
Sentencing under the Federal Sentencing Guidelines: Effects of Defendant Characteristics, Guilty Pleas, and Departures on Sentence Outcomes for Drug Offenses, 1991–1992

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The Sentencing Reform Act of 1984 mandated major restructuring of federal sentencing through specific sentencing guidelines. New sentencing guidelines developed by the United States Sentencing Commission and adopted in 1987 explicitly linked sentencing to “relevant conduct”—offense characteristics—and sought to abolish unwarranted sentence disparity. The guidelines substantially reduced judicial discretion and resulted in a criminalization and sentencing process that is largely prosecutor controlled. The author has generated hypotheses that relate defendant characteristics, guilty pleas, and departures from sentencing guidelines to sentence outcomes under the federal sentencing guidelines. She first examined the variables influencing sentence severity for the drug offenders who were sentenced in 1991–92. She then explored the interaction effects by estimating the tobit equation separately for three groups—black, white, and Hispanic defendants—to discover whether defendant’s ethnicity conditions the effect of other defendant characteristics, guidelines-defined legally relevant variables, guilty pleas, and departures on sentence severity. Her analysis reveals that disparity in federal sentencing of drug offenders is linked not only to offense-related variables, as structured by the guidelines, but also to defendant characteristics such as ethnicity, gender, educational level, and noncitizenship, which under the guidelines are specified as legally irrelevant.

Under the Sentencing Reform Act of 1984, Congress established the United States Sentencing Commission and charged it with the task of designing a sentencing structure that would avoid “unwarranted sentencing disparity among defendants with similar records who had been found guilty of similar criminal conduct” (28 U.S.C. 991(b)(1)(B) (Supp. 1993)). In November 1987 the Federal Sentencing Guidelines were enacted. Among social scientists, legal scholars, and court officials, the sentencing guidelines ignited a debate over the legal and social conse-

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quences of the new structure of sentencing. The focus of my research is to explore empirically three issues that are central to the goals of federal sentencing reform and the policy debate that has emerged since state reform efforts began in the 1970s.

My first concern is to estimate empirically the direct effect on the length of imprisonment of defendant characteristics (e.g., ethnicity, gender, education, number of dependents, which are explicitly stated in the federal guidelines as legal *irrelevant*; see U.S. Sentencing Commission 1989: §§ 5H1.1–5H1.10). Drawing on my earlier work (Albonetti 1991), I specify hypotheses that reflect the merger of uncertainty avoidance/causal attribution theoretical perspectives.

My second concern is to estimate the direct effects on sentence outcomes of guilty pleas and of sentences that depart from the guidelines. Although the federal guidelines substantially reduce the wide latitude of discretion once enjoyed by sentencing judges, the guidelines do not restrict prosecutorial discretion. Numerous legal scholars and social scientists argue that the federal sentencing guidelines shift discretion away from sentencing judges to prosecuting attorneys (Tonry 1996; Standen 1993; Nagel & Schulhofer 1992, to name a few). Under the federal guidelines, a prosecuting attorney can circumvent the guideline-defined sentence through charging, guilty plea negotiations, and motions for a sentence that is a departure from the guideline sentence. As noted by Nagel and Schulhofer (1992), the guidelines' emphasis on directly linking sentence outcomes to relevant conduct was intended as a structural constraint that would eliminate unwarranted disparity resulting from judicial control over sentencing. However, in the absence of constraints on prosecutorial discretion over charging decisions, guilty plea negotiations, and motions for "substantial assistance"¹ departures, these process-related decisions offer potential avenues through which prosecutors can circumvent guideline-defined sentence outcomes. Although the guidelines greatly reduce judicial control over sentencing decisions, guideline provisions for judge-controlled downward departures for "acceptance of responsibility" afford judges the opportunity to reward defendants differentially for pleading guilty.² In addition, judges are not required to

¹ U.S. Sentencing Commission (1989:§ 5K1.1), Part K, "Departures," indicates that a motion for departure must be filed by the prosecuting attorney before the sentencing judge can consider a departure from the guidelines. As noted by legal scholars and social scientists (Standen 1993; Nagel & Schulhofer 1992; Tonry 1996), the § 5K1.1 departure provision grants prosecuting attorneys substantial discretionary control over guilty plea negotiations and sentencing outcomes under the guidelines.

² U.S. Sentencing Commission (1989:§ 3E1.1), Part E, "Acceptance of Responsibility," provides for a two-level downward adjustment to the offense level if the defendant "demonstrates a recognition and affirmative acceptance of personal responsibility for his criminal conduct." Determination of the defendant's acceptance of responsibility is made by the sentencing judge. Further, Part E indicates: "Although a guilty plea may show some

act on a motion for “substantial assistance” departures.³ Therefore, judges continue to maintain some sentencing discretion but clearly at a reduced level.

The “hydraulic displacement of discretion” model that characterized some of the early research on state-level sentence reform (Miethe 1987) suggests that guilty pleas and departure provisions in the federal guidelines should be empirically explored as mechanisms by which legally irrelevant defendant characteristics influence sentence outcomes. To date, research on sentencing under the federal guidelines has not estimated the effect of guilty pleas and departures on sentence outcomes for defendants convicted of drug offenses.

My third concern is to explore empirically the potential *conditioning* effect of a defendant’s ethnicity in the relationship between guideline offense level, criminal history points,⁴ guilty pleas, departures, and sentence outcomes. Sentence disparity results if the sentence advantage associated with a negotiated plea or a departure (e.g., for “acceptance of responsibility” or “substantial assistance”) varies by legally irrelevant defendant characteristics such as ethnicity. Research has not estimated sentencing models that explore this more complex and less apparent source of sentence disparity under the federal guidelines. The research reported here estimates multivariate sentencing models that test hypothesized of the *direct* effects of defendant characteristics (e.g., ethnicity, gender, education, non-U.S. citizenship) on sentence outcomes and the *conditioning* effect of defendant’s ethnicity on the relationship between guilty pleas, departures, and sentence severity. The research is based on sentencing outcomes for drug offenders who were sentenced under the federal sentencing guidelines during 1991–92.

Literature Review

Legal and Policy Literature

Numerous legal and policy writings discuss the forms that plea bargaining has taken under the federal sentencing guidelines (Standen 1993; Schulhofer 1992; Meierhoefer 1992; Stith & Koh 1993; Breyer 1988, 1992; Lowe 1987; Purdy & Lawrence 1990; Nagel & Schulhofer 1992; Goodstein & Kramer 1989; Tonry 1996) and predict that plea bargaining will undermine the

evidence of acceptance of responsibility, it does not automatically entitle the defendant to a sentencing adjustment.”

³ U.S. Sentencing Commission (1989:§ 5K1.1), Part K, “Departures,” specifies: “Upon motion of the government stating that the defendant has provided substantial assistance in the investigation or prosecution of another person who has committed an offense, the court *may* depart from the guidelines” (emphasis added).

⁴ Under the sentencing guidelines, criminals are assigned numerical values based on their history of criminal activity; see U.S. Sentencing Commission 1989:Part B.

sentencing reform goal of eliminating sentencing disparity among “similarly situated” defendants (Standen 1993; Berlin 1993; Yellen 1993; Reitz 1993; Roberts 1994; Wright 1991; Wilkins & Steer 1990; Nagel 1990; Nagel & Schulhofer 1992; Rhodes 1991; Tonry 1996; Alschuler 1978). Legal scholars and court officials suggest that under the federal sentencing guidelines, prosecuting attorneys have gained more control over the sentencing process while judges have lost much of the discretion they once enjoyed. As a number of legal scholars suggest (Lee 1994; Standen 1993; Yellen 1993; Schulhofer 1980, 1992; Seymour 1992; Alschuler 1978), the shift of unfettered discretion from judges to prosecuting attorneys may circumvent the goal of eliminating unwarranted disparity. For example, Standen (1993) argues that prior to the federal guidelines, prosecutorial power was restricted by judicial discretion at sentencing. However, under the federal sentencing guidelines, writes Standen, prosecutors have become “the sole purchasers of the convictions and incriminating information that a multitude of criminal defendants have to sell” (pp. 1472–73). According to Standen (p. 1473), “prosecutors hold great bargaining power over defendants and are able to obtain exchanges of pleas at subcompetitive prices.” The shift of discretion from judges to prosecutors under the guideline structure offers an avenue for prosecutors to undermine the goal of eliminating sentencing disparity linked to defendant characteristics. The U.S. Sentencing Commission’s policy decision to link sentencing to explicitly defined “relevant conduct” may be circumvented by offers of prosecutorial concessions that are indirectly linked to the Commission’s defined “irrelevant information” such as the defendant’s age, education, gender, and ethnicity. Moreover, Standen argues (p. 1473), “to be faithful to their principals’ interests, prosecutors have an incentive to discriminate against particular defendants or subgroups of defendants by attempting to settle like cases differently depending on defendants’ personal characteristics unrelated to culpability.” In short, Standen suggests that the simultaneous elimination of judicial discretion and the increase in prosecutorial control over charging has created a case-processing system that places the prosecutor as the only actor in a position to offer sentence reductions. Prosecuting attorneys simply negotiate over the charge, knowing well the sentence range specified for that charge by the sentencing grid. Therefore, sentence disparity may result from differential plea bargaining settlements or departure motions that are linked to offender characteristics. If such practices exist, the effect of defendant characteristics on sentencing is more subtle but no less real in its influence on sentence outcomes. Control over sentencing discretion, argued to be central to any reform efforts (Walker 1993), may be circumvented by the very structure of the federal sentencing guidelines.

Empirical Literature

I also reviewed studies of sentencing under determinant sentencing reform policies. Given the shortage of empirical research on federal guideline sentencing, I looked at studies of sentencing practices before the new federal guidelines were put in place. To date, most of the research on sentencing reform focuses on state-level efforts to reduce sentencing disparity through either determinate or presumptive guidelines (Ulmer & Kramer 1996; Kramer & Ulmer 1996; Dixon 1995; Knapp 1984; Kramer & Lubitz 1985; Clarke 1984; Moore & Miethe 1986; Miethe 1987; Martin 1984; Parent 1988; Boerner 1995a, 1985b; Quinn 1990; Washington State Sentencing Guidelines Commission 1992; Zatz 1984). For example, a descriptive analysis of Minnesota's sentencing practices (Knapp 1984) indicated that during the first three years of state guideline implementation, sentence outcomes were more uniform and less dependent on offender's socioeconomic status than they had been. Similar findings were reported by Kramer and Lubitz (1985) of the effect of the Pennsylvania sentencing reform. In a recent study of sentencing in Pennsylvania, Ulmer and Kramer (1996) found that legally relevant case information produced the strongest main effects on sentence severity. However, they found that defendant's gender and race exerted significant influence on sentence outcomes. Using cross-product interaction terms, Ulmer and Kramer found county-specific effects of defendant's gender and race on sentence severity.

In another study of Minnesota sentencing, Moore & Miethe (1986:268) found "a generally high degree of compliance with the Commission's policies on the use of sentencing departures and consecutive sentencing." However, the findings also revealed that adjustments to sentence outcomes through dispositional departures were linked to offender characteristics such as marital status, gender, and employment status. In two other studies of sentencing practices under the Minnesota Guidelines, Miethe and Moore (1985) and Miethe (1987) found that increases in prosecutorial discretion had not undermined the goals of sentencing reform. They explained their findings in terms of "court-house subculture" (Miethe & Moore 1985:174; see Eisenstein & Jacob 1977; Rossett & Cressey 1976) constraints on prosecutorial discretion. Their findings challenged the hydraulic displacement of discretion theory suggested by Alschuler (1978) and Casper and Brereton (1984).

In a further analysis of sentencing in Minnesota, Stolzenberg and D'Alessio (1994) used ARIMA models of no prison/prison outcomes and prison-term length to examine levels of unwarranted disparity over time. Using sentencing preguideline and postguideline data, they found that disparity levels for no prison/

prison decisions decreased immediately after guideline implementation but over time approached preguideline levels. For the prison-term decision, Stolzenberg and D'Alessio found that the immediate decline in disparity levels after guideline implementation continued over time. They concluded that "unwarranted disparity for the no prison/prison sentencing decision showed an overall decline of 18%, while sentencing inequality decreased by approximately 60% for the judicial decision as to length of prison sentence" (p. 306).

In the most recent analysis of sentencing under Minnesota sentencing guidelines, Dixon (1995) hypothesized that complexity of division of labor and the decentralization of decisionmaking in judicial and prosecutorial work environments condition the effect of the legal, extralegal, and case-processing variables on sentence outcomes. Her findings indicated that the effects on sentence severity of legally relevant variables (offense severity, criminal history, use of a weapon, and multiple charges) is invariant across bureaucratization levels. Of particular interest to my study is her finding that defendant's race was unrelated to sentencing outcomes. Finally, Dixon reports a significant relationship between pleading guilty, specific dimensions of bureaucracy, and sentence severity. Consistent with the findings of Eisenstein, Flemming, and Nardulli (1988), she found that guilty pleas significantly reduced sentence severity in high-bureaucratized environments and exerted no significant effect in low-bureaucratized settings.

In a study of determinant sentencing in California, Zatz (1984) found that the effects on sentence severity of type of offense, mode of disposition, and the defendant's prior record were conditioned by defendant's ethnicity. She further found that the effect of prior record of convictions and mode of disposition resulted in significantly more severe punishment for Chicano defendants compared with white defendants. Furthermore, she found that pleading guilty produced a significantly shorter sentence for black defendants than for Chicano defendants. These findings, together with Standen's (1993) argument, strongly point to the need to study sentencing disparity by going beyond estimating direct effects of offender characteristics on sentence outcomes to examine whether defendant characteristics *condition* the effect of guilty pleas and departures on sentence severity.

Although the determinants of sentence severity have been explored at the federal level (Hagan, Nagel, & Albonetti 1980; Wheeler, Weisburd, & Bode 1982; Benson & Walker 1988; Weisburd et al. 1991; Rhodes 1991; Albonetti 1994; Brent & Dampousse 1996), only a few studies have examined the variables that affect sentence outcomes under the federal sentencing guidelines (Nagel & Schulhofer 1992; U.S. Sentencing Commis-

sion 1991; U.S. General Accounting Office 1992). Most of the studies of federal sentencing have focused on preguideline sentencing disparity for white-collar offenses (Hagan et al. 1980; Wheeler et al. 1982; Weisburd et al. 1991; Benson & Walker 1988; Rhodes 1991). Hagan et al. (1980) and Nagel & Hagan (1982) found that defendant's social status, measured by education and income, was unrelated to the likelihood of incarceration and length of incarceration. However, Wheeler et al. (1982) and Weisburd et al. (1991) found that increases in social status increased the likelihood of incarceration. Benson & Walker (1988) found that socioeconomic status was not significantly related to either the probability of incarceration or the length of incarceration. Taken together, these studies of preguideline sentencing for white-collar offenses have produced inconsistent findings of the relationship between offender characteristics and sentence severity.

Rhodes's (1991) study of preguideline sentencing of drug offenders found that offenders who plead guilty receive less severe sentences. He predicted that "under the guidelines—as was true under pre-guideline practices—defendants who enter guilty pleas will serve markedly shorter terms than will similarly situated defendants who are convicted at trial" (p. 1025). Rhodes's findings suggest the need to estimate direct effects of negotiated pleas on the length of imprisonment and the probability of imprisonment. Note, however, that Rhodes did not explore the effects of offender characteristics on sentence outcomes.

A recent study (Brent & Damphousse 1996) used preguideline sentences for political offenders and found that minority defendants received significantly longer sentences than whites. Furthermore, the researchers found that the racial effect on sentence patterns depended on whether the offender was a terrorist or nonterrorist. Specifically, they found that the effect of minority status was significant for only the terrorist group of offenders. In addition, they found that guilty pleas and crime severity intervened in the relationship between defendant characteristics and sentence severity.

In research conducted on sentences imposed under the federal sentencing guidelines, a recent study by the U.S. Sentencing Commission (1991) and a subsequent study using the same data by the U.S. General Accounting Office (1992) were largely inconclusive about the impact of sentencing guidelines on reducing unwarranted disparity.⁵ Although inconclusive, the studies suggest that offender's race and gender are related to sentence outcomes (Tonry 1996).

⁵ Due to an inadequate sample size, neither study could test hypotheses relating offender characteristics to sentence outcomes (Tonry 1996).

Finally, Nagel and Schulhofer's (1992) research on prosecutorial discretion under the federal sentencing guidelines suggested that the shift of discretion from judges to prosecutors did not produce less uniform sentences. However, they added that the benefits typically associated with decreased judicial discretion were not observed for cases involving the distribution of drugs. They concluded: "So long as mandatory minimum sentences, and guidelines anchored by mandatory minimums, are tied to the charges for which the defendant is convicted and prosecutors exercise unfettered discretion in charging decisions, the goals of certainty, uniformity, and the reduction of unwarranted disparity are at risk" (p. 561). The findings from the above studies and the large volume of legal writings on the structure of the federal sentencing guidelines inform the hypotheses specified in the following section.

Theoretical Perspective and Research Hypotheses

A central focus of this study is to explore the effects of defendant characteristics on sentence outcomes in drug offense cases under the federal sentencing guidelines. The sentencing guidelines explicitly state that defendant characteristics such as gender and ethnicity are legally irrelevant to sentencing (see U.S. Sentencing Commission 1989:§ 5H1.10). According to the federal sentencing guidelines, judicial discretion is limited by requiring the sentencing judge to follow a "path" to sentencing that begins with the convicted offense from the statutory index. From this determination, the judge is to identify the *base offense level*, consider (1) any increases to the base offense level due to the defendant's relevant conduct (i.e., the defendant acts as a pilot), (2) any specific offense characteristics (i.e., use of a weapon, the amount of drugs, type of drugs), (3) any applicable adjustments for acceptance of responsibility or substantial assistance, and (4) any special provisions (i.e., defendant's career criminal status). Having determined the *final offense level* (the base offense level plus enhancements due to defendant's relevant conduct and specific offense characteristics and departure adjustments) and the total number of criminal history points,⁶ the judge is then to locate on the sentencing grid the cell defined by the intersection of these two variables. According to the guidelines, defendant's education, age, family ties, employment record, and physical and mental condition are "ordinarily not relevant" (see U.S. Sentencing Commission 1989:Part H) to sentence outcomes. Previous research of sentencing practices under determinant (Ulmer & Kramer 1996; Zatz 1984) and indeterminate environments (Pe-

⁶ Under the sentencing guidelines, career criminals are assigned a value of 6 ("VI") for criminal history points; see U.S. Sentencing Commission 1989:Part B.

tersen & Hagan 1984; Albonetti 1991; Unnever 1982, to name a few) indicates that defendant's gender and ethnicity affect sentence severity. To date, research has not explored whether these defendant characteristics significantly influence sentence severity in drug offenses under the federal guidelines. As noted by Standen (1993), the substantial shift in discretion from judges to prosecutors, coupled with the increased bargaining power of prosecutors—two structural consequences of the federal guidelines—provides fertile ground for defendant-specific discrimination in case processing. Such a situation is clearly counter to the central purpose of the federal sentencing guidelines. Standen's argument is essentially tied to the newly acquired bargaining position of prosecutors as "sole purchasers of convictions and incriminating evidence" (p. 1472)—a position created by the guidelines. Standen's argument and the findings from previous research point to the need to examine empirically the effect of defendant characteristics on sentence severity under the federal guidelines.

Labeling theory argues that defendants who are male, of minority status, and less well educated will receive harsher sentences compared with their counterparts. In addition, my own merger (Albonetti 1991) of the structural perspective of rational decisionmaking (March & Simon 1958; Simon 1957; Thompson 1967) with the social-psychological perspective of causal attribution in punishment (Shaver 1975; Hawkins 1981; Carroll & Payne 1976; Heider 1958; Fontaine & Emily 1978; Lippman 1922) suggests that court officials—judges and prosecutors—attempt to achieve rational outcomes in the face of incomplete knowledge by relying on stereotypes that differentially link defendant groups to recidivism and dangerousness. From the merger of the two perspectives, Albonetti (1991:250) suggests that sentence severity is a product, in part, of judicial attempts to reduce the uncertainty of imposing a sentence that satisfies both the deterrent and just deserts goal of punishment by relying on "patterned responses" (March & Simon 1958; Simon 1957) that are themselves the product of an attribution process influenced by causal judgments differentially linking specific defendant groups to future criminal involvement. Defendant characteristics that are thought to be associated with a stable, enduring predisposition for future criminal activity or dangerousness are hypothesized to increase sentence severity. Previous research (Albonetti 1991; Miethe & Moore 1986; Unnever 1982; Farrell & Swigert 1978; Zatz 1984) has linked defendant's ethnicity to notions of dangerousness and recidivism. Consistent with this research, I hypothesize that black and Hispanic defendants will receive harsher sentence outcomes compared with white defendants. In addition, I hypothesize that controlling for legally relevant case information (e.g., final offense level determined by the sentencing guidelines, the maxi-

imum sentence permitted under the guidelines, the defendant's criminal history points, and number of counts), male and less-well-educated defendants will receive significantly more severe punishment.

Turn now to the second concern of this research—estimating the effect of guilty pleas and sentence departures on sentence severity for drug offenders under the federal guidelines. For this topic, several studies are particularly relevant. Findings reported by Ulmer and Kramer (1996), Rhodes (1991), Albonetti (1991), Miethe (1987), and Hagan et al. (1980) indicate that pleading guilty significantly reduces sentence severity. Consistent with these findings, I have hypothesized that guilty pleas, under the federal guidelines, will continue to result in a substantial decrease in level of punishment for drug offenders.

Legal scholars have noted the disdain that many of the federal sentencing judges have for the guidelines, especially the substantial increase in penalty level for drug offenses. This structural increase has been linked to the "War on Crime" political climate of the 1980s (Allen 1996). Given judges' perceptions of the exaggerated harshness of guideline-prescribed sentences for drug offenses, I have hypothesized that judges will use departures from the guidelines to decrease sentence severity. However, I also hypothesize that decreases in sentence severity due to departures will vary across defendant ethnicity, again to the relative disadvantage of blacks and Hispanics compared with whites.

A number of researchers (Steury 1989; Tonry 1996; Goodstein & Kramer 1989) suggest that, since the "acceptance of responsibility" provision in the federal guidelines (see U.S. Sentencing Commission 1989:§ 3E1.1) is operationally linked to pleading guilty,⁷ judges retain substantial sentencing discretion. Given this link and Standen's (1993) suggestion of offender-specific negotiated pleas, I hypothesize that the effect of pleading guilty on length of imprisonment is *conditioned* by defendant's ethnicity. Empirical support for this hypothesis would be indicated by statistically significant differences in the coefficient estimates for pleading guilty across ethnicity. I further hypothesize that the effect of guideline departures on sentence outcomes is *conditioned* by defendant's ethnicity. On the basis of both labeling theory and uncertainty avoidance/causal attribution perspectives, I hypothesized that minority defendants receive less benefit from guideline departures than do white defendants.

⁷ This is not to say that under the federal sentencing guidelines, downward departures for "acceptance of responsibility" cannot be given in trial dispositions.

Data and Analytical Procedures

To test the above hypotheses I used the Monitoring of Federal Criminal Sentences 1991–1992 data for 14,189 defendants convicted of either drug trafficking or simple possession involving crack cocaine, powdered cocaine, heroin, or methamphetamines. The study includes two stages of analysis. The first stage consists of univariate and bivariate statistics for each of the variables included in the multivariate equations of sentence outcomes. Table 1 provides percentages for nominal and ordinal-level variables, such as defendant's gender, ethnicity, education, guilty pleas, departure, and type of drug offense. The table also reports means and standard deviations for interval and ratio variables, such as defendant's total criminal history points, final guideline offense level, and length of imprisonment. These descriptive statistics are also provided for each variable for each ethnic group.

The core of the analysis involves estimating multivariate tobit regression equations of length of imprisonment. Due to the presence of zero length of imprisonment values, it is statistically necessary to control for bias due to left censoring (Breen 1996; Long 1997; Heckman 1976, 1979; Rhodes 1991). Maximum likelihood tobit equations are estimated instead of ordinary least squares regression for the purpose of generating unbiased and efficient estimates in the presence of left-censored data. The tobit model for censored data is appropriate for sentencing data because most (91%) of federal drug defendants' sentences varied in length and some defendants (9%) received a nonimprisonment outcome. In the latter cases, the dependent variable, sentence length, is censored at zero. In addition, the tobit model is appropriate since the same set of independent variables is thought to influence both the probability of being imprisoned and sentence length.⁸

The tobit model for censored data is (McDonald & Moffitt 1980:318)

$$Y_t = X_t\beta + u_t \text{ if } X_t\beta + u_t > 0 ,$$

$$Y_t = 0 \text{ if } X_t\beta + u_t \leq 0 ,$$

and

$$t = 1, 2, \dots, N ,$$

where N is the number of observations, Y_t is the dependent variable "length of imprisonment," X_t is a vector of independent vari-

⁸ Previous sentencing research (Peterson & Hagan 1984; Hagan & Parker 1985; Albonetti 1991) used Heckman's (1976) two-stage sample selection equation procedure which assumes that different variables can influence each of the two equations. These researchers did not explicitly consider this assumption. However, in my analysis, it is important for theoretical purposes to include the same set of independent variables in the equation of the probability of being imprisoned and the expected value of sentence length for those defendants imprisoned. For further discussion of this distinction, see Breen (1996).

ables, β is a vector tobit coefficients, and u_i is an error term assumed to be normally distributed with zero mean and constant variance. According to Tobin (1958), the tobit model assumes an underlying stochastic unobserved latent variable with an expected value of

$$EY = X\beta F(z) + \sigma f(z),$$

where $z = X\beta/\sigma$, $f(z)$ is the unit normal density and $F(z)$ is the cumulative normal distribution function. In the tobit model, the expected value of Y for observations above the limit (in this analysis length of imprisonment > 0 , indicated by Y^*) is $X\beta$ plus the expected value of the truncated normal error term. As noted by McDonald & Moffitt (1980:318),

$$\begin{aligned} E y^* &= E(y \mid y > 0) \\ &= E(y \mid u > -X\beta) \\ &= X\beta + \sigma f(z)/F(z). \end{aligned}$$

As McDonald and Moffitt (*ibid.*) point out, “the basic relationship between the expected value of all observations, Ey , the expected value conditional upon being above the limit, Ey^* , and the probability of being above the limit, $F(z)$, is $Ey = F(z)Ey^*$.”

Recent studies (Roncek 1992; Rhodes 1991; Moffitt 1982; McDonald & Moffitt 1980) indicate the usefulness of tobit estimation procedures. In addition to providing an analytical procedure for handling left-censored data (zero length of imprisonment), tobit estimates can be decomposed into two components. McDonald and Moffitt (1980:318) note that the change in y can be decomposed into two components. The decomposition takes the form of

$$\partial E y / \partial X_i = F(z) (\partial E y^* / \partial X_i) + E y^* (\partial F(z) / \partial X_i).$$

The first component is an estimate of the effect of the independent variable on the *length of imprisonment for those defendants receiving a prison sentence*, weighted by the probability of being imprisoned. The second component is an estimate of the effect of the same variable on the *probability of imprisonment for defendants receiving a nonimprisonment sentence*, weighted by the expected value of y if the observation is above the limit. Decomposing the effect of defendant characteristics, guilty pleas, and departures into these two components provides a clearer understanding of how sentencing disparity, if found, is related to sentencing decisions. This is particularly important given earlier findings (U.S. General Accounting Office 1992; Rhodes 1991; U.S. Sentencing Commission 1991) of the differential effect of these variables on the probability of imprisonment and length of imprisonment. Heckman’s procedure does not provide such a useful and informative decomposition.

The first tobit equation regresses length of imprisonment on defendant characteristics (ethnicity, gender, education, non-U.S.

citizenship status),⁹ legally relevant variables (final guideline offense level—the vertical axis of the sentencing grid; the total criminal points—the horizontal axis of the grid, type of drug offense, and number of counts),¹⁰ type of disposition (guilty plea or trial), whether there was a sentence departure, and dummy variables controlling for circuit effects. This equation is estimated for the *pooled* group of drug defendants. The dependent variable, length of imprisonment, is transformed by \log_e to reduce positive skewness. Such transformations are not unusual in sentencing research (Wheeler et al. 1982; Weisburd et al. 1991).

I tested hypotheses of the *conditioning* effect of defendant's ethnicity by estimating the above tobit equation separately for black, Hispanic, and white defendants. A comparison of the coefficient estimates for guilty pleas and sentence departures across the three defendant groups will indicate whether the effect of pleading guilty and sentence departures is dependent on the defendant's ethnicity. The multivariate analyses address whether when legally relevant offense information is taken into account, similar defendants are sentenced similarly.

Taken together, the findings from these analyses reveal the extent to which differences in sentence outcomes are the product of differences in legally relevant case characteristics, defendant characteristics, guideline departures, and guilty pleas. Moreover, findings from the analyses show the extent to which sentencing disparity, if found, is the outcome of a more complex sentencing process that involves a conditioning effect of defendant ethnicity on the relationship between legally relevant case information and sentence severity.

Findings

Table 1 provides the coding and descriptive statistics for the variables included in the analyses of length of imprisonment for offenders convicted of either drug trafficking or simple possession. Findings reported in Table 1 indicate that the mean length of imprisonment for the pooled offender group, (excluding left-censored cases) is 84.33 months (s.d. = 79.44 months). Of particular interest to the issue of sentence disparity based on defendant characteristics are the substantial differences in mean length of imprisonment across black, white, and Hispanic defendants.

⁹ Preliminary multivariate findings indicate that defendant's age, income, and number of dependents did not significantly affect sentence severity for the pooled defendant group or for any of the ethnicity specific groups. As a result, these variables were excluded from the analysis.

¹⁰ Again, preliminary analysis indicated that maximum length of imprisonment under the guidelines did not significantly affect sentence severity in any of the four tobit equations. This variable was excluded from the analysis. In addition, since type of drug used in the offense is one of the factors included in calculating the guideline offense level (see U.S. Sentencing Commission 1989), this variable was also excluded from the analysis.

Table 1. Descriptive Statistics and Coding for Variables Included in the Length of Imprisonment Model for Federal Drug Offenses, 1991–1992
A. Percentage Values

Variables	Coding	Pooled Group (<i>N</i> = 14,189)	Black (<i>N</i> = 4,548)	White (<i>N</i> = 5,345)	Hispanic (<i>N</i> = 4,296)
Independent variables:					
Hispanic (X_1)	1 = Hispanic 0 = Other	31%			
Black ^a (X_2)	1 = Black 0 = Other	69			
Gender (X_3)	1 = Female 0 = Male	68	14%	13%	10%
Education (X_4)	1 = At least high school 0 = Less than high school	88	86	87	90
Noncitizen (X_5)	1 = Not U.S. citizen 0 = U.S. citizen	53	55	67	35
Plea (X_6)	1 = Guilty 0 = Not guilty	47	45	33	65
Type of drug offense (X_9)	1 = Simple possession 0 = Trafficking	29	17	5	70
Departure (X_{11})	1 = Sentence departs from guidelines 0 = Sentence does not depart	71	83	95	30
Circuits					
Circuit 0 ^b	District of Columbia	82	76	86	84
Circuit 1 (X_{12})	ME, MA, NH, RI, PR	18	24	14	16
Circuit 2 (X_{13})	CT, NY, VT	5	4	6	6
Circuit 3 (X_{14})	DE, NJ, PA, VA, VI	95	96	94	94
Circuit 4 (X_{15})	MD, NC, SC, VA, WV	31	28	36	28
Circuit 5 (X_{16})	LA, MS, TX	69	72	64	72
Circuit 6 (X_{17})	KY, MI, OH, TN	2	6	1	1
		3	2	2	5
		9	11	5	11
		5	6	5	5
		12	20	13	2
		14	8	11	24
		8	13	10	2

Table 1. Continued

Variables	Coding	Pooled Group (<i>N</i> = 14,189)	Black (<i>N</i> = 4,548)	White (<i>N</i> = 5,345)	Hispanic (<i>N</i> = 4,296)
Circuit 7 (<i>X</i> ₁₈)	IL, IN, WI	5	5	5	4
Circuit 8 (<i>X</i> ₁₉)	AR, IA, MN, MO, NB, ND, SD	6	6	9	2
Circuit 9 (<i>X</i> ₂₀)	AZ, CA, HI, ID, MT, NV, OR, AK, WA, Guam, N. Mariana Islands	17	4	18	28
Circuit 10 (<i>X</i> ₂₁)	CO, KS, NM, OK, UT, WY	4	2	5	5
Circuit 11 (<i>X</i> ₂₂)	AL, FL, GA	15	17	16	11

^a Reference category is white.

^b Reference category is Washington, DC.

B. Mean Values

Variables	Coding	Pooled Group (<i>N</i> = 14,189) Mean (s.d.)	Black (<i>N</i> = 4,548) Mean (s.d.)	White (<i>N</i> = 5,345) Mean (s.d.)	Hispanic (<i>N</i> = 4,296) Mean (s.d.)
Independent variables:					
Guideline offense level (<i>X</i> ₇)	Final offense level	24.21 (9.19)	26.09 (8.80)	24.21 (9.19)	24.53 (8.59)
Criminal history points (<i>X</i> ₈)		2.19 (3.52)	3.04 (4.09)	2.19 (3.53)	1.40 (2.74)
No. of counts (<i>X</i> ₁₀)	Convicted counts	1.51 (1.08)	1.62 (1.19)	1.50 (1.08)	1.44 (0.87)
Dependent variable:					
Sentence severity (<i>Y</i>)	Length of imprisonment	84.33 ^a (79.44)	101.97 ^a (88.49)	72.45 ^a (68.55)	79.58 ^a (78.12)

^a Mean and standard deviations reported as actual value for uncensored sentences. If censored cases (0 length of imprisonment) are included, for pooled defendants, mean = 76.49, s.d. = 79.53; for black defendants, mean = 95.99, s.d. = 89.13; mean for whites = 61.65, s.d. = 68.14; mean for Hispanics = 74.98, s.d. = 78.07.

Table 1 indicates that black defendants have the highest mean length of imprisonment ($\bar{X} = 101.97$, s.d. = 88.49) and white and Hispanic defendants have similar and substantially lower means ($\bar{X} = 72.45$, s.d. = 68.55, and $\bar{X} = 79.58$, s.d. = 78.12, respectively). The large discrepancy in mean length of imprisonment between black defendants, on one hand, and white and Hispanic defendants, on the other, suggests that sentencing is influenced by defendant's ethnicity. The multivariate analyses examine this concern by controlling for the effects of legally relevant guideline variables, guilty pleas, departures, type of drug offense, and other defendant characteristics on sentencing outcomes.

Table 1 indicates that the highest percentage of defendants were convicted of drug trafficking (95%), and the mean guideline offense level for the pooled group is 24.21 (s.d. = 9.19). Little difference in this variable is evidenced across the three defendant groups. The mean for criminal history points for the pooled defendant group is 2.19 (s.d. = 3.52). Table 1 also indicates variation in this variable across the three defendant groups. Black defendants have the highest mean for criminal history points ($\bar{X} = 3.04$, s.d. = 4.09) and Hispanic defendants have the lowest mean value ($\bar{X} = 1.4$; s.d. = 2.74). For white defendants the mean for criminal history points is 2.19 (s.d. = 3.53). According to the structure of the guidelines, the total number of criminal history points (a measure of prior criminal involvement) is directly related to location on the sentencing grid that determines sentence outcomes.

Table 1 indicates that 82% of the drug offenders plead guilty, with black defendants having the lowest percentage of guilty pleas (76%) of the three defendant groups. Of the pooled drug offenders, 31% received a sentence departure from the guidelines. Examining the percentages across the three defendant groups indicates that white defendants received the highest percentage (36%) of departures, with black and Hispanic offenders each receiving 28%.

In the pooled defendant group, the largest percentage of offenders are male with U.S. citizenship and with at least a high school education. The defendants are about evenly split across the three ethnic groups. Finally, note that Circuit 9 (17%), Circuit 11 (15%), Circuit 5 (14%), and Circuit 4 (12%) contribute 58% of the drug cases during 1991–92.

Table 2 provides the bivariate correlation matrix for the variables included in the tobit equations. From Table 2 we observe that guideline offense level and type of drug offense have the two highest correlations with length of imprisonment. In general, findings from Table 2 are consistent with expectations. Finally,

Table 2. Correlation Matrix for Variables Included in the Length of Imprisonment Model for Federal Drug Cases, 1991–1992

	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁	X ₁₂	X ₁₃	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₁₈	X ₁₉	X ₂₀	X ₂₁	X ₂₂	
X ₂	-.45																						
X ₃	-.06	.04																					
X ₄	-.24	.02	.02																				
X ₅	.61	-.18	-.07	-.19																			
X ₆	.02	.13	-.10	.03	.01	-.01																	
X ₇	.02	.13	-.10	-.00	.06	.06	.07																
X ₈	-.15	.16	-.11	-.05	-.20	-.02	.07	-.44															
X ₉	-.04	-.02	.07	.03	-.05	.06	-.02	-.02	-.02														
X ₁₀	-.04	.06	-.04	.00	-.03	-.37	.19	.05	-.08														
X ₁₁	-.04	-.04	.04	.04	-.04	.24	.18	.01	-.12	-.12													
X ₁₂	.09	-.06	.00	.02	.01	.01	.02	-.03	.07	.07	-.04												
X ₁₃	.06	.04	.03	.01	.17	.07	-.02	-.08	-.03	-.07	.02	-.05											
X ₁₄	-.01	.02	-.05	.01	-.05	.01	.04	.01	-.00	.06	.10	-.05	-.07										
X ₁₅	-.20	.17	-.16	.03	-.16	.03	-.03	.06	.01	-.01	.00	-.07	-.11	-.09									
X ₁₆	.21	-.12	.08	-.09	.08	.02	-.04	.02	-.02	-.05	-.07	-.08	-.12	-.10	-.15								
X ₁₇	-.16	.12	-.14	.03	-.14	-.02	-.03	.03	.00	.04	-.01	-.06	-.09	-.08	-.11	-.13							
X ₁₈	-.10	.00	-.04	.01	-.04	-.01	.01	-.00	-.01	.00	.03	-.04	-.07	-.06	-.09	-.10	-.07						
X ₁₉	.20	-.23	-.02	-.05	.20	.04	-.05	-.04	.06	.03	.07	-.08	-.12	-.10	-.15	-.17	-.13	-.06					
X ₂₀	.02	-.08	-.00	-.02	.02	-.00	-.07	-.02	-.00	-.02	-.03	-.04	-.06	-.05	-.08	-.09	-.07	-.05	-.10				
X ₂₁	-.07	.04	.01	.05	.01	-.08	.18	-.02	-.03	.05	-.03	-.08	-.13	-.11	-.16	-.18	-.13	-.10	-.11	-.18	-.09		
X ₂₂	.05	.15	-.18	-.06	.08	-.32	.77	.21	-.43	.25	-.17	.02	-.04	-.03	.03	-.03	-.00	.03	-.02	-.08	-.04	.15	

Table 3. Unstandardized Coefficient Estimates (Standard Errors) for Variables Included in the Tobit Model of Sentencing for Drug Offenders under the Federal Sentencing Guidelines, 1991–1992 ($N = 14,189$)^a

Variables	Estimates (1)	Decomposition of Tobit Estimates ^b	
		Effect on Length of Imprisonment (2)	Effect on Probability of Imprisonment (3)
Hispanic (X_1)	.09** (.02)	.06	.02
Black (X_2)	.14** (.02)	.11	.03
Gender (X_3)	-.31** (.02)	-.23	-.06
Education (X_4)	-.07** (.01)	-.05	-.01
Noncitizen (X_5)	.11** (.02)	.08	.02
Guilty plea (X_6)	-.08** (.02)	-.06	-.02
Guideline offense level (X_7)	.12** (.00)	.09	.02
Criminal history points (X_8)	.07** (.00)	.05	.01
Type of drug offense (X_9)	-1.38** (.05)	-1.02	-.27
No. of counts (X_{10})	.07** (.01)	.05	.01
Departure (X_{11})	-.93** (.02)	-.69	-.17
Circuit 1 (X_{12})	.12* (.06)	.09	.02
Circuit 2 (X_{13})	.08 (.05)	—	—
Circuit 3 (X_{14})	-.05 (.05)	—	—
Circuit 4 (X_{15})	.09 (.05)	—	—
Circuit 5 (X_{16})	.27** (.05)	.20	.05
Circuit 6 (X_{16})	.23** (.05)	.17	.04
Circuit 7 (X_{18})	.35** (.05)	.26	.07
Circuit 8 (X_{19})	.15* (.05)	.11	.03
Circuit 9 (X_{20})	.11* (.05)	.08	.02
Circuit 10 (X_{21})	.18* (.05)	.13	.04
Circuit 11 (X_{22})	.16** (.05)	.12	.03
Intercept	.76** (.06)	.56	.15
-Log likelihood = 17,091.72		Model $\chi^2 = 18,188.34$, d.f. = 22, p = .000	Pseudo $R^2 = .34$

^a No. of uncensored values = 12,979; no. of left-censored values = 1,210

^b Reported for statistically significant tobit estimates.

* Coefficient estimate significant $.01 < p \leq .05$.

** Coefficient estimate significant $p \leq .001$.

an examination of the correlation matrix reveals no evidence of collinearity among the independent variables.¹¹

Direct Effects

Table 3 provides the tobit coefficients, their standard errors, and the decomposition of the tobit estimates. The tobit coefficient summarizes the effect of an independent variable on the length of imprisonment and the change in probability of imprisonment for defendants who did not receive a prison decision (McDonald & Moffitt 1980). Table 3 indicates that the variables significantly affecting sentence outcomes are the type of offense (simple possession compared with drug trafficking), guideline departures, defendant's gender, being a black defendant, guide-

¹¹ In addition, STATA (State Statistical Software) Release 4.0 (1995) automatically eliminates a variable that is collinear.

line offense level, criminal history points, defendant's non-U.S. citizenship, and some of the circuit dummy variables. A conviction for simple possession, compared with one for drug trafficking, and a departure from the guideline grid significantly decreases sentence severity. The tobit estimates for type of offense and guideline departures are $b = -1.38$ ($p \leq .001$) and $b = -.93$ ($p \leq .001$), respectively. Decomposing the tobit estimate for the departure variable reveals a substantial decrease in the log length of imprisonment ($b = -.69$) for defendants receiving a prison sentence and a substantial reduction of 17% in the probability of imprisonment for defendants who received a nonincarceration sentence. Decomposing the tobit estimate for type of offense reveals that being convicted of simple possession, compared with being convicted for drug trafficking, produces a substantial reduction in the length of imprisonment ($b = -1.02$) and a 27% reduction in the probability of imprisonment. Table 3 indicates that guideline departures and type of offense exert the two strongest effects on sentence outcomes under the federal guidelines.

Theoretically, the guidelines constrain judicial discretion over sentencing by excluding defendant characteristics as a legal basis for sentencing, by stipulating the offense characteristics that are relevant to sentencing, and by requiring judges to sentence within a narrow range determined by the intersection on the grid of the final guideline offense level and the defendant's total number of criminal history points. Under the federal guidelines, the vertical axis of the sentencing grid is the final offense level and the horizontal axis is the defendant's total criminal history points, an indicator of prior criminal activity. Except for legal departures from the guidelines, the judge is to impose a sentence that is within the boundaries defined by the intersecting two variables on the sentencing grid. Given the importance of these variables for determining the appropriate sentence range under the guidelines, the observed relatively weak effects of guideline offense level and the defendant's criminal history points are unexpected. However, the guideline offense level effect may well be smaller than expected because the dummy contrast of simple possession with drug trafficking is included in the equation and the latter dimension of the guidelines actually drives the final guideline offense level. The observed bivariate correlation of $-.44$ (Table 2) expresses the structural association between the two variables. Since there is no evidence of collinearity between these two variables, including both in the tobit equation reveals the important structural dimensions of the federal guidelines. Table 3 indicates that both variables increase sentence severity with guideline offense level producing a $b = .12$ ($p \leq .001$) influence and criminal history points exerting a $b = .07$ ($p \leq .001$) effect. Decomposing the tobit coefficient for guideline offense

level reveals that the vertical axis of the guideline grid has a .09 effect on the log length of imprisonment and increases by 2% the probability of imprisonment among defendants who did not receive a prison sentence. The findings in Table 3 indicate that the defendant's criminal history points increase by .05 the log length of imprisonment and increase by only 1% the probability of imprisonment for the defendants receiving a nonincarceration decision.

Early in the reform period, social scientists and legal scholars predicted that under the federal guidelines prosecuting attorneys would control sentencing outcomes through an unbridled power over guilty plea negotiations. Findings in Table 3 indicate a statistically significant but relatively weak effect of guilty pleas ($b = -.08$, $p \leq .001$) on sentence outcomes. Columns (2) and (3) show the results from decomposing the tobit estimate for pleading guilty compared with a trial disposition. For defendants receiving a prison sentence, pleading guilty reduced ($b = -.06$) the log length of imprisonment. For defendants who were not sentenced to prison, pleading guilty produces a 2% reduction in the probability of imprisonment. These findings taken together with those indicating the effect of guideline departures suggest that judges continue to maintain substantial control over sentencing through the guideline departure provision.

Turn now to the effects of defendant characteristics on sentence severity under the federal guidelines. Table 3 reports findings consistent with the uncertainty avoidance/causal attribution perspective (Albonetti 1991). The strong to moderate effect of defendant's gender ($b = -.31$, $p \leq .001$) and the effect of being black, compared with being white ($b = .14$, $p \leq .001$), indicates that defendant characteristics do exert a nontrivial effect on sentencing. Decomposing the effect of gender reveals that female defendants, compared with male defendants, receive substantially ($b = -.23$) shorter periods of imprisonment. In addition, column (3) of Table 3 indicates that being female results in a 6% reduction in the probability of imprisonment for defendants receiving a nonimprisonment outcome. These results are obtained with controls for all guideline-defined legally relevant case information, process-related variables, and federal circuit differences in sentencing practices. The decomposition of the effect of being black, compared with being white, indicates that black defendants receive longer ($b = .11$) sentences among the defendants sentenced to prison and that being black, compared with being white, increased by 3% the probability of imprisonment for defendants who did not receive an incarceration sentence. This finding is consistent with the uncertainty avoidance/causal attribution in punishment perspective.

Table 3 further reveals that Hispanic defendants and non-citizens receive more severe sentences ($b = .09$, $p \leq .001$; $b = .11$, p

$\leq .001$, respectively). Decomposing the effect for the contrast between Hispanic and white defendants reveals that being a Hispanic defendant increases ($b = .06$) the log length of imprisonment for defendants receiving an incarceration sentence and increases by 2% the probability of imprisonment for Hispanic defendants sentenced to a nonincarceration outcome. Taken together, these findings indicate that defendants in these two minority groups receive harsher sentences than similarly situated white defendants. Furthermore, defendants who are not U.S. citizens receive significantly more severe sentence outcomes ($b = .11$, $p \leq .001$) than defendants who are U.S. citizens. Decomposing the tobit coefficient indicates a .08 effect on log length of imprisonment and a 2% increase in the probability of imprisonment for defendants who were not incarcerated. Again, it is important to note that under the federal sentencing guidelines these two defendant characteristics are stipulated as irrelevant to sentences.

Also contrary to the federal guidelines is the statistically significant influence ($b = -.07$, $p \leq .001$) of defendant's education on sentence outcomes. Decomposing the tobit effect indicates that defendants with at least a high school education, compared with those without a high school education, receive shorter ($b = -.05$) periods of incarceration. In addition, for defendants receiving a nonincarceration sentence, having a high school education is associated with a 1% reduction in the probability of imprisonment. A similar magnitude of effect ($b = .07$, $p \leq .001$) is associated with the number of counts on which the defendant was convicted. However, increases in this variable produce an increase in the log length of imprisonment ($b = .05$) and a 1% increase in the probability of imprisonment for those not incarcerated.

Finally, Table 3 indicates that 8 of the 11 circuit effects are significant. Compared with practices in the District of Columbia, sentencing of drug defendants in each of these circuits is more severe. These findings indicate substantial circuit-specific sentencing outcomes.

Interaction Effects

Attention now turns to examining the potential mediating influence of defendant's ethnicity in the relationship between guideline-defined legally relevant variables, process variables, and other defendant characteristics and sentence severity. Table 4 provides the tobit coefficients, their standard errors, and the decomposition of significant tobit coefficients estimated separately for white, black, and Hispanic defendants convicted of either simple possession or drug trafficking. It also provides the

Table 4. Unstandardized Coefficient (Standard Errors) and Decomposition of Effects^a for Variables Included in the Tobit Model of Sentencing for Drug Offenders under the Federal Sentencing Guidelines, 1991–1992, Estimated Separately by Ethnicity

Variables	Black ^b			White ^b			Hispanic ^b		
	Est. (S.E.)	Length of Imprisonment	Prob. of Imprisonment	Est. (S.E.)	Length of Imprisonment	Prob. of Imprisonment	Est. (S.E.)	Length of Imprisonment	Prob. of Imprisonment
	Gender (X_1)	-0.34** (.03)	-0.27	-0.05	-0.36** (.04)	-0.24	-0.08	-0.24** (.04)	-0.19
Education (X_2)	-0.05** (.02)	-0.04	-0.01	-0.12** (.02)	-0.08	-0.03	-0.03	—	—
Noncitizen (X_3)	0.14** (.03)	.11	.02	0.13 (.07)	—	—	0.10** (.02)	0.08	0.02
Guilty plea (X_4)	-0.08* (.03)	-0.06	-0.01	-0.09* (.04)	-0.05	-0.02	-0.10** (.03)	-0.08	-0.02
Guideline offense level (X_5)	0.11** (.01)	.09	.02	0.14** (.011)	0.09	.03	0.11** (.01)	0.09	0.02
Criminal history points (X_6)	0.06** (.01)	.05	.01	0.08** (.01)	0.05	.02	0.06** (.01)	0.06	0.01
Type of drug offense (X_7)	-1.24** (.07)	-1.00	-0.18	-1.64** (.09)	-1.06	-0.38	-1.34** (.07)	-1.09	-0.21
No. of counts (X_{10})	0.08** (.01)	0.06	0.01	0.07** (.01)	0.05	0.02	0.06** (.01)	0.05	0.01
Departure (X_{11})	-0.92** (.03)	-0.74	-0.13	-1.00** (.03)	-0.66	-0.23	-0.87** (.02)	-0.71	-0.14
Circuit 1 (X_{12})	-0.11 (.09)	—	—	0.68* (.35)	—	—	0.01 (.17)	—	—
Circuit 2 (X_{13})	0.08 (.06)	—	—	0.61 (.35)	—	—	-0.12 (.17)	—	—
Circuit 3 (X_{14})	0.07 (.06)	—	—	0.39 (.34)	—	—	-0.07 (.18)	—	—
Circuit 4 (X_{15})	0.17** (.05)	0.14	0.02	0.55 (.34)	—	—	-0.03 (.19)	—	—
Circuit 5 (X_{16})	0.21** (.05)	0.17	0.03	0.86* (.34)	0.57	0.20	0.07 (.17)	—	—
Circuit 6 (X_{17})	0.23** (.05)	0.19	0.03	0.76* (.34)	0.51	0.18	0.14 (.19)	—	—
Circuit 7 (X_{18})	0.28** (.06)	0.23	0.04	0.88* (.34)	0.56	0.20	0.18 (.18)	—	—
Circuit 8 (X_{19})	0.16* (.06)	0.13	0.02	0.67* (.34)	0.45	0.16	-0.06 (.18)	—	—
Circuit 9 (X_{20})	0.08 (.07)	—	—	0.58 (.34)	—	—	-0.04 (.17)	—	—
Circuit 10 (X_{21})	0.35** (.08)	0.28	0.05	0.69* (.34)	0.46	0.16	-0.08 (.18)	—	—
Circuit 11 (X_{22})	0.25** (.05)	0.20	0.04	0.58 (.34)	—	—	0.07 (.18)	—	—
Intercept	1.23** (.06)	—	—	-0.07 (.35)	—	—	1.30 (.18)	—	—
					-Log likelihood = 5,088.74	-Log likelihood = 7,111.71		-Log likelihood = 4,328.1	
					Model $\chi^2 = 5,738.89, p = .000$	Model $\chi^2 = 6,551.60, p = .000$		Model $\chi^2 = 5,826.28, p = .000$	
					Pseudo $R^2 = .36$	Pseudo $R^2 = .31$		Pseudo $R^2 = .40$	

^a Provided for significant coefficients.
^b For black defendants, no. of left-censored observations = 250, no. of uncensored observations = 4,298; for white defendants, no. of left-censored observations = 755, no. of uncensored observations = 4,590; for Hispanic defendants, no. left-censored observations = 205, no. of uncensored observations = 4,091.
 * Estimates significant at .01 < p ≤ .05. ** Estimate significant at p ≤ .001.

Table 5. z-Values for Test^a of Differences in Regression Estimates across Defendant's Ethnicity

Variables	Black Defendants Compared with White Defendants (1)	Black Defendants Compared with Hispanic Defendants (2)	Hispanic Defendants Compared with White Defendants (3)
Gender (X_3)	0.40	2.00*	2.14*
Education (X_4)	2.50**	0.71	3.21**
Noncitizen (X_5)	0.13	1.11	0.43
Guilty plea (X_6)	0.20	0.48	0.20
Guideline offense level (X_7)	21.43**	0.00	21.43**
Criminal history points (X_8)	14.29**	0.00	14.29**
Type of drug offense (X_9)	3.51**	1.02	2.63**
No. of counts (X_{10})	0.71	1.42	1.00
Departure (X_{11})	2.00*	1.39	3.61**
Circuit 1 (X_{12})	2.19*	0.63	1.72
Circuit 2 (X_{13})	1.47	1.11	1.88
Circuit 3 (X_{14})	1.06	0.74	1.19
Circuit 4 (X_{15})	1.12	1.02	1.49
Circuit 5 (X_{16})	1.91	0.79	2.08*
Circuit 6 (X_{17})	1.56	0.50	1.59
Circuit 7 (X_{18})	1.74	0.53	1.82
Circuit 8 (X_{19})	1.48	1.16	1.90
Circuit 9 (X_{20})	1.44	0.67	1.63
Circuit 10 (X_{21})	0.97	2.18*	2.00*
Circuit 11 (X_{22})	0.97	0.96	1.32

^a z-values reported as absolute values.

* z-values significant at $.01 < p \leq .05$ (two-tailed test).

** z-values significant at $p \leq .01$ (two-tailed test).

z-values¹² and significance levels testing the null hypothesis that the regression coefficients are *invariant* across defendant's ethnicity.

For legally relevant variables, several observations are important to note. Regardless of defendant's ethnicity, the variables guideline offense level, type of drug offense, and defendant's criminal history points produced statistically significant effects on sentence outcomes. Table 4 indicates that the effect of final guideline offense level and defendant's criminal history points are the same for black and Hispanic defendants. The nonsignificant z-values in Table 5 (col. (2)) for these two variables confirm this observation. For black and Hispanic defendants, the tobit estimate is $b = .11$ ($p \leq .001$) and the decomposition effects are .09 on the log length of imprisonment and a 2% increase in the probability of incarceration. However, for white defendants, the effect of the final guideline offense level on sentence outcomes is $b = .14$ ($p \leq .001$). Decomposing this effect reveals that final guideline offense level produces a .09 increase in the log length

¹² The formula used to test the null hypothesis of invariance across defendant groups is given by Clogg, Petkova, & Haritou (1995:1276):

$$z = (\beta_1 - \beta_2) / [s^2(\beta_1) + s^2(\beta_2)]^{1/2}.$$

I am grateful to Raymond Paternoster for suggesting this formula rather than the frequently used *t*-test.

of imprisonment and a 3% increase in the probability of incarceration for offenders receiving a nonincarceration sentence. Table 5's columns (1) and (3) indicate significant z -values for the comparison of each of the minority ethnic groups with white defendants. The z -value of 21.43 indicates that the effect of guideline offense level on sentence severity among drug offenders significantly differs for black defendants compared with the effect for white defendants and for Hispanic defendants compared with the effect for white defendants. Compared with minority defendants, white defendants receive longer imprisonment periods and experience a somewhat higher probability of incarceration associated with the final guideline offense level.

A similar ethnic-specific relationship is found between the effect of the defendant's criminal history points and sentence outcomes. For minority defendants, the tobit estimate for the defendant's criminal history points is $b = .06$ ($p \leq .001$). Decomposing the respective effects indicates similar findings. Increases in the defendant's criminal history points produces a .05 increase in the log length of imprisonment for black defendants and a .06 increase for Hispanic defendants. For black defendants and for Hispanic defendants who received a nonincarceration sentence, criminal history points increases by 1% the probability of imprisonment. For white defendants the tobit estimate for defendant's criminal history points is higher ($b = .08$, $p \leq .001$). Although the z -values (Table 5) indicate that the effect of criminal history points on sentence severity is conditioned by defendant's ethnicity, note that the decomposition of the tobit estimate for the number of criminal history points among white defendants produces only a slightly higher probability of imprisonment and a similar effect on the length of imprisonment. Furthermore, column (2) of Table 5 indicates that the effect of criminal history points for black defendants is similar to that for Hispanic defendants. Taken together, these findings reveal that the effect of these two key legally relevant variables on sentence outcomes varies in the comparison between minority and white defendants but not in the comparison between minority groups.

Table 4 indicates that the effect of type of offense on sentence outcomes varies by defendant's ethnicity. Specifically, the strongest tobit estimate ($b = -1.64$, $p \leq .001$) is found for white defendants. Decomposing this estimate reveals that for white defendants who receive a prison sentence, a conviction for simple possession, compared with a conviction for drug trafficking, produces a -1.06 effect of the log length of imprisonment. For white defendants who were not incarcerated, a conviction for simple possession results in a 38% decrease in the probability of imprisonment. For Hispanic defendants who receive a prison outcome, being convicted of simple possession, compared with being convicted of drug trafficking, produces a significant effect ($b = -1.34$,

$p \leq .001$). For black defendants who received an incarceration sentence, the effect is $b = -1.24$ ($p \leq .0001$). Decomposing the tobit estimates for the two minority defendant groups indicates that for black defendants being convicted of simple possession, compared with being convicted of drug trafficking, produces a -1.00 affect on the log length of imprisonment and for Hispanic defendants a -1.09 effect. For black defendants who received a nonincarceration sentence, the probability of imprisonment associated with simple possession is a 18% reduction. A stronger reduction in probability (21%) is observed for similarly situated Hispanic defendants. The z -values reported in columns (1) and (3) of Table 5 reveal that the observed difference in the effect of type of offense on sentence severity differs significantly for black defendants and white defendants. However, column (2) of Table 5 indicates that the effect of type of drug offense is invariant for black defendants compared with Hispanic defendants. These findings reveal that this legally relevant variable produces the same pattern of findings as those found for the effect on sentence severity of guideline offense level and criminal history points.

As Table 4 indicates, the effect of guideline departures on sentence outcomes varies by defendant's ethnicity, with white defendants receiving the largest benefit ($b = -1.00$, $p \leq .001$) and Hispanic defendants receiving the least benefit ($b = -.87$, $p \leq .001$). Among white defendants who were sentenced to prison, a guideline departure resulted in a substantial ($b = -.66$) decrease in the log length of imprisonment. For white defendants who were sentenced to a nonincarceration sentence, a guideline departure is associated with a 23% reduction in the probability of imprisonment. However, for black defendants the tobit estimate is substantially smaller in effect ($b = -.92$, $p \leq .001$). Decomposing the tobit estimate reveals that for black defendants who were sentenced to prison, a guideline departure is associated with a shorter length of imprisonment ($b = -.74$) than for white defendants. In addition, Table 4 indicates that departures from the guidelines produce a smaller reduction in the probability of imprisonment for black defendants compared with similarly situated white defendants. Specifically, for black defendants who were not incarcerated, a guideline departure results in a 13% reduction in the probability of imprisonment. For Hispanic defendants the findings are similar to those observed for black defendants. The tobit estimate of the effect of a guideline departure on sentence outcomes is $b = -.87$ ($p \leq .001$). Decomposing this effect indicates that a guideline departure results in a $-.71$ effect on the log length of imprisonment for Hispanic defendants who received a prison sentence. For Hispanic defendants receiving a nonincarceration sentence, a guideline departure is associated with a 14% reduction in the probability of

imprisonment. These findings indicate that guideline departures produce the largest percentage reduction in the probability of imprisonment for white defendants. The z -values reported in columns (1) and (3) of Table 5 confirm the observation that the effect of departures on sentence severity varies significantly for black and Hispanic defendants, compared with the effect for white defendants. Furthermore, column (2) of Table 5 reveals that the effect of departures is invariant for black defendants compared with the effect for Hispanic defendants.

Table 4 also indicates that the effect of pleading guilty, compared with a trial disposition, is similar across defendant's ethnicity. Although the tobit estimates are similar, it is noteworthy that black defendants receive the least ($b = -.08$, $.05 < p \leq .01$) benefit from a guilty plea and Hispanic defendants receive the largest benefit ($b = -.10$, $p \leq .001$). Decomposing the tobit estimates reveals similar findings of the effect of guilty plea on length of imprisonment and on the probability of imprisonment across ethnicity. The nonsignificant z -values reported in Table 5 for the effect of guilty plea on sentence severity confirms the observation that this effect does not differ significantly across the three defendant groups.

Do the effects of defendant's gender, education, and citizenship on sentence outcomes vary across defendant's ethnicity? Table 4 provides findings of further sentencing disparity tied to legally *irrelevant* variables. For black defendants and white defendants, the tobit estimate for gender is similar, $b = -.34$ ($p \leq .001$) and $b = -.36$ ($p \leq .001$), respectively. Decomposing the tobit estimates for gender for each of the groups reveals that for black defendants, being female produces a shorter term of imprisonment than it does for similarly situated white female defendants. The decomposed gender estimate for black defendants is $-.27$ and for white defendants is $-.24$. However, among white defendants, being female produces a greater reduction in the probability of an incarceration ($-.08$), compared with the effect among black defendants ($-.05$). Furthermore, Table 4 indicates that for Hispanic defendants the effect of gender is nonsignificant. The z -values in Table 5 confirm these observations. The comparison of black defendants with Hispanic defendants and of Hispanic defendants with white defendants reveals that the effects of gender on sentence severity differ significantly. However, Table 5 indicates that the gender effect is invariant for black defendants compared with white defendants.

The tobit estimate for the effect of education on sentence outcomes is significant for black defendants and white defendants only. Findings in Table 5 indicate that the tobit estimate for education varies across these two groups. Table 4 reports that the largest inverse effect of having at least a high school education, compared with having less than a high school education, is found

for white defendants ($b = -.12, p \leq .001$). For black defendants the tobit estimate is $b = -.05$ ($.01 < p \leq .05$). Decomposing the respective tobit estimates reveals that white defendants receive twice ($-.08$ compared with $-.04$) the reduction in the log length of imprisonment that black defendants receive due to educational attainment. Furthermore, for white defendants who received a nonincarceration sentence, having at least a high school education is associated with a 3% reduction in the probability of imprisonment, compared with a 1% reduction in probability for black defendants. The z -values reported in columns (1) and (3) of Table 5 indicate that these differences in the effect of education on sentence severity are significant, and in column (2) that the education effect is invariant for black defendants compared with Hispanic defendants. Taken together, these findings suggest that ethnicity conditions the effect of defendant's education on length of incarceration and the probability of incarceration in favor of white defendants.

I now turn to the issue of whether the effect on sentence outcomes of being a noncitizen varies by defendant's ethnicity. For white defendants, the effect of citizenship status is unrelated to sentence severity. However, this is not true for minority defendants. For blacks and for Hispanics, being a noncitizen significantly increases sentence severity. Table 4 indicates a higher coefficient ($b = .14, p \leq .001$) for black defendants, compared with Hispanic defendants ($b = .10, p \leq .001$). However, column (2) of Table 5 indicates that this difference is nonsignificant. Decomposing the effect of noncitizenship reveals that among black defendants who receive a prison sentence, being a noncitizen results in a .11 increase in the log length of incarceration. Decomposing the effect of noncitizenship for Hispanic defendants produces an increase (.08) in the log length of incarceration for those receiving a prison sentence. For both minority groups, noncitizenship yields a 2% increase in the probability of imprisonment. Again, findings from Table 4 reveal that legally *irrelevant* defendant characteristics affect sentencing under the federal guidelines.

Finally, Table 4 indicates differences in several of the circuit effects on sentence outcomes across the three defendant groups. Following Rhodes (1991) and Ulmer & Kramer (1996), I have included dummy variables in the model to capture broad regional differences in sentencing practices. The findings reported in Table 4 show that for Hispanic defendants, none of the 11 circuit contrasts with the District of Columbia produce a significant influence on sentence severity. However, the tobit coefficients reveal significant circuit-specific sentencing practices for black defendants and for white defendants. Specifically, for black defendants and for white defendants, Circuit 5 (Louisiana, Mississippi, Texas), Circuit 6 (Kentucky, Michigan, Ohio, Tennes-

see), Circuit 7 (Illinois, Indiana, Wisconsin), Circuit 8 (Arizona, Iowa, Minnesota, Missouri, Nebraska, North Dakota, South Dakota), and Circuit 10 (Colorado, Kansas, New Mexico, Oklahoma, Utah, Wyoming) impose more severe sentences than Circuit 0 (District of Columbia), the reference category. The z -values in column (1) of Table 5 indicate that these circuit-specific effects do not significantly differ for blacks compared with whites. The z -value of 2.19 ($.01 < p \leq .05$) indicates that the sentences imposed in Circuit 1, compared with those in the District of Columbia, are significantly greater for white defendants than for black defendants. Table 5 also shows that for only white defendants, Circuit 1 (Maine, Massachusetts, New Hampshire, Rhode Island, Puerto Rico) sentences more severely than does the District of Columbia. For black defendants, Table 5 indicates that Circuit 4 (Maryland, North Carolina, South Carolina, Virginia, West Virginia) sentences more harshly than the reference category. Column (2) of Table 5 further reveals that only the effect for Circuit 10, compared with that for the District of Columbia, varies across the two minority groups. Specifically, the findings indicate that black defendants are more severely sentenced than Hispanic defendants. Two additional ethnic-specific circuit effects are noteworthy. Column (3) of Table 5 reports that significantly harsher sentences are imposed for white defendants than for Hispanic defendants in Circuits 5 and 10, compared with the reference category. In general, the small number of significant ethnic-specific effects for the 11-circuit contrast suggests that the primary effect of circuits on sentence outcomes is direct and largely affects black and white defendants.

Summary and Conclusion

This research addresses three questions that are central to the manifest function of the federal sentencing guidelines, namely, the elimination of sentence disparity based on defendant characteristics. First, do defendant characteristics significantly influence sentence severity? Second, is there empirical evidence that guilty pleas and guideline departures, two mechanisms through which the goal of sentence uniformity can be circumvented, significantly affect sentence outcomes? Third, does the defendant's ethnicity condition the effects of guideline-defined legally relevant variables, processing variables, and other defendant characteristics on sentence severity?

Using data on 14,189 defendants convicted of drug offenses and a multivariate procedure that correctly estimates models for left-censored data, this study analyzed the direct effects of defendant characteristics (ethnicity, gender, education, and citizenship status), guideline-stipulated legally relevant variables (guideline offense level, type of drug offense, criminal history points,

number of counts), and processing variables (guilty pleas and guideline departures) on length of imprisonment and the probability of incarceration.

In line with labeling theory and the uncertainty avoidance/causal attribution in punishment perspective, I found that defendant's gender, ethnicity, education, and citizenship status exert significant *direct* effects on sentence outcomes when guideline-defined legally relevant variables and processing variables are controlled for. Specifically, female defendants receive less severe sentences than similarly situated male defendants. Furthermore, judges impose significantly more severe sentences on defendants who are not U.S. citizens and on defendants who are black or Hispanic. Defendants with at least a high school education receive less severe sentences than defendants who did not complete high school. These findings reveal that guideline-defined irrelevant defendant characteristics affect sentence outcomes for defendants convicted of a drug offense in 1991–92. It is important to note that the type of drug offense (simple possession versus drug trafficking), a guideline-defined legally relevant variable, exerts the strongest influence on length of imprisonment and the probability of imprisonment. This effect is consistent with the offense-based philosophy driving the U.S. Sentencing Commission's development of the federal guidelines. It is also noteworthy that its effect is stronger than either the effect of guideline offense level or the effect of criminal history points, the two dimensions of the sentencing grid.

Regarding the second question, the findings indicate that the second most important variable influencing sentencing is guideline departures. The largest percentage of these departures were judicial decisions to comply with prosecutorial motions based on the defendant having provided substantial assistance to the government in the prosecution of others. Furthermore, the effect of guideline departures on sentence severity is stronger than either the effect of guideline offense level or the effect of the number of criminal history points.

Somewhat surprising is the significant, yet relatively weak, effect of pleading guilty on sentence outcomes. The findings for the two process-related variables suggest that, under the federal sentencing guidelines, judicial discretion to depart from the guidelines, not guilty plea agreements, is the principal mechanism for circumventing the guidelines.

Regarding the third question, findings from the analysis of the conditioning effect of ethnicity reveal sentencing patterns that are to the disadvantage of minority defendants. Consistent with the uncertainty avoidance/causal attribution perspective and labeling theory, the findings indicate that three of the four guidelines-defined legally relevant variables produce more severe sentences for minority defendants than for white defendants.

More specifically, the findings reveal that defendant's ethnicity conditions the effect of guideline offense level, criminal history points, and type of drug offense on sentence outcomes. Moreover, the findings indicate that these three legally relevant variables affect sentencing in similar way for blacks and Hispanics. The significant difference in effect is found in the comparison of minority defendants with white defendants. Increases in guideline offense level and criminal history points differentially disadvantage white defendants, compared with minority defendants. However, being convicted of simple possession, compared with drug trafficking, differentially disadvantages minority defendants, compared with white defendants. The only exception to this pattern is the effect of number of counts on sentencing. For this variable, the differentiation is among minority defendants, with blacks receiving slightly more punitive sentences than Hispanics.

Particularly revealing is the finding of a similar pattern of ethnic-specific effects of guideline departures on sentence severity. Again, the distinguishing ethnic contrast is between minority and majority defendants. Consistent with the uncertainty avoidance/causal attribution in punishment perspective, white defendants receive the greatest advantage from a guideline departure. These findings strongly suggest that the mechanism by which the federal guidelines permit the exercise of discretion operates to the disadvantage of minority defendants. From this analysis it appears that the federal guidelines provision allowing departures for "substantial assistance" and "acceptance of responsibility" facilitate unwarranted sentencing disparity. This finding is consistent with predictions expressed by Tonry (1996) and Gyurci (1994).

Prosecutor-controlled guilty plea negotiations were argued to be the second mechanism through which sentence disparity may be introduced at sentencing. Contrary to Standen (1993), the effect of pleading guilty is invariant across defendant's ethnicity. This finding is consistent with Moore & Miethe's (1986) conclusion that prosecutorial discretion operating in guilty plea arrangements did not contribute to sentence disparity under the Minnesota sentencing guidelines.

Finally, this research indicates that defendant's ethnicity conditions the effect of defendant's gender and education on sentence outcomes. More specifically, white defendants benefit more from their educational achievements than do black and Hispanic defendants. Finally, the analysis indicates that the effect of defendant's citizenship status significantly influences sentence outcomes for black and Hispanic defendants but not for white defendants.

In summary, the findings from this research suggest that the federal sentencing guidelines have not eliminated sentence disparity linked to defendant characteristics for defendants con-

victed of drug offenses in 1991–92. Defendant characteristics defined by the guidelines as irrelevant exert significant influence over sentence outcomes despite reform efforts to tie sentencing to offense-specific conduct and the defendant's record of prior criminal activity. In general, hypotheses derived from the merger of uncertainty avoidance and causal attribution (Albonetti 1991) are empirically supported. Additional research is necessary to uncover the uncertainties of how guideline departures are awarded and the potential intersection of guidelines departures and guilty pleas in the sentencing process.

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