right, indicating that low-income defendants face a greater probability of imprisonment. Within each income group, the presence of prior arrests tends to make chances of prison higher (this effect can be seen everywhere except in the extreme left portion of the graph, which pertains to low-income nonresidential burglary defendants). Finally, in most instances, each bar representing defendants arrested the day of their offense ("S" on the graph) is higher than the bar immediately to its right, representing defendants arrested later ("L" on the graph). This shows the moderate effect of arrest promptness that persists when the other three variables are controlled.

Table 6 presents the four-variable model, with the actual (observed) and predicted prison proportions side by side. The predicted prison proportions for the four risk groups were .537, .304, .193, and .072; all are much larger than their standard errors. The proportion of variation explained by the model, given the choice of variables, was 93 percent. The fact that this model fits well and provides an efficient description of the likelihood of going to prison provides a basis for the following hypotheses regarding defendants under conditions similar to those in this study:

TABLE 6

FOUR-VARIABLE MODEL OF PROPORTION OF ALL DEFENDANTS RECEIVING PRISON SENTENCE: COMPARISON OF OBSERVED AND PREDICTED VALUES

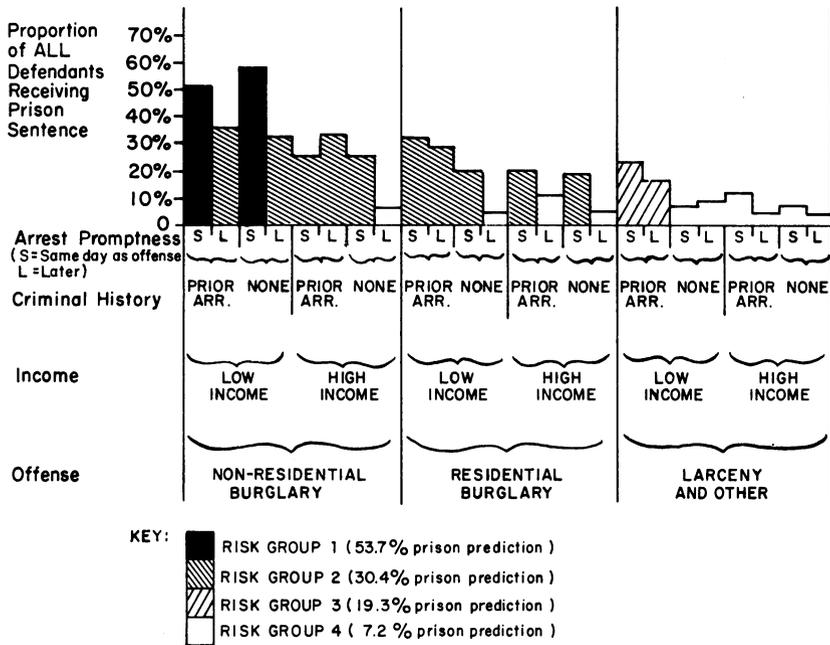
Offense ^a	Prior Arrests	Arrest Promptness	Income	Total Defendants Sentenced to Prison	Observed Prison Proportion	Est. S.E. ^b	Predicted Prison Proportion	Est. S.E. ^b
NRB	One or more	Same day	Low	29	.517	.093	.537	.050
NRB	One or more	Same day	High or Uncl.	15	.267	.114	.304	.025
NRB	One or more	Later day	Low	34	.353	.082	.304	.025
NRB	One or more	Later day	High or Uncl.	31	.355	.086	.304	.025
NRB	None	Same day	Low	12	.583	.142	.537	.050
NRB	None	Same day	High or Uncl.	11	.273	.134	.304	.025
NRB	None	Later day	Low	18	.333	.111	.304	.025
NRB	None	Later day	High or Uncl.	14	.071	.069	.072	.013
RB	One or more	Same day	Low	30	.333	.086	.304	.025
RB	One or more	Same day	High or Uncl.	5	.200	.179	.304	.025
RB	One or more	Later day	Low	51	.294	.064	.304	.025
RB	One or more	Later day	High or Uncl.	36	.111	.052	.072	.013
RB	None	Same day	Low	10	.200	.126	.304	.025
RB	None	Same day	High or Uncl.	5	.200	.179	.304	.025
RB	None	Later day	Low	18	.055	.054	.072	.013
RB	None	Later day	High or Uncl.	20	.050	.049	.072	.013
LARC	One or more	Same day	Low	66	.227	.052	.193	.032
LARC	One or more	Same day	High or Uncl.	43	.116	.049	.072	.013
LARC	One or more	Later day	Low	82	.171	.042	.193	.032
LARC	One or more	Later day	High or Uncl.	56	.054	.030	.072	.013
LARC	None	Same day	Low	26	.077	.052	.072	.013
LARC	None	Same day	High or Uncl.	72	.083	.033	.072	.013
LARC	None	Later day	Low	58	.086	.037	.072	.013
LARC	None	Later day	High or Uncl.	56	.054	.030	.072	.013

Model Q (D.F. = 2) = 81.70
 Residual Q (D.F. = 21) = 6.01
 Percent variation explained = 93% (not analogous to R²) } see Appendix

a. NRB = nonresidential burglary; RB = residential burglary; LARC = larceny (felony and misdemeanor)
 b. S.E. = standard error

Graph 1.

PROPORTION OF ALL DEFENDANTS RECEIVING PRISON SENTENCE, GROUPED BY OFFENSE, INCOME, CRIMINAL HISTORY, AND ARREST PROMPTNESS



1. The type of offense charged, defendant's income, criminal history, and arrest promptness all have a strong effect on the likelihood of going to prison. The other variables—age, race, employment—have little or no effect, although the data are insufficient to allow us to rule out the possibility that sex has an effect.
2. Defendants charged with burglary (either nonresidential or residential) generally have about a 30 percent likelihood of going to prison, with the following exceptions:
 - a. The probability of going to prison is high, about 54 percent, when the defendant is charged with nonresidential burglary (the more "serious" form of burglary, as explained earlier), has a low income, and is arrested on the day his alleged offense occurred—in other words, when he has three out of four strikes against him in terms of the most important variables. (This corresponds to the black bars on Graph 1).
 - b. The likelihood of going to prison is quite low, about 7 percent, when the defendant has three out of four variables in his favor, i.e., when (1) he is charged with residential (less "serious") burglary, has high income, and was arrested after the day of his offense, but has an arrest record; or (2) is charged with residential burglary, has low income but no arrest record, and was arrested after the day of his offense; or (3) is charged with nonresidential burglary but has high income, no arrest record, and was arrested after the day of his offense. (This corresponds to the leftmost four white bars on Graph 1.)
3. Defendants charged with larceny, whether a felony or misdemeanor, generally have a very low chance of going to

prison (about 7 percent) except when they have the double disadvantage of low income and an arrest record; in that situation, the likelihood of going to prison is higher, about 19 percent.

In summary, the four-factor model shown in Table 6, using all the data, tends to confirm what we see in Graph 1: probabilities of going to prison are generally higher for burglary than for larceny defendants and, within type of offense, vary according to whether the defendant has all the other variables (income, arrest record, arrest promptness) working in his favor or to his disadvantage.

FURTHER ANALYSIS OF THE EFFECT OF THE DEFENDANT'S INCOME

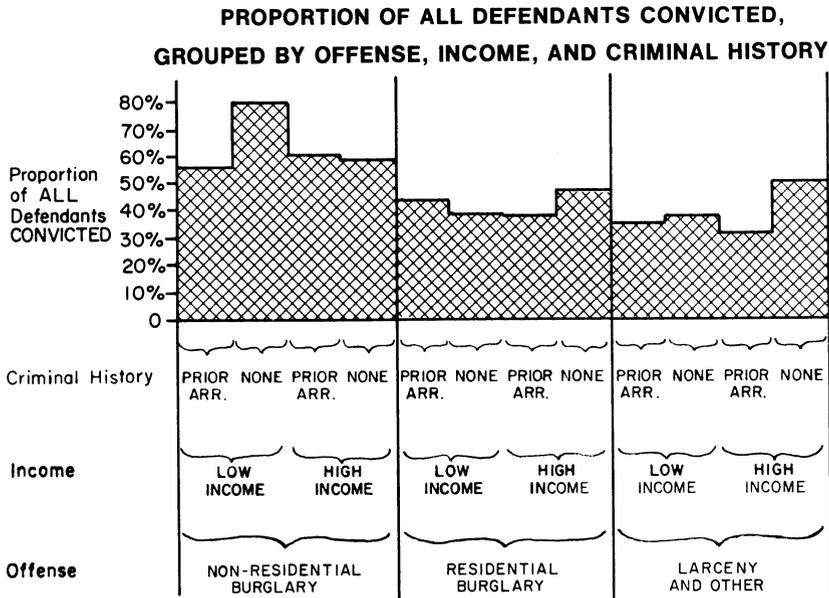
The foregoing analysis suggests that, other things being equal, the low-income defendant had a greater chance than the higher-income defendant of emerging from the criminal court with an active prison sentence. Further analysis showed that among the defendants studied, income did not affect the probability of being convicted, i.e., convicted of some criminal offense, although perhaps not the one originally charged.¹⁶ Income did affect the sentence received by those convicted; this effect probably resulted in part from the fact that low-income defendants plead guilty to more serious offenses than do high-income defendants and, once convicted, are further disadvantaged in avoiding imprisonment. As will be shown, most of the effect of income was manifested in bail status and attorney representation.

Our conclusions about how income affected imprisonment were reached by examining two processes separately: (1) the process leading from arrest to either conviction (usually a guilty plea, less often a guilty verdict) or to nonconviction (dismissal, *nolle prosequi*, acquittal); and (2) the sentencing of those convicted. Graph 2 summarizes the findings with regard to conviction. The likelihood of being convicted, which was 45 percent for the entire group of defendants, was affected to some extent by the seriousness of the offense charged; nonresidential burglary defendants had the highest probability, residential burglary defendants a somewhat lower probability, and larceny defendants the lowest. Criminal history (prior arrests) had an effect opposite to that which might have been expected: defendants with an arrest record were somewhat less likely to be convicted than those without a record (the respective proportions were 42 and 50 percent). This is probably due to the fact that they were more reluctant to plead guilty—and with good reason, since they

16. See note 10, *supra*.

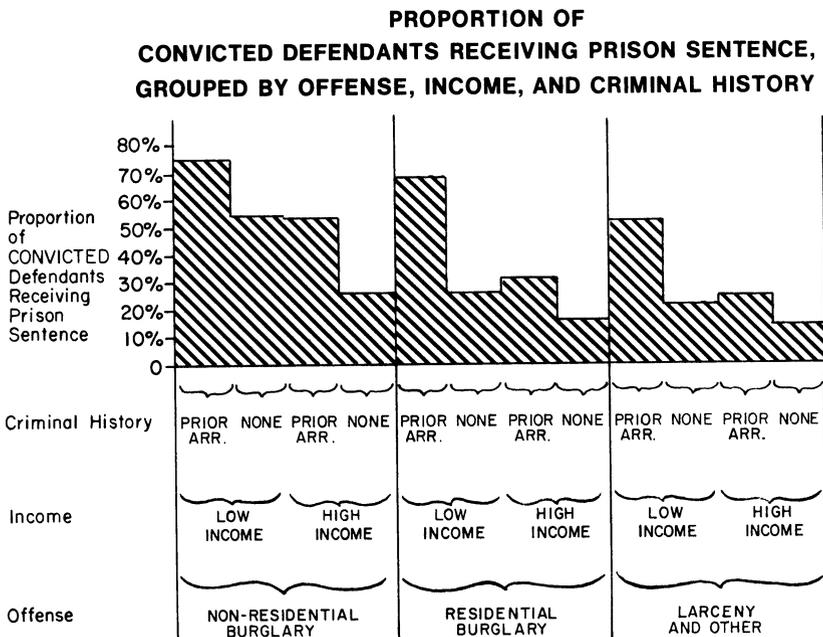
were more likely to receive an active sentence if convicted. Income had little or no effect, as Graph 2 shows and tests of statistical significance confirm.

Graph 2.



Graph 3 depicts the proportions of each of the groups of the 363 convicted defendants which were sentenced to active terms. (The overall proportion was 41 percent.) While type of offense had little effect on the likelihood of an active sentence, criminal

Graph 3.



history and income had very substantial effects, as significance tests confirm. Overall, the probability of a prison sentence was 53 percent for low-income defendants and 26 percent for high-income defendants; the prison probability for low-income defendants remains one and one-half to two times as large as that of high-income defendants when type of offense and criminal history are controlled.

Examination of bail status and attorney representation shows how income exerts its effect on sentencing. The low-income defendant was twice as likely as the high-income defendant to be represented by a court-assigned attorney (36 percent versus 19 percent), about three-fifths as likely to be represented by a privately retained attorney (34 percent versus 53 percent), and about twice as likely to be held in detention pending his trial (33 percent versus 19 percent). Surprisingly, the relative numbers of those unrepresented by any attorney were virtually the same for both income groups (about 29 percent). This suggests that the assigned-counsel system was functioning properly in providing counsel to indigent defendants who desired it, and that defendants were unrepresented by choice, not because of poverty. Probably most unrepresented defendants knew that their charges would be dropped or that the case against them was very weak, for very few were convicted or received prison sentences.

Not surprisingly, low-income defendants were much less likely than high-income defendants to obtain release on bail. In Mecklenburg County at the time of the study, the only alternative to pretrial detention for most defendants was bail bond, which meant depositing in cash the full amount of the bond set for the offense charged or obtaining a professional bondsman as surety in exchange for a nonreturnable fee. Obviously, the defendant's ability to do either of these things depended in part on his income.

To determine how the effect of income compared with the effects of attorney representation and bail status, the number of defendants who went to prison was tabulated for all combinations of these variables: type of offense, criminal history, arrest promptness, bail status, attorney representation, and income. Using a statistic designed to show the effect of one variable over many combinations of other variables,¹⁷ we found that income has a significant but very small effect when these other variables are accounted for. Our tentative conclusion is that most of the influence of income on the likelihood of imprisonment among the

17. This statistic possesses a chi-square distribution and combines information with respect to the effect of a specific variable on prison outcome over all possible combinations of previously selected variables. See Koch and Reinfurt (1973).

defendants studied is explained by the poorer opportunity of the low-income defendant for bail and his greater likelihood of having a court-assigned, rather than privately retained, attorney.

CONCLUSION

The analysis of the experiences of 798 burglary and larceny defendants in Charlotte criminal courts indicates that the factor most strongly related to whether they received prison sentences was the offense charged, with nonresidential burglary defendants having the greatest probability of going to prison. The other studies summarized earlier generally agreed in finding type of offense to be the strongest factor in determining disposition. Criminal history was also found to be strongly related to prison outcome; here, too, the other studies are in agreement. Arrest promptness was found to be the fourth most important factor. None of the other studies provides comparable results.

The Charlotte study found no evidence that the defendant's age, race, or employment status had an important relationship to prison outcome. The other studies dealing with criminal court disposition generally found no effect of age when other factors, such as criminal record, were controlled. Only one discerned the effect of race (Wolfgang and Riedel, 1973) but that study is clearly distinguishable because it was limited to defendants convicted of rape in the Deep South a number of years ago, and dealt only with the death penalty. In any case, Wolfgang and Riedel did not include income in their analysis, which might partially have explained the effect of race. Employment status (i.e., whether the defendant was employed at the time of arrest) was not considered by the other studies, except that of Landes (1974), who found that it had only an indirect effect on court disposition through its effect on bail bond.

The Charlotte analysis also showed that when other important factors were taken into account, the defendant's income had an effect on the chance of going to prison (or, more specifically, on the chance of being sentenced to prison if convicted): low-income defendants were more likely to go to prison, other things being equal, than high-income defendants. Some of the other studies discussed earlier agree with this finding and others do not. Landes found no effect of income on sentence when bond amount was controlled, but this may have been because bond amount already incorporated information about the defendant's income. Greenwood *et al.* (1973) did not study income, although they did consider pretrial release and type of counsel. They found evidence, as we did, that obtaining pretrial release was

an advantage to the defendant (although they looked at its effect on avoiding conviction, rather than on sentence). They found that indigent defendants represented by appointed counsel had an advantage over others with regard to court disposition; we found the opposite. The disagreement may simply reflect a difference in the quality of the appointed counsel in Charlotte and Los Angeles. Burke and Turk (1975) found that occupational status had no effect on court disposition when type of offense was controlled. The only way of reconciling their study with ours, insofar as the income effect is concerned, is to argue that occupational status is too different from census tract income to be compared with it. We prefer to conclude that their findings simply disagree with ours. Tiffany, *et al.* (1975) did not study income, but did find that in trials to a judge defendants with appointed counsel were likely to get stiffer sentences than those with private counsel. Chiricos and Waldo (1975) found no relation between socioeconomic status (an index of income, education, and occupation) and length of sentence among prison inmates. This result can be distinguished from the Charlotte finding in that (as they pointed out) the status of prison inmates tends to be quite low, whereas in a general population of defendants in court, income varies more widely and may exert more influence on whether the defendant receives *any* prison sentence than it does on the length of that sentence.

Although the relationship we found between income and court disposition is not confirmed by all similar studies, our data do support the view that the disproportionate number of low-income persons sentenced to prison is due to unequal opportunity, if not conscious discrimination, at least in some criminal courts. The study also suggests that the disadvantage of the low-income defendant can be reduced or eliminated by reforms that are well within the capability of the present criminal justice system. (Such reforms have begun in Charlotte, although it is not yet known whether they have negated the effect of income.¹⁸) The present data indicate that the low-income defendant's chief

18. Innovations in the Mecklenburg County bail system have reduced the disadvantage of the low-income defendant. In another study of cases begun by arrest in the city of Charlotte between 1971 and 1973, we found that the proportion of defendants not released on bail was about 12 per cent in 1971, but declined to 9 per cent in 1972 and to 8 per cent in 1973—in other words, the fraction not released declined by about one-third in a two-year period. This improvement in bail opportunity can be attributed to the increased willingness of magistrates to release defendants without requiring a professional bondsman as surety, to the county's new program involving pretrial release on unsecured appearance bond, and to more frequent use of "cash bond" release (release upon deposit of the bond amount). The bail study also indicated that a good deal of improvement in bail opportunity could be accomplished through the existing pretrial

liability is his disadvantage in obtaining both bail and a skilled attorney, which in turn reduces his opportunity to prepare for trial, plea bargaining, and sentencing.

Much attention has been given lately to the breadth of judicial discretion in sentencing and to proposals to narrow it.¹⁹ In North Carolina, for example, the judge may impose probation, a fine, or imprisonment for any period up to ten years for felonious breaking and entering.²⁰ Do the findings of this study suggest a connection between broad judicial discretion in sentencing and the greater likelihood that a low-income defendant will receive a prison sentence? The answer is uncertain. On the one hand, it may be argued that the low-income defendant's disadvantage lies in his poorer opportunity for pretrial release and effective legal defense, and that reducing judicial discretion would not solve this problem. On the other hand, it may be true that the advantages of having a higher income and being free on bail—for example, being able to find witnesses to testify at the sentence hearing, or to hire a lawyer skilled in obtaining

release powers of magistrates without costly additions to staff (see N.C. Gen. Stat. §§ 15-103.1, 15A-534). These figures included all persons arrested in the city of Charlotte for all offenses, except such minor ones as public drunkenness, traffic offenses, and fishing and hunting violations. The percentage of those arrested in the city of Charlotte and charged with crimes against property (primarily burglary, breaking and entering, and larceny) who were not bailed was about 16 percent in 1971, 9 percent in 1972, and 8 percent in 1973. Presumably, the burglary and larceny defendants in the present county-wide study (to which the figures in the text apply) also would have had a better bail opportunity had they been arrested in 1973 rather than in 1971 (Clarke, 1975).

The experience of Mecklenburg County (Charlotte and its suburbs) thus indicates that bail opportunity can be improved with resources available in most criminal courts. How can the low-income defendant's legal defense be improved? The present study distinguishes only between privately retained and court-assigned attorneys. We could not investigate measures of the quality of representation, such as attorneys' education, experience, or the amount of time they spent on each case. Therefore, although we know that defendants were more likely to go to prison when represented by court-assigned attorneys than when represented by privately retained counsel, it is not clear why this is so. Perhaps a public defender system would provide more effective representation. The North Carolina General Assembly recently created a public defender office in Mecklenburg County; experience with that system will help determine whether the disadvantage of low income has been reduced.

19. An eloquent and widely influential statement of the need to narrow sentencing discretion is found in Frankel (1972: 10-11, 112, 114). Frankel, a law professor and federal trial judge, says "the notion of individualized sentencing has gotten quite out of hand . . . [W]e must reject individual distinctions—discriminations, that is—unless they can be justified by relevant tests capable of formulation and application with sufficient objectivity to ensure that the results will be more than the idiosyncratic ukases of particular officials, judges or others." Frankel recommends legislative guidelines for sentencing that involve some objective grading, based on gravity of offense, prior convictions, etc.; he also suggests that sentencing decisions be subject to appellate review.
20. N. C. Gen Stat. §§ 14-2, 15-197.

lenient sentences—would have less effect on the outcome of a prosecution if stricter sentencing guidelines were imposed by law on the judge, accompanied by a detailed presentence investigation and appellate review of the sentence. A better answer to the question of whether judicial discretion is to blame for the greater likelihood that a low-income defendant will be imprisoned would be provided by a study that examined the sentencing practices of various judges (which ours did not) as well as the other variables included here.

In this analysis, income was shown to affect sentencing rather than conviction, but it should be remembered that sentencing and conviction are usually not distinct processes. Most persons convicted plead guilty (88 percent in this study). Guilty pleas usually involve bargaining in which conviction of an offense acceptable to the prosecutor is offered in exchange for a sentence acceptable to the defendant.²¹ In North Carolina, plea bargaining is explicitly condoned by statute, and the trial judge is allowed to participate in it.²² It may be that the defendant's income affects his sentence, not by affecting his preparation for formal sentencing by the judge, but by affecting his ability, or that of his lawyer, to plea bargain. If this is true, then reducing the judge's sentencing discretion by legislation cannot be expected to reduce the effect of income because it will not eradicate plea bargaining.²³ The discretion to invite and accept pleas to lesser offenses will remain, even if the discretion to impose a penalty for each specific offense is curtailed. Thus, reducing the disadvantage of the low-income defendant through improvement of bail opportunity and legal representation for the indigent

21. Leading legal opinion is divided on the issue of whether to allow or forbid plea bargaining; the American Bar Association has condoned it (1968: §§ 3.1-3.4), and the National Advisory Commission on Criminal Justice Standards and Goals has recommended that plea bargaining be abolished and that the sentencing recommendation of the prosecutor and the sentence imposed by the judge not be affected by the willingness of the defendant to plead guilty (1973: Standard 3.1).

22. N. C. Gen. Stat. § 15A-1021 (Supp. 1975). Participation by the judge is disapproved by the American Bar Association; see ABA Standards Relating to Pleas of Guilty, § 3.3 (Approved Draft 1968).

23. U. S. Attorney General Edward H. Levi (1976) has expressed tentative support for abolishing parole and replacing it with a mandatory minimum sentencing scheme. Mr. Levi also expressed support for precise prison sentences based on guidelines set by a permanent Federal Sentencing Commission. Such a Commission, with the power to issue guidelines, is proposed by S. 2698 and 2699, 94th Cong., 1st Sess. (introduced by Sen. Edward Kennedy). A reply to Mr. Levi by the American Correctional Association (1976) claims that parole is needed to allow for mitigating circumstances, and predicted that the system backed by Levi would result in longer prison terms, fewer convictions, and more plea bargaining, and that poor and disadvantaged offenders would continue to suffer the harshest penalties.

seems likely to continue to be an important concern of the criminal justice system, even if advocates of narrower judicial discretion in sentencing achieve their goal.

APPENDIX

The analytic method used here resembles stepwise multiple regression; while equally rigorous, it has certain advantages for analyzing data that are purely categorical. The analysis has two phases:

- Phase One. Screening of variables to select those responsible for the greatest amount of variation in the probability of going to prison among the subpopulations defined by different combinations of variables.
- Phase Two. Fitting a model to the variables selected as important in Phase 1 in such a way that their effect on active sentencing is explained with the fewest underlying parameters.

Phase One is similar to forward stepwise regression. Certain appropriately constructed Pearson chi-square statistics divided by their degrees of freedom, similar to the "F to enter" statistic in multiple regression, are used as measures of relative importance of certain combinations of variables in a multivariate relationship. The first variable selected is the one with the largest chi-square per degree of freedom with regard to its first-order relationship to prison outcome. Other variables are selected by applying a similar selection rule using chi-square per degree of freedom computed for successively higher-order relationships. Phase One also involves a procedure for terminating the selection process when the remaining variables are not statistically important. Two types of statistics are used to decide when to terminate selection:

- (a) The Pearson chi-square statistics for the relationship of a specific variable with prison outcome, *summed* over all possible combinations of variables that have already been selected.
- (b) A statistic developed by Cochran (1954) and by Mantel and Haenszel (1959), subsequently modified by Campbell (1970) and by Koch and Reinfurt (1973), possessing a chi-square distribution with one degree of freedom, which combines information with respect to the effect of a specific variable on active sentencing over all possible combinations of previously selected variables.

Statistic (a) reflects both the main effects of a specific variable and its interactions with previously selected variables. After the first few steps of the selection process, however, statistic (a) tends to lose its usefulness due to thinning of the data. Statistic (b) then is used, because it combines information across all combinations of previously selected variables and is thus immune to thinning. This statistic is highly sensitive to weak but consist-

ent relationships that variables not yet selected may have with prison outcome.²⁴ With each statistic, the criterion for terminating selection is failure to meet a significance level of .10 or .05.

Phase Two involves crosstabulation of the independent variables selected in Phase One with the dependent variable to produce a multi-way contingency table. A model is then fit to the probabilities of a prison sentence for all combinations of variables using the "GSK" method.²⁵ This technique, involving regression by weighted least squares, explains the variation in probability of active sentencing in terms of the independent variables, systematically removing unimportant components of variation. In forming the model, independent variables are not retained unless their effects are significant at the .05 level. The model is not considered complete until the residual goodness-of-fit statistic (known as "Q") becomes small (i.e., not significant below the .25 level); otherwise not all the important sources of variation in probability of prison sentencing have been identified.

The advantage of analyzing probability of prison sentencing in this way is that it leads to an efficient description or smoothing of the data. (Although our model—like any model based on historical data of the type used in most criminological analyses—is not truly predictive, we use the term "predicted" to refer to values generated by it.) The predicted values are different only if the corresponding observed values are significantly different, and they represent better estimates (i.e., with smaller standard errors) of probabilities of active sentencing than the observed fractions of defendants who go to prison because they are based on the entire set of data rather than on subsets. The result is that we can describe the relative effects of important independent variables in a clearer way than we could merely by inspecting a multivariate contingency table.

In this analysis, we measured explained variation in the following manner. After screening the independent variables, as discussed above, we selected the four that showed a significant relationship to the defendant's likelihood of going to prison, and

24. The disadvantage of statistic (b) is that it reflects the "average effects" of a variable as opposed to its "total contribution." In earlier states of our selection process statistic (a), which reflects both kinds of effects, is used; in the later states, when statistic (b) is used, we are mainly interested in "average" effects because the interactions associated with the weaker variables tend to be of minor importance.

25. A variety of applications of the GSK method to medical, public health, traffic safety, and political science data have been published. The basic theory can be found in Grizzle *et al.* (1969). For a comparison of GSK with other categorical data methods and with multiple regression, see Lehnen and Koch (1973).

formed a model with them. They “explain” only 11.5 percent of the total variation.²⁶ We then computed the proportion of variation explained by the model *given the choice of variables* (defined as the Q statistic for the model divided by the sum of the model Q and the residual Q), which turns out to be 93.2 percent. To compute a measure of variation explained by the four variables and the model that is analogous to R² in multiple regression, we can multiply 11.5 percent by 93.2 percent and obtain 10.7 percent. There are a number of ways of looking at this result. One interpretation is that the large amount of “unexplained” variation is due to errors of measurement in the variables used and failure to identify and include other important variables. This interpretation certainly has some validity; we can hardly claim that we have captured the entire reality of the process that sends defendants to prison. On the other hand, unless one takes a purely deterministic view of the social universe, a certain amount of purely random error can be expected and is reflected in the large amount of “unexplained” variation. Some of the studies cited earlier showed higher values of R², but these do not necessarily indicate better models. In any multiple regression analysis, it is possible to greatly inflate R² by simply including extra independent variables, whether or not these have any causal relationship to the dependent variables. Where categorical data are involved, the extreme limiting case of this inflation of R² occurs where so many variables are specified, and so many subsets of combinations of variables result, that the subsets are either empty or contain only one defendant; in this situa-

26. If we define the *i*th defendant's chance of going to prison as a random variable X_{*i*}, equal to one if he goes to prison and zero otherwise, then the total sum of squares as defined in multiple regression would be $\sum_{i=1}^N (X_i - \bar{X})^2$, where \bar{X} , the mean, can be estimated by *p*, the fraction of defendants in the sample who went to prison (.18). This total sum of squares is equal to *Np*(1-*p*). The amount of variation *not* accounted for by our choice of variables can be measured—from an ordinary least squares, not a weighted least squares, point of view—as follows. Consider a contingency table in which there are two columns, representing defendants who do and do not go to prison, and *R* rows, one for each possible combination of values of all variables selected for the final model. The mean value of X_{*i*} in the *k*th row can be estimated by *p_k*, the fraction of defendants in that row who go to prison. The total sum of squares for that row is therefore *n_kp_k*(1-*p_k*), where *n_k* is the number of defendants in that row, and the total for all rows is $\sum_{k=1}^R n_k p_k (1 - p_k)$. Thus the proportion of total variation *not* accounted for by the variables chosen can be measured as $\sum_{k=1}^R n_k p_k (1 - p_k) / Np(1 - p)$; one minus this quantity is the proportion of variation explained by the variables chosen, which for the data shown in Table 6 is equal to 11.47 percent.

tion, "perfect" prediction is possible, and R^2 will be equal to one. In our analysis, we found that by adding to the four selected variables one additional variable, race, which our initial screening indicated had no significant relationship to prison outcome, we were able to increase the percent variation "explained" by the variables from 11.5 to 25.1 percent. Yet there was no good reason for including race (or any of the other variables screened out initially) because they had no significant relationship to the dependent variable. In one study cited earlier (Landes, 1974), an R^2 of 48 percent was computed for a final model containing twenty variables, but only six of these had a significant or marginally significant effect. Standard errors of the coefficients were not shown, but it seems likely that the confidence limits were extremely wide. The high R^2 achieved thus does not indicate a good model fit.

In interpreting the results of this analysis, we prefer to take an "indeterminist" position. We can say that, given our present state of knowledge—or ignorance—we have identified eight variables of potential importance, and that of these eight, only four could be shown to have a substantial relationship to the defendant's chance of going to prison. Also, from the final model, which fits well given the choice of variables, we can reach certain conclusions about the relative importance of the variables and their interactive effects. If later research shows that other (unknown) variables have important effects that we neglected, the tentative conclusions reached here must be revised or discarded.

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