

## Chapter 5

### **Crime Dimension Effects on Sentencing: Methods of Analysis**

#### **Introduction**

As described in Chapter 2, each vignette described an offender and his or her criminal act in some detail. Each criminal act was made up of several dimensions and each offender was also described in some detail. Up to this point, the analyses presented have been focused mainly on the criminal actions. The next three chapters are concerned with how the other elements that were incorporated into the vignettes affected the sentences given by respondents. This chapter discusses the main substantive issues to be addressed and provides a description of the methods used.

Each of the 20 major Crime Types will be taken up separately because each used a set of dimensions that were specific to it. In addition, there was good reason to suspect that the effects of dimensions present in every vignette might affect sentencing preferences differently depending on the kind of crime involved.

#### **Major Substantive Issues**

Beyond describing the impacts of our vignette dimensions crime by crime, there are three broad issues that will be addressed in Chapter 6 through 9. The first is whether there are any generalizations about the ways in which the vignette dimensions affect the sentences given. For example, what is the relative importance of the defendant's background compared to features of the crime? Sentencing responses to immediate features of the crime can be regarded primarily as expressing retribution or just deserts. The responses to features of defendants' backgrounds are relevant to possibilities of corrigibility, or the chances of rehabilitation. An analysis of the impact of our vignette dimensions may help us understand the how a balance is struck between the two theories of punishment in the minds of our respondents.

The second issue is whether motives of deterrence play important roles in preferred sentences. One of the assumptions of a deterrence approach to punishment is that the costs of crime as embodied in punishment should exceed the rewards. Microeconomic theory arrives at the same conclusion. Many of the crimes we will analyze are white collar crimes motivated by economic gain. If deterrence is important to our respondents, the punishments given should increase commensurate with a crime's economic returns.

The third issue is how our respondents translate a defendant's prior record into an appropriate sentence. For two decades, "get tough" legislation introduced at the state and federal levels has been directed at offenders who commit violent crimes and who are recidivists, sometimes called "habitual offenders." In one version, dating back some two decades, the goal was "selective incapacitation." Since a large fraction of serious crimes are committed by a small fraction of offenders, it made sense to forecast which offenders were likely to be especially active as criminals and target them for especially long periods of incarceration. If that strategy is followed by the American citizenry then our data should reflect harsh increments in sentencing for repeat offenders.

## Data Analysis Techniques

To address these and other issues, we will estimate the impact of each dimension of each crime group on the sentences given by respondents. In this respect, the design of this study has special advantages over the analysis of actual cases. In the “real” world, crime dimensions tend to be correlated making it difficult to disentangle their separate effects. For example, in actual cases, male offenders differ from female offenders in the kinds of crimes each commit; illegal drug traffickers who are convicted of dealing in large amounts of drug are likely also to be part of a large organization. In contrast, in the vignettes such crime features are unrelated. Because of the random assignment of levels to vignettes, the dimensions are uncorrelated and the impact of each dimension can be analyzed by itself.

The results of primary interest are sentences respondents gave to the different vignettes. As an analytical matter, however, data reduction is essential since plots of thousands of data points are not likely to be instructive in themselves. The data reduction technique of choice for most work of this kind is some form of least squares regression. In effect, thousands of observations for a given variable can be summarized by conditional means. In our case, the means for sentence length are conditional upon characteristics of the of the vignettes and characteristics of respondents.

However, for reasons given in Chapters 3 and 4, least squares regressions do not work well with datasets with many outlying values, especially when compared to quantile regressions in which the fit is based on conditional medians rather than conditional means. The resulting regression coefficients have their usual meaning except when one speaks of the “average” change in  $y$  for a unit change in  $x$ , although the “average” is the median not the mean.

In addition, we choose to emphasize not the usual table of regression results but boxplots of the predicted sentence lengths. The primary justification for the boxplots is that the usual regression table is not very enlightening for these analyses. First, the interest is in variation in the average sentence length, not the difference between average sentences. That is, it is much more useful to know, say, that a bank robber gets on the average a five year sentence whereas a drug dealer gets an average sentence of fifteen years, than to know only that the drug dealer gets a sentence that is on the average ten years longer than some other crime. Therefore, regression coefficients alone will not suffice. Second, many of the characteristics of the vignettes are represented by dummy variables. It is very difficult to scan a set of regression coefficients for a set of dummy variables and visualize what the pattern of the conditional medians (or means) really is. And it is just in situations such as these that graphs can be very helpful. Accordingly, in the next four chapters, graphs of conditional medians (the predicted values from our quantile regressions) will be used as the primary way to present findings. The visual representation in boxplot form should make the job of drawing conclusions far more simple even for statistically sophisticated readers, but especially for readers less familiar with multiple regression.

The boxplots have approximately the same structure throughout the next four chapters. Predicted medians of respondent sentences constitute the response variable and a single crime group dimension is the explanatory variable. Because dimensions are uncorrelated by design, this dimension by dimension approach can provide unbiased estimates of the effects of each dimension *independent* of the other dimensions used in the vignettes. For example, if a dimension of interest is the amount of cocaine sold, unbiased estimates of the impact of different amounts sold on the sentences given may be obtained ignoring all other dimensions for the drug trafficking crime group (*e.g.*, the use of weapons and the particular role of the offender.) Quantile regression also has the benefit of reducing the impact of respondent sentences that are very different from the mass of the data. Outliers in the  $y$ -direction are given

less weight regardless of their source.

Quantile regression is not without some problems. The linear functional form used produces negative predicted values and negative sentences are clearly meaningless substantively. In effect, the hyperplane is projected below a sentence length of zero. In this dataset, it is unlikely that a few predicted negative sentences can markedly distort the overall story. However, the interpretation is cleaner if negative predicted sentences can be avoided. Consequently, the analyses used applied quantile regression to the log of sentences, with sentences of zero recoded to .0001. In the boxplot presentations, the log values are transformed into the original metric by exponentiation.

The regression tables underlying the boxplots are presented in Appendix D for those who may want to study them.

Finally, the reader may assume that unless otherwise indicated, all results discussed are “statistically significant” in the sense that a null hypothesis of no impact has been rejected.

### **Overview of Findings of Chapter 6 through 9**

Because the analysis of the dimensions used in this study are complicated and numerous, the discussion of them is separated into four chapters, each concerned with similar kinds of crimes. A summary of the findings of those chapter is presented here. There are several salient findings, as follows.

It appears that respondents can handle sensibly vignettes that are multi-dimensional. The sentences they gave responded to variations in the descriptions of the crime, its consequences and the kinds of persons depicted as the convicted felons. By and large, they adjusted median sentences in directions that are consistent with the federal penal code, the guidelines and common sense. In short, there are no truly fundamental schisms between the central tendencies of public opinion and federal sentences. On the broad structure of sentencing, there is considerable consensus, not only on the crimes as shown in Chapter 4 but also in the details included in the several dimensions used to describe each crime.

Nevertheless, there are some very important differences in the details. First, there seems to be little support in public opinion for especially severe sentences for drug trafficking and little support for singling out crack cocaine for special attention. Drug trafficking was treated by the respondents as one of the most severely punished crimes we examined, but the median sentences fell far short of current prescribed levels. Our respondents' median sentence topped out at about 12 years, even for defendants with four prior prison terms. Current law commonly calls for sentences two to four times longer.

In contrast, drug possession was treated as one of the least serious crimes, even possession of crack cocaine, powder cocaine, and heroin. Median sentences were around one year, except for marijuana, for which the median sentence was essentially probation. Clearly, the public is far more interested in punishing the supply side than the demand side.

As a group, street crimes elicit longer median sentences than all other kinds of crimes except drug trafficking, but the interesting message is that the public's main concerns are for personal safety. If a bystander or victim is killed, the median sentences often include life in prison or the death penalty. But if personal safety is not put at risk, median sentences are rather modest compared to current practice, and

somewhat less than the median sentences for drug trafficking. What primarily affects median sentences is whether a victim or bystander is injured or killed. All other features of the crime and defendant that we examined had small effects in comparison. In particular, although longer prior records led to longer sentences, the increases were typically rather modest.

Median sentences for white collar crimes, environmental crimes and hate crimes are typically rather short. Median sentences were shifted largely as anticipated by the different crime dimensions, but the effects were usually small in absolute terms. The major exceptions occurred when persons were put at risk. In short, there was no evidence that respondents were uncertain about how to treat such crimes. Rather, it appeared that median sentences did not change very much in response to such crime features as the amount of money involved or the degree of premeditation.

Perhaps most striking about white collar crimes, environmental crimes and hate crimes was how unresponsive median sentences were to variation in the defendants' economic gains from the crimes. Although greater monetary gains typically produced longer median sentences, the gains increased far more quickly than sentence length. That is, economic crimes producing enormous profits for the defendant were not treated much more harshly than economic crimes producing small profits for the defendant. In this respect, as shown in Chapter 4, respondents' sentencing patterns mirror the guidelines: by design, guideline enhancements for economic gains increase logarithmically.

There are also policy implications from the fact that respondents' median sentence lengths do not increase at the same rate as the economic gains from crime. One interpretation of deterrence theory is that punishments should increase in a linear way as the "profits" from crime increase. It appears clear in the findings that the public does not follow this version of deterrence when giving out sentences for pecuniary crimes. Alternatively, there is some upper bound for each kind of crime which will not be exceeded no matter how much money is involved. For instance, a bank robbery in which no one is injured may only be "worth" a maximum of, say, 12 years, no matter how much money is stolen.

Perhaps the most striking finding is that the respondents did not appear to favor drastic increases in sentence lengths with longer prior criminal records. This finding holds for crimes of violence as well as for other crimes. Accordingly, there appears to be little evidence in sentencing behavior of much public support for a "three-strikes-and-you're-out" approach to sentencing. Prior records surely matter, but not a great deal. The survey did not ask directly about support for such legislation: it may well be the case that in contrast to these findings about how the public would sentence specific criminals, the public would strongly endorse the policy when stated in general terms.

Interestingly, there seems to be a simple underlying principle that captures many essential features of the median sentences estimated. The levels for each of the crime dimensions do not add or subtract time from some baseline sentence. Rather, they multiply some baseline sentence by constants greater than 1.0 or less than 1.0. For example, the multiplier for having a record with four prior prison terms compared to no prior prison terms may be 1.5. Whatever the median sentence given for defendants with no prior record, that sentence is multiplied by 1.5 for those who have prior records. One key implication is that aggravating and mitigating circumstances will have larger absolute effects when the crime is more serious and, therefore, the baseline median sentence is longer.