

Fall 1981

The Strategy of Deterrence Research: A Reply to Greenberg

Harold G. Grasmick

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

Recommended Citation

Harold G. Grasmick, The Strategy of Deterrence Research: A Reply to Greenberg, 72 J. Crim. L. & Criminology 1102 (1981)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in Journal of Criminal Law and Criminology by an authorized editor of Northwestern University School of Law Scholarly Commons.

THE STRATEGY OF DETERRENCE RESEARCH: A REPLY TO GREENBERG

HAROLD G. GRASMICK*

I sincerely appreciate the attention Professor Greenberg¹ has devoted to my article,² and, of course, I agree that several causal interpretations are consistent with my data. As any standard statistics textbook indicates, causality cannot be *demonstrated* with cross-sectional data; it can only be *inferred* under a set of assumptions.³ Professor Greenberg questions some of my assumptions. I will address his specific criticisms, although they are not novel and could be directed toward any piece of cross-sectional survey research in the area of deterrence.⁴ First, I want to respond to his more general critique, summarized in his last two paragraphs. Professor Greenberg seems to imply that little has been, or could be, learned about the deterrent effect of sanctions from the type of research which I (and others) have conducted.

A MODEST RESEARCH STRATEGY

All researchers interested in deterrence realize what the ideal, "definitive" study would be, and all recognize that their own research falls short of this ideal. The definitive study would begin with a large sample of geographical aggregates for which characteristics of crime and punishment (crime rate, arrest rate, severity of sentences) were known.⁵ Survey data would be gathered from large samples of individuals in the aggregates to measure the average perceived certainty and severity for

* Associate Professor of Sociology, University of Oklahoma; Ph.D. University of North Carolina—Chapel Hill, 1973.

¹ Greenberg, *Methodological Issues in Survey Research on the Inhibition of Crime*, 72 J. CRIM. L. & C. 1094 (1981).

² Grasmick & Green, *Legal Punishment, Social Disapproval and Internalization as Inhibitors of Illegal Behavior*, 71 J. CRIM. L. & C. 325 (1980).

³ H. BLALOCK JR., *SOCIAL STATISTICS* (2d ed. 1979).

⁴ Minor, *Deterrence Research: Problems of Theory and Method*, in *PREVENTING CRIME* 21-45 (J. Cramer ed. 1978).

⁵ Hopefully, researchers who use aggregate data will have developed more valid measures than the Uniform Crime Reports and arrest clearance rates which have been commonly used in aggregate level research.

each aggregate. Furthermore, measures of possible confounding variables, drawn from a variety of theories, would be obtained for both the aggregate and the individual levels. All these data would be gathered at several points in time, and a panel design would determine if, controlling for possible confounding variables, changes in the actual characteristics of punishment produce changes in perceptions of punishment. These changes in perceptions of punishment, in turn, would be expected to produce changes in the amount of crime. Obviously, this would be a large-scale, time-consuming, and expensive research project. I have seen grant applications which propose a similar study, but I never have seen one funded.

Gibbs has recommended that we build our knowledge of deterrence processes through a series of small-scale projects which provide insights and tentative evidence.⁶ In my opinion, before we invest our time (and someone else's money) in the definitive study, deterrence researchers have at least two major tasks to accomplish through such small-scale projects as my own. First, we must develop measures of deterrence concepts that have maximum validity and reliability. Second, from the various theories of crime and social control, we must select and measure those concepts to be included as possible confounding variables. The intent of my article was to bring together, in a single study, the measurement refinements and some of the possible confounding variables which have emerged from previous cross-sectional survey research. I believe that these previous studies, synthesized in my own, have produced significant insights which must be incorporated into more definitive studies in the future. In particular, it is now clear that what appear to be minor discrepancies in the wording of items designed to measure perceived certainty and severity of punishment will lead to major differences in conclusions concerning the deterrent effects of perceived sanction threats. It is also evident that future attempts to estimate the magnitude of the deterrent effect must include measures of moral commitment and threat of social disapproval since these variables are related both to perceptions of sanctions and to involvement in crime.

In the study of deterrence, the major alternative to cross-sectional survey research has been aggregate level, secondary analysis. Recently, much of this research has utilized time-series data. I believe that the insights which have been gained from aggregate level deterrence research do not match those gained from the existing cross-sectional survey research. At the aggregate level, it is difficult to refine measures of the threat of sanctions since researchers rely on data gathered by government agencies. Furthermore, decisions concerning which possible con-

⁶ J. GIBBS, *CRIME, PUNISHMENT AND DETERRENCE* (1975).

founding variables to include in an aggregate analysis are made, in part, on the basis of availability of data. Some of the variables available, like socio-economic status (SES) or racial composition, might be theoretically important. Other theoretically important variables, however, (like moral commitment and threat of social disapproval) are ignored because aggregate level measures do not exist. In his own research, Professor Greenberg uses time-series aggregate data but considers no variables other than arrest clearance rates and Uniform Crime Reports.⁷ I recognize that time-series aggregate data will play a major role in deterrence research, however, this research method thus far has been applied to theories shaped by the availability of data and to measures which are commonly acknowledged as inadequate. Professor Greenberg states that my research is "methodologically primitive."⁸ I accept this criticism, in comparison to the ideal research which is yet to be conducted, but I wonder which is more primitive—cross-sectional survey research aimed at theory construction and measurement refinement or time-series aggregate research aimed at demonstrating causality among inadequate measures and among variables selected for reasons other than theoretical import.

Professor Greenberg's closing statement calls for time-series survey data. In my view, which is guided by sensitivity to measurement and theory, we are not quite ready for such a study. As I indicated in the conclusion to my previous article, we have not yet explored the theoretical links between the inhibitory variables used in my research and the motivational variables contained in other theories. We would use our resources more efficiently if we first developed our theory from cross-sectional research and then tested it with panel designs. The theory is not yet formulated, a point I will elaborate upon below as I address Professor Greenberg's two specific criticisms.

PATH MODEL OF PREVIOUS RESULTS

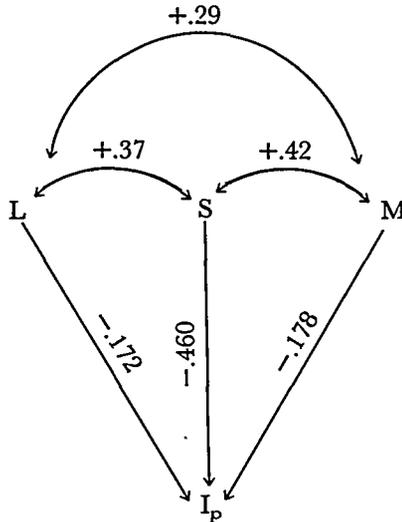
My research was designed to test for the presence of interaction effects of L (threat of legal sanctions), S (threat of social disapproval) and M (moral commitment) on I (involvement in crime, which was measured by both self-reported past illegal behavior, I_p , and estimated future involvement in illegal behavior, I_f). Since path analysis assumes the absence of interaction, the technique could not be used to test the core hypotheses. However, my results indicated that the interaction effects were not significant with I_p as the measure of the dependent varia-

⁷ Greenberg, Kessler & Logan, *A Panel Model of Crime Rates and Arrest Rates*, 44 AM. SOC. REV. 843 (1979).

⁸ Greenberg, *supra* note 1, at 1100.

ble. Thus, additivity can be assumed, and the following path analysis is imbedded in Tables 2 and 4 of my original article.⁹

FIGURE 1
PATH ANALYSIS OF PREVIOUS RESULTS



The numbers on the paths from the exogenous variables to I_p are the standardized regression coefficients (Beta's, or path coefficients, from the original Table 4), while the numbers on the double-headed arrows are zero-order correlations (from Table 2). The double-headed arrows assert that unobserved variables, antecedent to the exogenous variables, influence L, S, and M and produce correlations among them. Readers familiar with path analysis will recognize that the coefficients in the diagram perfectly reproduce the zero-order correlations between I_p and each of the three exogenous variables (e.g., $r_{LI_p} = \rho_{I_pL} + r_{LS\rho_{I_pS}} + r_{LM\rho_{I_pM}} = +.40$).

I addressed the issue of causal order in my previous article¹⁰ by noting that, at the *conceptual* level, the dependent variable in cross-sectional survey research is *future* illegal behavior. One's behavior in the future is expected to be influenced by present perceptions of sanctions. However, at the *operational* level, future illegal behavior cannot be measured directly. The most commonly used *indicator* of future illegal behavior in previous research has been self-reported past illegal behavior

⁹ Grasmick & Green, *supra* note 2, at 333, 335.

¹⁰ *Id.* at 332.

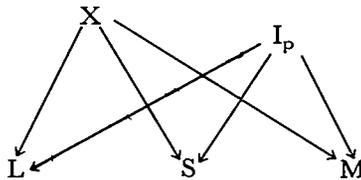
(I_p), but, as I have previously noted,¹¹ estimated future behavior (I_f) has been suggested as a possibly more valid indicator. In the absence of evidence of relative validities, I decided to use both I_p and I_f as alternative measures of future illegal behavior. Therefore, at the conceptual level, there is no ambiguity in causal order: present perceptions of sanctions influence future involvement in crime. The problem of causal order which concerns Professor Greenberg occurs at the operational level to the extent that I_p and I_f indicate something other than future illegal behavior.

REVERSING THE CAUSAL ORDER

Professor Greenberg implies that his Figure 1¹² is a reversal of the causal order of the theory represented by my Figure 1 above. His arrows are pointed in the opposite direction, but his model ignores the assumption that unobserved variables influence L, S, and M and asserts that all the correlations among these three variables are due to their mutual dependence on I_p . Given my original assumption, a more appropriate "reversal" of my causal model would include a variable X which contains all unobserved variables which influence L, S, and M. Figure 2 below is such a model.

FIGURE 2

REVERSED CAUSAL ORDER



In this model, the predicted correlations among L, S, and M differ from Professor Greenberg's predictions. For example, the model above predicts that $r_{LS} = p_{LI_p}p_{SI_p} + p_{LX}p_{SX}$. Professor Greenberg's predicted correlations¹³ are consistently lower than the observed correlations because variables in addition to I_p are contributing to the correlations among the three inhibitory variables. In fact, he raises this issue in his discussion of possible sources of spuriousness and suggests variables which might be contained in X.¹⁴

¹¹ *Id.* at 331.

¹² Greenberg, *supra* note 1, at 1096.

¹³ *Id.* at 1095-96.

¹⁴ Note that in the diagram, all the correlation between X and I_p is assumed to result from their mutual relationships with L, S, and M. If this assumption were relaxed and a

With zero-order correlations from cross-sectional data, it is impossible to distinguish between Figures 1 and 2 above. Both would be consistent with the data. However, if I_p is an indicator of future involvement in crime, as I intended it to be, then Figure 2 is not plausible since it proposes that future behavior influences present levels of L, S, and M.

THE ROLE OF UNOBSERVED VARIABLES

Professor Greenberg's second specific criticism¹⁵ is that some unobserved variable(s) might be producing spurious relationships between I_p and the three inhibitory variables. This is an issue in any piece of research, whether the data are cross-sectional or time-series. Professor Greenberg represents the possible sources of spuriousness as X and makes a series of assumptions about coefficients in his Figure 2.¹⁶ The assumptions he chooses, of course, are those which imply spuriousness.

I do hope that researchers in the future will add variables to the model I presented in my article. In fact, that is the objective of my own current research. These other variables, however, are not necessarily sources of spuriousness. They could be incorporated into the model in several ways, three of which are depicted in Figure 3.

FIGURE 3

POSSIBLE TYPES OF UNOBSERVED VARIABLES

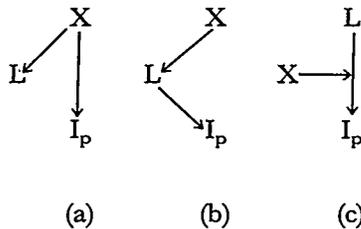


Figure 3(a) is a simplified version of Professor Greenberg's Figure 2 and suggests that some variable X, antecedent to both L and I_p , is producing a spurious relationship. Figure 3(b), on the other hand, suggests that some variable X is related to I_p but only through L as an intervening variable. Currently, I am in the process of preparing a manuscript comparing 3(a) and 3(b) with gender as variable X. It has frequently been observed that females are less involved in illegal behavior than males, a finding which is replicated in my data set for most of the eight

double-headed arrow drawn between X and I_p , the predicted correlations would change but still would not equal Professor Greenberg's predictions.

¹⁵ Greenberg, *supra* note 1, at 1096.

¹⁶ *Id.* at 1097.

offenses.¹⁷ My data also indicate that females tend to score higher on each of the three inhibitory variables for most of the offenses. It is possible, as Figure 3(a) and Professor Greenberg suggest, that the threat of legal punishment is related to involvement in crime only because both of these are strongly influenced by gender. On the other hand, the data might fit Figure 3(b) and indicate that gender is related to involvement in crime *because* females tend to score higher on the three inhibitory variables. The results of the log-linear analysis I am conducting will enable me to distinguish between these two possibilities.

Figure 3(c) proposes a conditional relationship, or interaction effect. The threat of legal sanctions influences involvement in crime only under certain conditions of variable X. In the conclusion of my article, I outlined such a model by suggesting that the three social control variables might influence involvement in illegal behavior only when motivation to engage in that behavior (X) is present. In a more recent article, a colleague and I explored this hypothesis with tax-cheating as the dependent variable. Our results indicate that each of the three inhibitory variables is related to tax-cheating *only* in the group of respondents who score high on our measure of motivation to cheat on their taxes. Respondents who are not motivated do not cheat, regardless of their scores on the inhibitory variables L, S, and M.¹⁸ The relationships between the inhibitory variables and involvement in crime are much stronger in the subgroup of motivated individuals than in the total sample. Therefore, previous studies which have not isolated the motivated respondents probably have underestimated the deterrent effect of sanction threats among those individuals whose behavior is influenced by such threats.

CONCLUSION

My article was not intended to be the definitive study of deterrence. That is a more long-term goal of everyone doing research in this area. I hope my article, Professor Greenberg's comment, and my reply will help others build on what has been done to increase our understanding of the process of social control.

¹⁷ These eight illegal activities were: theft of property worth less than \$20, theft of property worth \$20 or more, gambling illegally, cheating on tax returns, intentionally inflicting physical injury (battery), littering, illegal use of fireworks within the city limits, and driving while under the influence of alcohol. Grasmick & Green, *supra* note 2, at 330.

¹⁸ Scott & Grasmick, *Deterrence and Income Tax Cheating*, 17 J. APPLIED BEHAVIORAL SCI. 72 (1981).