Journal of Criminal Law and Criminology

Volume 74
Issue 1 *Spring*

Article 5

Spring 1983

Estimating Perceptual Stability and Deterrent Effects: The Role of Perceived Legal Punishment in the Inhibition of Criminal Involvement

Raymond Paternoster

Linda E. Saltzman

Gordon P. Waldo

Theodore G. Chiricos

0091-4169/83/7401-270
THE JOURNAL OF CRIMINAL LAW & CRIMINOLOGY Vol. 74, No. 1

Printed in U.S.A.

ESTIMATING PERCEPTUAL STABILITY AND DETERRENT EFFECTS: THE ROLE OF PERCEIVED LEGAL PUNISHMENT IN THE INHIBITION OF CRIMINAL INVOLVEMENT

RAYMOND PATERNOSTER*
LINDA E. SALTZMAN**
GORDON P. WALDO***
THEODORE G. CHIRICOS****

I. INTRODUCTION

A considerable amount of research attention has been directed at the relationship between perceptions of the certainty and severity of legal punishment and involvement in criminal behavior.[1] A recent article by Grasmick and Green[2] is typical of this line of deterrence research. In this study, Grasmick and Green are concerned with the causal connections between three control-inhibitory variables (moral commitment, perceived threat of legal punishment, and threat of social disapproval)

* Assistant Professor, College of Criminal Justice, University of South Carolina, Ph.D., Florida State University, 1978.

** Assistant Professor, Department of Sociology, Mankato State University, Ph.D., Florida State University, 1977.

*** Professor, School of Criminology, Florida State University, Ph.D., Ohio State University, 1967.

**** Professor, School of Criminology, Florida State University, Ph.D., University of Massachusetts, 1968.

[1] Bailey & Lott, *Crime, Punishment, and Personality: An Examination of the Deterrence Question*, 67 J. CRIM. L. & CRIMINOLOGY 99 (1976); Burkett & Jensen, *Conventional Ties, Peer Influence, and the Fear of Apprehension: A Study of Adolescent Marijuana Use*, 16 SOC. Q. 522 (1975); Jensen, Erickson & Gibbs, *Perceived Risk of Punishment and Self-Reported Delinquency*, 57 SOC. FORCES 57 (1978); Meier & Johnson, *Deterrence as Social Control: The Legal and Extralegal Production of Conformity*, 42 AM. SOC. REV. 292 (1977); Silberman, *Toward a Theory of Criminal Deterrence*, 41 AM. SOC. REV. 442 (1976); Teevan, *Subjective Perception of Deterrence*, 13 J. RESEARCH CRIME & DELINQ. 155 (1976); Waldo & Chiricos, *Perceived Penal Sanction and Self-Reported Criminality: A Neglected Approach to Deterrence Research*, 19 SOC. PROB. 522 (1972).

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

and illegal behavior. Perceptual measures of each of the three inhibitory variables and involvement in eight illegal behaviors were obtained from a sample of adults. They report as evidence of a deterrent effect an inverse relationship between the perception of legal punishment (a combined index of perceived certainty and severity) measured at one point in time and self-reported *past* involvement in illegal behavior (a composite index of eight offenses). Consistent with other, similarly-designed studies in the perceptual deterrence literature,[3] Grasmick and Green found significant negative effects for the perception of legal punishment, even when other inhibitory factors (moral commitment to norms and social disapproval) were controlled.[4] The Grasmick and Green paper is typical of perceptual deterrence studies not only because they find weak but significant deterrent effects, but also because their conclusions rest on the analysis of cross-sectional correlations between current perceptions and prior behavior.

In a critical response, Greenberg[5] suggested that two explanations other than deterrence are compatible with Grasmick and Green's data. One of these is the issue of spuriousness, which will be addressed later in this Article. The second possible interpretation of the data is that perceptions of the threat of legal punishment may be a *consequence* rather than a cause of involvement in criminal conduct. Greenberg thus raises the issue of the causal ordering of the variables in Grasmick and Green's research, and the consequent confusion over exactly what is being observed in this and other studies. Although the perceptions and behavior indices in Grasmick and Green's research were measured at the same time, their behavior index reflects the respondent's self-reported involvement in criminal conduct at any time in the *past*.[6] The interpretation of the negative correlation between the perception of legal punishment and criminal behavior as a deterrent effect is based upon the relationship between a hypothesized cause (perceptions of legal threat) and an

---

[3] Grasmick and Green are well aware of the problem of temporal ordering with synchronous correlations in perceptual deterrence research. *Id.* at 327. To overcome this problem they also report data relating to the effect of perceptions of punishment risk on the respondent's estimate of whether he will commit the offense in the future. With anticipated future involvement as the dependent variable, any ambiguity in causal order is removed. Our comments in this Article, then, are only directed at their analyses involving their measure of past criminal involvement (Ip) and current perceptions.

[4] Akers, Krohn, Lanza-Kaduce & Radosevich, *Social Learning and Deviant Behavior: A Specific Test of A General Theory*, 44 AM. SOC. REV. 636 (1979); Jensen, Erickson & Gibbs, *supra* note 1; Silberman, *supra* note 1.

[5] Greenberg, *Methodological Issues in Survey Research on the Inhibition of Crime*, 72 J. CRIM. L. & CRIMINOLOGY 1094 (1981).

[6] Respondents were asked if they had ever committed the offense and were coded yes if they reported committing the offense at any time in the past. Grasmick & Green, *supra* note 2, at 330.

antecedent effect (criminal involvement). As Greenberg suggested in his response to the Grasmick and Green paper, such correlations may not reflect the fact that those with low perceptions of legal threats are more likely to be involved in criminal acts than those who perceive a greater threat (the effect of deterrence). Rather, the negative correlations may reveal that those who do become involved in criminal acts and get away with it (as most do) may subsequently lower their estimates of the risks and threat involved (the effect of experience).[7] With cross-sectional analyses there is simply no way to differentiate between these two likely interpretations.

Cross-sectional data may only be used to estimate a deterrent effect if there is considerable stability in the perceptions involved. If we can assume that people's perceptions of the threat of legal sanctions are stable—that is, unmodified by experience—then their perceptions measured after their involvement in criminal acts will be an accurate estimate of their perceptions before such involvement. If perceptions are stable, then the observed negative correlations between perceptions and criminal involvement may be interpreted as evidence of deterrence. If perceptions are not stable over time, but are altered by experience, then cross-sectional data cannot be used to estimate a deterrent effect. In an early perceptual deterrence study, Silberman correctly noted the methodological quandary of cross-sectional designs:

> Respondents are asked at a given point in time what their current beliefs are regarding the efficacy of the law enforcement process and then asked to report their *past* criminal behavior. In order to assert that these beliefs affect the individual's behavior, we must assume a degree of stability in those beliefs. However, it is equally reasonable to assume that the respondent's current beliefs are a product of his past behavior, particularly if he has committed an offense and was not caught. Are we really testing deterrence theory? Or are we measuring the effects of past experiences on current beliefs regarding the certainty and severity of punishment?[8]

The assumption of perceptual stability is critical. If current perceptions of legal punishment cannot be used as a proxy for earlier perceptions, then most of the existing perceptual deterrence literature is fatally flawed. Testing this assumption of perceptual stability requires longitudinal data. Longitudinal data will also allow a separation of deterrent effects (Perceptions → Behavior) from experiential effects (Behavior → Perceptions).

The study reported in this Article will directly test the hypothesis of perceptual stability by empirically examining Greenberg's objection to the use of cross-sectional designs by Grasmick and Green and others. It

---

[7] Greenberg, *supra* note 5, at 1095.

[8] Silberman, *supra* note 1, at 444.

reports the analysis of two separate sets of data, both panel studies. In both data sets we asked respondents at two time periods various questions relating to their assessment of the risk and cost of criminal involvement and to their own involvement in criminal actions. Within both sets of data we test the stability of perceptions and make estimates of deterrent and experiential effects.

For comparative purposes, we made an attempt in the course of this analysis to duplicate as closely as possible the analysis of Grasmick and Green. Nevertheless, important differences exist between the two studies. First, Grasmick and Green sampled from a group of adults; the two samples in the present study are both younger, one being a sample of college students and the second a sample of high school students. Both samples presented here were from two independent research projects completed before the publication of Grasmick and Green's findings. Inasmuch as this study was not an attempt to faithfully replicate Grasmick and Green's research, the differences in study populations pose no problems. The deterrence doctrine nowhere claims that deterrence is an age-specific process, and we should expect to find it operating (if it does) across samples of differing ages and life events. In addition to sample differences, the types of offenses analyzed in this paper differ from those used by Grasmick and Green. The eight offenses used in their analysis were: theft of property worth less than twenty dollars; theft of property worth twenty dollars or more; illegal gambling; cheating on tax returns; intentionally inflicting physical injury; littering; illegal use of fireworks within the city limits; and driving while under the influence of alcohol. Reflecting the younger age of our college and high school samples compared to Grasmick and Green's sample, the offenses examined in our study were: theft of goods worth under ten dollars (both samples); theft of goods worth $10-$100 (both samples); vandalism (both samples); marijuana use (both samples); writing checks with insufficient funds (college sample); and drinking under age (high school sample). Although only two of our offenses (theft) overlap with those used by Grasmick and Green, there is no a priori reason to suppose that the offenses they have chosen are more salient to the deterrence process than those selected for analysis here.

II. METHODS

A. SAMPLES

Our research separately analyzes two data sets. The first data set results from interviews with 300 college students randomly selected from a list of freshmen enrolled at a major state university during the 1974-1975 school year. The college sample is ninety percent white and ten

percent non-white, forty-nine percent male and fifty-one percent female. The figures closely approximate the race and sex composition of the university from which the sample was drawn. Respondents were interviewed between January and June of 1975 (Time 1) and again approximately one year later (Time 2).[9] We collected data from the high school students through self-administered questionnaires given first during the fall of 1976 (Time 1) and again six months later (Time 2) to all ninth- through twelfth-grade students attending one high school. A total of 303 students completed a Time 1 questionnaire; of these, 262 also completed a questionnaire at Time 2. The data analysis is based on these 262 high school students. The students ranged in age from thirteen to eighteen years; seventy-seven percent of the students were white, twenty-three percent black, forty- nine percent were male and fifty-one percent female. This approximates the sex and racial composition of the city within which the students resided.

B. DEPENDENT VARIABLES

Each questionnaire included a self-report criminal involvement inventory. The college students were asked at both Time 1 and Time 2 to report their involvement in fifteen criminal offenses "ever in the past" and "during the previous year" (the interval between the Time 1 and Time 2 interviews). The high school respondents at Time 1 were asked to report their involvement in eighteen different offenses both "ever" and "in the past 12 months." At Time 2 they were asked about identical offenses, but the intervals of recall were "ever" and "in the past 6 months" (the period between Time 1 and Time 2).

Although we asked respondents in both samples about a wide variety of illegal acts, five from each group were of particular importance: for the college students, these were petty theft, theft of $10-$100, marijuana use, writing checks with insufficient funds, and vandalism; for the high school students, they were petty theft, theft of $10-$100, marijuana use, drinking under age, and vandalism. These offenses were of special

[9] A more complete description of the two samples is as follows. The total 9th-12th grade population of the high school was 350. The questionnaire administration took place in students' English classes. On the days of the questionnaire administration at Time 1, 303 students (87%) were in attendance and completed the questionnaire. On the days of the Time 2 administration, 302 students attended English class and completed a questionnaire, 262 of whom also had completed a Time 1 questionnaire. In total, then, 262 students completed both a Time 1 and Time 2 questionnaire; 41 students completed a questionnaire at Time 1 only and 40 at Time 2 only; seven were absent at both times. For the college sample, 587 full-time freshmen students were selected from a freshman class of 3005. Of the 587 students first selected, 205 had no available address or phone number by which they could be located for the interview (159 at Time 1; 46 at Time 2), 24 of those contacted had scheduling differences which precluded an interview (21 at Time 1; three at Time 2), and 58 students were contacted but refused to be interviewed (39 at Time 1; 19 at Time 2).

relevance because we expected them to be the ones most likely to have been committed. Thus, questions about perceptions of punishment risk and severity made reference only to these offenses. The mean level of involvement for each of the five offenses can be found in Table 1A for the college respondents and in Table 1B for the high school respondents.

TABLE 1A

MEANS AND STANDARD DEVIATIONS FOR OFFENSE ITEMS AT TIME 1 AND TIME 2: COLLEGE SAMPLE

	TIME 1			TIME 2		
	Mean	Standard Deviation	(N)	Mean	Standard Deviation	(N)
Petty Theft	.72	3.49	(300)	.74	3.69	(300)
Theft of $10 - $100	.06	.50	(299)	.05	.30	(300)
Marijuana	23.25	82.70	(297)	30.27	113.74	(299)
Bad Checks	.36	1.13	(299)	.78	1.87	(300)
Vandalism	.33	1.50	(296)	.24	1.20	(300)
Criminal Involvement Index	.91	1.01	(300)	1.23	1.58	(300)

TABLE 1B

MEANS AND STANDARD DEVIATIONS FOR OFFENSE ITEMS AT TIME 1 AND TIME 2: HIGH SCHOOL SAMPLE

	TIME 1			TIME 2		
	Mean	Standard Deviation	(N)	Mean	Standard Deviation	(N)
Petty Theft	.38	1.48	(245)	.53	2.24	(252)
Theft of $10 - $100	.05	.411	(258)	.03	.222	(262)
Marijuana	31.49	145.44	(248)	43.86	187.63	(251)
Drinking	41.56	162.59	(227)	50.14	163.27	(234)
Vandalism	.24	1.10	(253)	.38	2.12	(251)
Criminal Involvement Index	.98	1.00	(262)	1.18	1.09	(262)

We constructed a general index of criminal involvement for each sample, coding respondents 0 at Time 1 for each offense if not committed in the past year and 1 if committed. A composite scale was then created by summing up the five offenses. We performed an identical procedure on the Time 2 data for the "past twelve months" offenses of the college sample and "past six months" offenses of the high school sample. This produced a Time 1 and Time 2 Criminal Involvement

Index with a range of 0 to 5. The mean level for the Criminal Involvement Index at Time 1 and Time 2 is reported in Table 1A for the college sample and in Table 1B for the high school sample.

C. INDEPENDENT VARIABLES

We asked respondents from both the college and high school samples questions about their perceptions of the certainty and severity of legal punishment for specific illegal acts. Identical questions were asked at Time 1 and Time 2. Because the college and high school students received different questions, the discussion treats the two groups separately.

Five different measures of the perceived certainty of punishment were employed in the college sample. There are two measures of the perceived risk of arrest. One of these asks for the respondents' estimates of their own likelihood of arrest for each of five offenses: petty theft, theft of $10-$100, marijuana use, writing checks with insufficient funds, and vandalism. The questions followed the format: "If you committed 'crime x,' how likely is it that you would be arrested?" The response options ranged on a five point continuum of "very unlikely," "unlikely," "50/50," "likely," and "very likely." The second measure of the perceived risk of arrest asks the respondent to estimate the chances of a generalized other being arrested: "Out of the next 100 people in this town who commit 'crime x' how many do you think will be arrested?" Three other measures of perceived certainty, similar in format to this measure, asked the respondents to estimate the chances of a generalized other getting caught, of getting caught by the police, and of getting convicted for committing "crime x." Finally, a measure of the perceived severity of punishment was also employed: "If you were arrested for 'crime x,' what do you think is the most likely thing that would happen to you?" There were six ordinally ranked response options, from "given a warning and/or released" to "convicted and sent to prison for more than one year." Table 2A (*see infra* p. 279) reports group means for each of these measures for the college sample.

We employed two measures of perceived risk with the high school students. They were asked questions to elicit perceptions of the certainty of getting caught and the certainty of conviction for five specific offenses: petty theft, theft of $10-$100, marijuana use, drinking under age, and vandalism. They were also asked about their estimates of the chances of a generalized other getting caught, and getting convicted: "Out of the next 100 people in this town who commit 'crime x' how many do you think will be caught?" and "How many of those people who get caught do you think will be convicted?" In addition, for each

offense the respondents were asked about the severity of the punishment they would likely receive: "If you were caught for 'crime x,' what do you think would happen to you?" Response options ranged on a five point ordinal continuum from "given a warning and released" to "sent to prison."[10] Table 2B (*see infra* p. 280) reports group means for each of these measures for the high school sample.

To parallel the analysis of Grasmick and Green,[11] who tested their deterrence hypotheses using composite indices rather than offense-specific items, we also constructed composite indices of perceived certainty and severity with the college and high school data sets. For the college sample, five indices of perceived risk (self-arrest, other-caught, other-caught by police, other-arrested, other-convicted) and one index of perceived severity were constructed by summing and averaging the raw scores over the five offenses. For the high school sample, two perceived certainty indices (getting caught, getting convicted) and a perceived severity index were similarly constructed. For both data sets, we conducted principal components analyses of the indices. In each case, one factor accounted for most of the variance. An examination of the factor loadings for each item on the principal component within each set showed all factor loadings higher than .30, with most of the loadings .60 or higher. Each of the scales was then put through a reliability analysis, with Cronbach's alpha[12] computed as a measure of each scale's internal reliability. All of the perception scales proved to be highly reliable. The mean and standard deviation for each scale at each time period and its alpha value are reported in Table 2A for the college sample and in Table 2B for the high school sample.[13]

---

[10] The severity measure used here for the high school and college samples is different from that used in Grasmick and Green's research. They asked their respondents to describe "how big a problem" their punishment would create for their life, thus operationalizing perceived severity in terms of the personal cost of the punishment. Grasmick & Green, *supra* note 2, at 330. The perceived severity measure used in the present research assumes that similar punishments are being perceived as similarly costly, an assumption harshly criticized by Grasmick and Green. Perhaps this is an unwarranted assumption; additional research is clearly needed, however, on the proper measurement of severity in perceptual deterrence research before alternative operationalizations are rejected.

[11] Grasmick & Green, *supra* note 2.

[12] N. NIE, C. HULL, J. JENKINS, K. STEINBRENNER & D. BENT, STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES (2d ed. 1975).

[13] Grasmick and Green argue at length that the correct specification of the deterrence doctrine requires that the perception of legal punishment be measured as a multiplicative function of perceived certainty and perceived severity. Grasmick & Green, *supra* note 2, at 326-31. We tested for the existence of a certainty-severity interaction on both the college and high school data sets and found no evidence of a multiplicative effect. Our analyses showed that perceived certainty and severity have independent, additive effects, and we used separate measures in our study. To enable a more direct comparison with Grasmick and Green's research, we did all analyses with an interactive term, which left findings unchanged.

III. FINDINGS

A. PERCEPTUAL STABILITY

If perceptions of the certainty and severity of legal punishment can be shown to be stable over time, then perceptions measured after the occurrence of any involvement in illegal behavior may be an accurate estimate of the respondents' pre-behavior perceptions. Only if perceptual stability exists do the cross-sectional correlations between perceptions and self-reported behavior reported by Grasmick and Green[14] and other perceptual deterrence researchers[15] reflect the process of deterrence. If perceptions do not remain stable, however, then the reported negative correlations may merely reflect the process of experience, that is, that perceptions of legal sanctions are the consequence of criminal activity. Tables 2A and 2B report the results of the first tests of perceptual stability, showing the group mean scores at Time 1 and Time 2 for each perception item by each offense and the associated T-tests for matched pairs.

The college sample shows that with an interval of one year between measurements the respondents' perceptions of punishment changed considerably. This is particularly true regarding the perception of the individual's own risk of arrest. In this instance, the matched-pairs T-tests show that for all but one offense (vandalism) the respondents' Time 2 perceptions of the risk of arrest for self are significantly lower than the Time 1 perceptions. This is precisely the pattern one would expect from the experiential process; committing offenses and getting away with them results in a reduction in the estimate of the risk involved. Much the same pattern prevails with the other measures of perceived certainty and the measure of perceived severity, although to a less dramatic extent. The respondents' perceptions of punishment certainty and of severity for marijuana use and writing bad checks were particularly unstable.

The significant lack of perceptual stability for marijuana use and bad checks compared with both kinds of theft and vandalism may in part be accounted for by the fact that a greater proportion of these students were using marijuana and writing bad checks than were stealing and vandalizing. Forty-nine percent had used marijuana and thirty-one percent had written at least one bad check during the Time 1 - Time 2 interval, whereas only nine percent of these respondents reported committing an act of vandalism, only sixteen percent had committed petty theft, and only three percent had committed a theft of $10-

---

[14] Grasmick & Green, *supra* note 2.

[15] Bailey & Lott, *supra* note 1; Burkett & Jensen, *supra* note 1; Silberman, *supra* note 1; Waldo & Chiricos, *supra* note 1.

TABLE 2A

ITEM MEANS AND T-TEST FOR MATCHED PAIRS: PERCEPTUAL ITEMS FOR SPECIFIC OFFENSES AT TIME 1 AND TIME 2—COLLEGE SAMPLE

		PETTY THEFT		THEFT $10 - $100		MARIJUANA		BAD CHECKS		VANDALISM	
Perception of:		Mean	T	Mean	T	Mean	T	Mean	T	Mean	T
Self Being Arrested	Time 1	2.63	3.69[c]	3.73	4.34[c]	1.78	1.91[a]	1.36	3.15[c]	1.02	.33
	Time 2	2.39		3.48		1.67		1.30		.99	
Generalized Other Being Caught	Time 1	22.49	−.52	39.16	.25	12.13	2.15[a]	69.74	−.73	31.30	.39
	Time 2	23.17		38.80		10.40		71.26		30.74	
Generalized Other Being Caught By Police	Time 1	15.14	−.42	33.25	.47	8.23	3.42[c]	31.79	2.83[b]	23.13	.05
	Time 2	15.58		32.62		6.30		26.84		23.06	
Generalized Other Being Arrested	Time 1	11.15	−.70	29.56	.23	6.61	3.44[c]	21.22	2.79[b]	18.52	.45
	Time 2	11.78		29.25		4.83		17.15		18.02	
Generalized Other Being Convicted	Time 1	7.86	−1.30	23.83	.21	5.38	3.02[b]	16.70	2.40[b]	14.79	1.15
	Time 2	8.87		23.58		3.93		13.48		13.72	
Severity of Punishment for Self	Time 1	1.61	−.64	3.07	1.62[a]	3.20	4.76[c]	2.45	3.31[c]	3.12	1.42
	Time 2	1.64		2.97		2.83		2.19		3.03	

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

TABLE 2B

ITEM MEANS AND T-TEST FOR MATCHED PAIRS: PERCEPTUAL ITEMS FOR SPECIFIC OFFENSES AT TIME 1 AND TIME 2—HIGH SCHOOL SAMPLE

		PETTY THEFT		THEFT $10 - $100		MARIJUANA		DRINKING		VANDALISM	
Perception of:		Mean	T	Mean	T	Mean	T	Mean	T	Mean	T
Generalized Other Being Caught	Time 1	31.80	2.56[b]	42.97	1.97[a]	26.32	3.16[c]	16.07	.61	36.34	2.97[c]
	Time 2	28.32		39.71		21.37		15.33		31.21	
Generalized Other Being Convicted	Time 1	20.97	2.71[b]	33.04	2.21[b]	18.82	3.51[c]	8.28	.29	27.38	2.99[b]
	Time 2	17.68		29.66		14.58		8.01		22.92	
Severity of Punishment for Self	Time 1	1.43	−.36	2.31	−.45	2.40	3.29[c]	1.36	1.18	2.20	−.96
	Time 2	1.44		2.33		2.19		1.31		2.26	

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

$100. Another factor which may help account for the considerable Time 1 - Time 2 instability of the marijuana and bad checks perceptions is the *novelty* of the offense in the person's experience. The occurrence of behavior and non- occurrence of sanctions may be most salient when the illegal behaviors are being committed for the first time. The data are consistent with this novelty effect. Of those respondents who reported committing petty theft during the Time 1 - Time 2 interval, only five percent were doing it for the first time. The corresponding figure for the theft of $10-$100 was nine percent, for vandalism six percent. For marijuana use and writing bad checks, the offenses for which the data show the least perceptual stability, eighteen percent and sixty-one percent, respectively, were doing it for the first time. The novelty of the behavior in the experience of the actor does, then, appear to be a critical factor in the experiential process.

Table 2B reports the perceptual stability test for the offense-specific perception items from the high school data set. Since the Time 1 - Time 2 interval is six months, one-half that of the college respondents', the perceptions of these high school students could be expected to show greater stability. Table 2B shows quite clearly that such is not the case. For each offense except drinking under age, the respondents' Time 2 perceptions of certainty are significantly lower than their Time 1 estimates. This is true whether the measure of perceived risk is the risk of a generalized other being caught or being convicted, and is particularly true for marijuana use, which shows the greatest Time 1 - Time 2 difference. This offense-specific analysis shows that there is little stability in perceptions of punishment certainty even over as short a period as six months. Unlike the case for the college students, only for marijuana use was the perception of punishment severity unstable over time.[16] The most significant perceptual change for both certainty and severity of punishment was found for marijuana use. The novelty effect of the behavioral experience again appears to be critical in understanding why the least perceptual stability was observed for marijuana use. There were substantially more respondents reporting a first-time-ever marijuana use (twenty-seven percent) during the six-month Time 1 - Time 2 interval than a first-time petty theft (four percent), theft of $10-$100 (eighteen percent), drinking under age (ten percent) or vandalism (nine percent). Tittle and Logan have suggested that "a first offense may be

[16] The finding that there was greater change for the measures of perceived risk than for perceived severity should not be surprising. If the experiential process is taking place, the finding demonstrates that criminal behavior may be engaged in without being caught and speaks only to the issue of the *certainty* of punishment. Estimates of the risk of criminal behavior may decline, therefore, as one becomes more experienced, while the estimate of the severity of punishment one can expect if one gets caught may go unchanged.

more sensitive to sanctions than are repeated offenses."[17] The findings for these college and high school students regarding the novelty effect suggest that a first offense may also be more sensitive to *non-sanction*.

The analysis of offense-specific perceptual items has thus far shown that perceptions of punishment risk, and perhaps punishment severity, are not stable even over short time intervals. One objection to the analysis, however, may be that these data, rather than reflecting the process by which successful experience in criminal behavior lowers the estimate of the risk of that behavior, reflect only the process of statistical regression to the mean. Respondents are asked to perform a novel task, that of estimating punishment risk and severity, and may make unrealistic first estimates which they corrected at a second administration. Although this argument is plausible, a regression to the mean cannot account for much of the perceptual instability observed here. In the first place, if the data were only showing a regression effect then the least stability in perceptions should be found for the offense where the estimates were the highest. Such is not the case, however, as the perceived certainty and severity of punishment for marijuana use showed the greatest change over time for both samples even though it was consistently the offense showing the lowest estimates of both certainty and severity. Second, those respondents with initially high estimates of punishment risk may also be the ones with the least experience in criminal behavior; any subsequent criminal activity on their part may be more salient to their "naive" perceptions than for the more experienced.

It may also be the case that, although one's perceptions of the certainty and severity of punishment for a specific offense are sensitive to one's experience (novel or continuing) and therefore are unstable, the *organized set of perceptions* one may have of legal sanctions may be less susceptible to influence by behavioral experience and more stable over time. Table 3A and 3B report on a test of the stability of the indices of perceived certainty and severity for both the college and high school data sets. The data for college students in Table 3A show that even organized sets of perceptions are not particularly stable over a one year period. With the exception of the risk of a generalized other being caught, the T-tests for matched pairs reveal that all of the indices are significantly lower at Time 2 than at Time 1, consistent with the experiential process. This is particularly true for the index measuring one's personal risk of arrest ($T = 4.50$, $p < .001$). Table 3B reports the

[17] Tittle & Logan, *Sanctions and Deviance: Evidence and Remaining Questions*, 7 LAW & SOC'Y REV. 371, 386 (1973).

TABLE 3A

SCALE MEAN, STANDARD DEVIATION, CRONBACH'S ALPHA, AND T-TEST FOR MATCHED PAIRS: COMPOSITE PERCEPTION INDICES—COLLEGE SAMPLE

Perception of:		Mean	Standard Deviation	Cronbach's Alpha	Matched Pairs T	(p)
Self Being Arrested	Time 1	2.81	.76	.72	4.50	(.000)
	Time 2	2.63	.72	.73		
Generalized Other Being Caught	Time 1	35.08	14.58	.62	.17	(.431)
	Time 2	34.92	14.85	.68		
Generalized Other Being Caught by Police	Time 1	22.40	13.51	.70	1.92	(.028)
	Time 2	20.87	12.84	.69		
Generalized Other Being Arrested	Time 1	17.48	12.47	.72	1.78	(.038)
	Time 2	16.20	11.49	.70		
Generalized Other Being Convicted	Time 1	13.77	11.27	.73	1.65	(.050)
	Time 2	12.71	10.55	.71		
Severity of Punishment for Self	Time 1	2.69	.77	.70	3.98	(.000)
	Time 2	2.53	.73	.70		

TABLE 3B

SCALE MEAN, STANDARD DEVIATION, CRONBACH'S ALPHA, AND T-TEST FOR MATCHED PAIRS: COMPOSITE PERCEPTION INDICES—HIGH SCHOOL SAMPLE

Perception of:		Mean	Standard Deviation	Cronbach's Alpha	Matched Pairs T	Matched Pairs (p)
Generalized Other Being Caught	Time 1	30.65	17.76	.81	3.69	(.001)
	Time 2	27.19	17.94	.83		
Generalized Other Being Convicted	Time 1	21.53	15.49	.84	3.56	(.001)
	Time 2	18.44	15.41	.86		
Severity of Punishment for Self	Time 1	1.94	.56	.73	.87	(.192)
	Time 2	1.90	.57	.73		

matched pairs T-tests for perceptual indices within the high school sample. The earlier finding of a lack of perceptual stability for perceived certaintyis corroborated. For both indices (getting caught, getting arrested), the Time 2 measure of perceived risk is significantly lower than the Time 1 measure.

These data are critically important. Even with as short a time interval as six months and with generalized indices, perceptions measured at a later time are not good estimates of earlier perceptions.[18] Collectively, then, the findings from the two data sets do not support the crucial assumption of perceptual stability that underlies cross-sectional deterrence research. Indeed, they strongly point to the existence of an independent experiential effect, an effect other than that which Grasmick and Green and other perceptual deterrence researchers have been reporting.

B. DETERRENT AND EXPERIENTIAL EFFECTS

The experiential effect is the effect of one's behavioral experience on perceptions of punishment risk. As such, it can best be measured by the relationship between behavior and subsequent perceptions ($B \rightarrow P$). The deterrent effect is the effect of one's perceptions of legal punishment on involvement in illegal actions and is measured by the relationship between perceptions and subsequent behavior ($P \rightarrow B$). As the preceding section has just shown, the measurement of the deterrent effect *requires* longitudinal data. The two data sets examined here contain two-wave panel data where respondents were asked at both Time 1 and Time 2 about their current perceptions and prior involvement in criminal behavior. This data allows the estimation of two experiential effects and one deterrent effect for each data set.[19] For the college sample, one

[18] In showing that perceptions changed significantly even over a six month period, our results seriously challenge the validity of Grasmick and Green's use of an "ever involved" behavior measure in estimating a deterrent effect. Their data require an even more stringent assumption: that the perceptions of their *adult* respondents remained stable over a prolonged ("ever") and unknown period of time.

[19] In terms of the causal ordering of the variables, the deterrence-experiential process described by our two wave-two variable model is as follows:

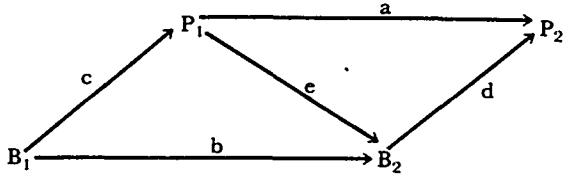

FIGURE ONE

where a represents the parameter for perceptual stability, c and d are the two experiential effects, and e is the deterrent effect. It is helpful to remember here that although B_1 and P_1

experiential effect reflects the relationship between behavior in the year prior to Time 1 with Time 1 perceptions ($B_1 \rightarrow P_1$); a second reflects the relationship between offenses committed in the year period in between Time 1 and Time 2 and perceptions measured at Time 2 ($B_2 \rightarrow P_2$). For the high school sample, one experiential effect measures the relationship between behavior in the year preceding Time 1 and Time 1 perceptions ($B_1 \rightarrow P_1$); the second experiential effect measures the relationship between offenses committed in the six-month period between Time 1 and Time 2 and perceptions measured at Time 2 ($B_2 \rightarrow P_2$). For both samples, the deterrent effect is measured by the relationship between perceptions measured at Time 1 and behavior engaged in during the period between Time 1 and Time 2 and reported at Time 2 ($P_1 \rightarrow B_2$).

Tables 4 and 5 report the experiential and deterrent effects for the two data sets. Table 4 presents the offense-specific analysis, while Table 5 shows the analysis using the perceptual and behavioral indices. Table 4 reports the associations with both gamma and Pearson's r. Earlier analyses of this data revealed that one would be led to different substantive interpretations depending upon whether the data were treated as interval or were first collapsed and then analyzed.[20] The appropriate measure of association to use is not quite clear. Although most of the variables are meant to be interval level, most are moderately skewed and one (our self-referenced measure of certainty) has dubious interval properties. For this reason, the data reported in Table 4 were analyzed both before (Pearson's r) and after (gamma) collapsing, using Pearson's r and gamma, respectively. For purposes of gamma, the offense items in both data sets were dichotomized into "never committed" the offense during the period in question and "committed the offense one or more times." The perceptual items were trichotomized into "high," "medium," and "low" certainty or severity.

Table 4A shows that for the college data set the experiential relationship is consistently stronger than the deterrent relationship. For each offense and each different measure of perceived certainty and the measure of perceived severity, one or both of the experiential effects is generally larger in magnitude than the deterrent effect. This is true whether one examines the data with Pearson's r or gamma. Table 4A shows thirty possible three-way gamma and Pearson's r comparisons (Time 1 experiential vs. Time 2 experiential vs. deterrent effect). Using gamma, both experiential effects are stronger than the deterrent effect twenty-two times, one of the experiential effects is stronger and

---

are measured at the same time, B_1 is lagged because it measures behavior prior to P_1. The same is true for the $B_2 \rightarrow P_2$ relationship.

[20] Paternoster, Saltzman, Chiricos & Waldo, *Perceived Risk and Deterrence: Methodological Artifacts in Perceptual Deterrence Research*, 73 J. CRIM. L. & CRIMINOLOGY 1238, 1255 (1982).

TABLE 4A

GAMMA AND PEARSONIAN CORRELATION COEFFICIENTS BETWEEN PERCEPTIONS OF LEGAL PUNISHMENT AND SPECIFIC OFFENSES: COLLEGE SAMPLE

	TIME 1 EXPERIENTIAL EFFECT	($B_1 \rightarrow P_1$)	TIME 2 EXPERIENTIAL EFFECT	($B_2 \rightarrow P_2$)	DETERRENT EFFECT	($P_1 \rightarrow B_2$)
Perception of:	G	(r)	G	(r)	G	(r)
Self Being Arrested						
Petty Theft	−.33[a]	(−.16)[b]	−.46[b]	(−.10)[a]	−.30[a]	(−.04)
Theft $10 - $100	−.44	(−.07)	−.62[c]	(−.20)[c]	−.50	(−.07)
Marijuana	−.67[c]	(−.16)[b]	−.23	(−.10)[a]	−.33	(−.11)[a]
Bad Checks	−.49[c]	(−.15)[a]	−.53[c]	(−.23)[c]	−.10	(−.08)
Vandalism	−.29	(−.12)[a]	−.54[b]	(−.17)[b]	−.29	(−.11)[a]
Generalized Other Being Caught						
Petty Theft	−.21	(−.09)	−.16[a]	(.01)	−.14	(.01)
Theft $10 - $100	−.42	(−.07)	−.49	(−.11)[a]	−.27	(−.04)
Marijuana	−.36[c]	(−.13)[b]	−.31[c]	(−.08)	−.28[b]	(−.09)[a]
Bad Checks	.06	(.05)	.14	(−.02)	.00	(−.04)
Vandalism	−.19	(−.11)[a]	−.20	(−.12)[a]	−.20	(−.10)[a]
Generalized Other Being Caught by Police						
Petty Theft	−.43[b]	(−.10)[a]	−.28[a]	(.05)	−.27	(.04)
Theft $10 - $100	−.18	(−.06)	−.34	(−.10)[a]	−.10	(−.04)
Marijuana	−.32[c]	(−.12)[a]	−.27[b]	(−.06)	−.24[a]	(−.07)
Bad Checks	−.51[c]	(−.19)[c]	−.37[c]	(−.15)[b]	.01	(−.03)
Vandalism	−.28	(−.11)[a]	−.33	(−.11)[a]	−.06	(−.08)
Generalized Other Being Arrested						
Petty Theft	−.33[a]	(−.08)	−.23	(.10)[a]	−.22	(.07)
Theft $10 - $100	−.20	(−.09)	−.51	(−.10)	−.51	(−.08)
Marijuana	−.33[c]	(−.11)[a]	−.24[a]	(−.04)	−.25[a]	(−.07)
Bad Checks	−.51[c]	(−.17)[b]	−.19	(−.13)[b]	.01	(−.03)
Vandalism	−.28	(−.11)[a]	−.26	(−.10)[a]	−.17	(−.09)[a]
Generalized Other Being Convicted						
Petty Theft	−.31[a]	(−.07)	−.14	(.12)[a]	−.09	(.12)[a]
Theft $10 - $100	−.13	(−.07)	−.23	(−.08)	−.52	(−.10)[a]
Marijuana	−.30[b]	(−.10)[a]	−.28[b]	(−.03)	−.18	(−.06)
Bad Checks	−.46[b]	(−.16)[b]	−.25[b]	(−.13)[b]	−.02	(−.06)
Vandalism	−.30[a]	(−.10)[a]	−.25	(−.09)	−.17	(−.10)[a]
Severity of Punishment for Self						
Petty Theft	−.33	(−.08)	−.02	(−.03)	−.19	(−.08)
Theft $10 - $100	.27	(−.10)[a]	.41	(.00)	.08	(−.03)
Marijuana	−.02	(−.04)	−.07	(−.01)	−.05	(.00)
Bad Checks	−.31[a]	(−.18)[c]	−.24	(−.09)[a]	−.14	(−.05)
Vandalism	−.23	(−.10)[a]	−.06	(−.01)	−.03	(−.02)

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

one weaker five times, they are the same two times, and in only one instance is gamma for the deterrent effect larger than both experiential effects. The same pattern applies to the Pearsonian coefficients: in fifteen cases both experiential effects are larger, in eleven cases one of the experiential effects is larger than the deterrent effect while the other is not, in three cases they are the same, and in only one case is the deterrent effect larger than both experiential effects. A most striking comparison can be made between the Time 2 experiential effect and the deterrent effect for the risk of one's self being arrested. For each offense, the relationship between past behavior and the risk of one's own arrest consistently shows a moderately strong and significant experiential effect. The corresponding deterrent relationships, however, are generally weaker and non-significant. All but one of the experiential correlations are significant, whereas only three out of ten deterrence relationships reach statistical significance.

Table 4B presents the relevant experiential-deterrent comparisons for the high school sample, showing the same pattern as the college data set. The magnitudes of the correlations are consistently larger for the experiential than the deterrent effect. This is particularly true for the two measures of perceived certainty. For the ten three-way comparisons (two experiential effects, one deterrent effect) with gamma as the measure of association, the two experiential effects are both larger than the deterrent effect in eight instances. In two cases one of them is larger and one weaker than the deterrent effect, while in no case is the deterrent effect equivalent to or larger than any of the experiential effects. In comparing the effects using Pearson's r, the two experiential effects are stronger than the deterrent effect in three instances while at least one of them is larger in eight others. As with gamma, none of the Pearson correlation coefficients for the deterrent effect is larger than the corresponding values for the experiential effect. There is little difference between Time 1 and Time 2 experiential effects even though the time interval for the first effect is twelve months and the second only six months. It would appear from this, then, that substantial experiential effects may be produced even over short time intervals. The greater magnitude of the experiential relationship is less pronounced for the perceived severity measure in the high school sample; the deterrent effect is fairly moderate in strength for all offenses and generally larger than the experiential effect. Thus, for the high school respondents, the experience of committing illegal acts and getting away with them is likely to lead them to modify their estimates of the risk of getting caught rather than their estimates of the penalties should they be discovered.

TABLE 4B

GAMMA AND PEARSONIAN CORRELATION COEFFICIENTS BETWEEN PERCEPTIONS OF LEGAL PUNISHMENT AND SPECIFIC OFFENSES: HIGH SCHOOL SAMPLE

	TIME 1 EXPERIENTIAL EFFECT	($B_1 \rightarrow P_1$)	TIME 2 EXPERIENTIAL EFFECT	($B_2 \rightarrow P_2$)	DETERRENT EFFECT	($P_1 \rightarrow B_2$)
Perception of:	G	(r)	G	(r)	G	(r)
Generalized Other Being Caught						
Petty Theft	$-.54^{c}$	$(-.19)^{c}$	−.13	(−.04)	−.30	$(-.11)^{a}$
Theft $10 - $100	−.79	$(-.14)^{b}$	−.63	(−.06)	−.15	(−.05)
Marijuana	$-.48^{c}$	$(-.15)^{b}$	$-.58^{c}$	(−.10)	$-.38^{b}$	(.03)
Drinking	$-.32^{a}$	(−.09)	$-.31^{a}$	$(-.13)^{a}$	−.18	(−.09)
Vandalism	−.17	$(-.11)^{a}$	$-.29^{a}$	(−.10)	−.12	(−.10)
Generalized Other Being Convicted						
Petty Theft	$-.34^{a}$	$(-.16)^{b}$	.01	(−.07)	−.23	(−.09)
Theft $10 - $100	−.77	$(-.13)^{a}$	−.59	(−.05)	−.34	(−.08)
Marijuana	$-.51^{c}$	$(-.15)^{b}$	$-.45^{c}$	(−.06)	$-.32^{b}$	(−.08)
Drinking	−.22	(−.07)	$-.34^{b}$	(−.10)	−.17	(−.06)
Vandalism	−.12	(−.08)	−.23	(−.09)	−.10	(−.09)
Severity of Punishment for Self						
Petty Theft	.13	(−.02)	−.13	(−.03)	$-.56^{b}$	(−.10)
Theft $10 - $100	−1.00	(−.04)	−1.00	(−.05)	−.24	(−.05)
Marijuana	$-.65^{c}$	$(-.14)^{b}$	−.25	(.00)	$-.52^{c}$	$(-.13)^{a}$
Drinking	$-.30^{a}$	(.02)	−.25	(−.02)	−.17	(−.05)
Vandalism	.10	(.00)	−.08	(−.03)	−.21	$(-.10)^{a}$

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

Deterrence researchers have repeatedly claimed that the perception of legal threats plays a significant role in social control. Their evidence supporting this claim is the finding of moderate correlations between current perceptions and prior behavior. The above analyses show, however, that these correlations describe not a deterrent but an experiential effect. The data find moderately strong correlations between present perceptions and prior behavior—the *experiential effect*. The true deterrent effect appears to be much weaker than earlier researchers have suggested. Indeed, in Tables 4A and 4B most of the deterrence relationships are weak and non-significant. It would appear from this, then, that offense-specific perceptions of punishment threat may be inconsequential factors in producing conformity.

As Silberman[21] and Grasmick and Green[22] have noted, however,

[21] Silberman, *supra* note 1.
[22] Grasmick & Green, *supra* note 2.

perceptions of the threat of punishment may be organized around a *set* of rules and prohibitions rather than a single regulation. It is possible, then, that more substantial deterrent effects can be found if one correlates global measures of perceived certainty and severity with a measure of overall criminal involvement. The data in Table 5 examine that issue. Since the scale construction procedures generated variables that more clearly reflect interval level properties, Pearson's r is a more appropriate measure of association. Since, however, many deterrence researchers have reported their results with gamma as the measure of association, we also calculated gamma after collapsing for comparison. With respect to the college sample (Table 5A), the data do show consistent evidence of a weak deterrent effect. For each measure of perceived risk and for perceived severity, the r coefficient is both negative and significant. In addition, a personal measure of perceived risk appears to be more important for deterrence than an other-referenced measure, consistent with other research.[23] The experiential effects are again generally larger in magnitude than the corresponding deterrent effect. All but two of the r values for the experiential effect are larger than the corresponding r for the deterrent effect. Further, in looking at the Time 1 experiential effect, the data suggest that just as a self-referenced measure of risk is more vital for deterrence, it may also be more significant than an other-referenced measure in the experiential process. For the self-referenced measure of risk, both Pearson's r and gamma are substantially larger than any of the other-referenced measures. The generality of this is difficult to determine, however, since the pattern is not repeated with the Time 2 experiential effect.

As with the college respondents, the high school data set (Table 5B) shows a weak but significant deterrent effect for each of the perception indices. A close correspondence exists between the two groups with respect to the magnitude of Pearson's r for the deterrent effect. For both groups the value of r for the perceived certainty measures vary between $r = -.14$ and $-.18$, suggesting some consistency in the deterrent effect despite sample characteristic and measurement differences. Also, as was true for the college data set, the correlations for the experiential effect on perceived certainty are all larger than the deterrent effect. The experiential and deterrent effects for perceived severity are virtually the same. It must be noted here that despite the finding of a deterrent effect for both data sets, our r values are all considerably smaller than the deterrent effect reported by Grasmick and Green.[24] The correlation between

[23] Jensen, Erickson & Gibbs, *supra* note l; Waldo & Chiricos, *supra* note l.

[24] Grasmick & Green, *supra* note 2, at 333.

TABLE 5A

GAMMA AND PEARSONIAN CORRELATION COEFFICIENTS BETWEEN COMPOSITE PERCEPTION AND BEHAVIOR INDICES: COLLEGE SAMPLE

	TIME 1 EXPERIENTIAL EFFECT	($B_1 \rightarrow P_1$)	TIME 2 EXPERIENTIAL EFFECT	($B_2 \rightarrow P_2$)	DETERRENT EFFECT	($P_1 \rightarrow B_2$)
Perception of:	G	(r)	G	(r)	G	(r)
Self Being Arrested	$-.51^{c}$	$(-.33)^{c}$	$-.19$	$(-.19)^{c}$	$-.21$	$(-.18)^{c}$
Generalized Other Being Caught	$-.27^{a}$	$(-.16)^{b}$	$-.17$	$(-.18)^{c}$	$-.20^{a}$	$(-.18)^{c}$
Generalized Other Being Caught by the Police	$-.36^{c}$	$(-.24)^{c}$	$-.25^{a}$	$(-.22)^{c}$	$-.18$	$(-.15)^{b}$
Generalized Other Being Arrested	$-.34^{c}$	$(-.22)^{c}$	$-.22^{b}$	$(-.20)^{c}$	$-.17$	$(-.14)^{b}$
Generalized Other Being Convicted	$-.35^{c}$	$(-.21)^{c}$	$-.26^{b}$	$(-.20)^{c}$	$-.15$	$(-.14)^{b}$
Severity of Punishment for Self	$-.26^{a}$	$(-.12)^{a}$	$-.18$	$(-.06)^{a}$	$-.13$	$(-.12)^{a}$

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

TABLE 5B

GAMMA AND PEARSONIAN CORRELATION COEFFICIENTS BETWEEN COMPOSITE PERCEPTION AND BEHAVIOR INDICES: HIGH SCHOOL SAMPLE

	TIME 1 EXPERIENTIAL EFFECT	($B_1 \rightarrow P_1$)	TIME 2 EXPERIENTIAL EFFECT	($B_2 \rightarrow P_2$)	DETERRENT EFFECT	($P_1 \rightarrow B_2$)
Perception of:	G	(r)	G	(r)	G	(r)
Generalized Others Being Caught	$-.37^b$	$(-.34)^c$	$-.26^b$	$(-.27)^c$	$-.16$	$(-.18)^b$
Generalized Others Being Convicted	$-.32^b$	$(-.26)^c$	$-.24^a$	$(-.21)^c$	$-.16$	$(-.16)^b$
Severity of Punishment for Self	$-.31^b$	$(-.14)^b$	$-.12$	$(-.13)^a$	$-.08$	$(-.15)^b$

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

their legal sanctions variable and index of past criminal conduct was $r = -.40$, $p < .001$.[25] That correlation is best understood as reflecting an experiential effect. The value of r for Grasmick and Green's "deterrent" effect is closer to the values reported here as the experiential effect.

Although the true deterrent effect is substantially smaller than that reported by Grasmick and Green, the data show consistent evidence of a weak but significant negative relationship between perceptions of punishment threat and subsequent criminal involvement. Even these correlations, however, cannot qualify as unambiguous support for the deterrence doctrine. As Gibbs[26] has warned, any observed relationship between perceived sanctions and behavior may be spurious, with the correlations being produced by extra-legal factors such as moral condemnation of the acts involved or social disapproval of the acts by others. Much to their credit, Grasmick and Green controlled for such spurious relationships by including in their regression analysis the moral commitment to legal norms and social disapproval. Even after such controls, they found a non-vanishing relationship between perceived legal punishment and prior criminal involvement.[27] Again, however, their data do not address the deterrence relationship but merely demonstrate that the experiential relationship was not spurious. To test for the spuriousness of the deterrent effect found in the two data sets reported on here, we conducted a regression analysis similar to that of Grasmick and Green. Time 2 criminal involvement was regressed on Time 1 measures of perceived certainty, severity, moral commitment, and social disapproval.[28] In this analysis only the composite perception and behavior

---

25 *Id.*

26 J. GIBBS, CRIME, PUNISHMENT AND DETERRENCE (1975).

27 Grasmick & Green, *supra* note 2, at 334.

28 A moral commitment and a social disapproval scale were constructed by a procedure identical to that used for the other scales employed in this research. To measure moral commitment, we asked both the college and high school respondents to respond to the following item: "Whether or not you get caught, it is always wrong to commit 'crime x.'" The item was asked in reference to each of the five specific offenses already discussed and response options ranged from "strongly agree" to "strongly disagree." The wording of these questions is similar to that used by Grasmick and Green in their study. The scale was produced by summing and averaging across the five offenses. We then subjected each scale to a principal component factor analysis. For the college data set, a one-factor model fit the data, and all loadings on the first component were .63 or higher. For the high school data set, a one-factor model fit well with loadings on the first principal component ranging from .64 to .89. Both scales were then given a reliability check; Cronbach's alpha was .71 for the college and .82 for the items from the high school sample.

To measure social disapproval, we asked the college students to respond to the question: "If you were to commit 'crime x' how do you think —— would react?" The question was asked for all five offenses; the referent for the reaction was mother, father, boyfriend or girlfriend, and best friend. Response options ranged on a five point continuum from "strongly disapprove" to "strongly approve." We asked the high school respondents an identical set of questions, with mother, father, best friend and teacher as the object reacting. A scale was

scales were used because they more clearly have interval properties than do the offense-specific items, and they demonstrated the strongest and most consistent evidence of a deterrent effect in the earlier analyses.

Table 6A describes the additive effect of the three inhibitory variables on the Time 2 measure of criminal involvement for the college respondents. In each case, the independent variables are one of the composite measures of perceived legal punishment, the index measuring social disapproval, and the index measuring moral commitment to the rules. The data from each separate regression analysis are uniform in showing that once other inhibitory factors are controlled, perceived legal threat has very little deterrent effect. In comparing the direct effects of the three variables, the beta coefficient (standardized regression coefficient) for the legal threat variable is the lowest of the three in every

TABLE 6A

MULTIPLE REGRESSION FOR DETERRENT EFFECT: RELATIONSHIP BETWEEN TIME 1 INHIBITORY VARIABLES AND SUBSEQUENT BEHAVIOR—COLLEGE SAMPLE

	Beta	b	p
Self Being Arrested	−.068	−.142	.266
Social Disapproval	−.113	−.534	.120
Moral Commitment	−.182	−.481	.011
Generalized Other Being Caught	−.124	−.013	.030
Social Disapproval	−.114	−.539	.105
Moral Commitment	−.182	−.481	.010
Generalized Other Being Caught by Police	−.074	−.009	.208
Social Disapproval	−.117	−.551	.103
Moral Commitment	−.189	−.491	.009
Generalized Other Being Arrested	−.069	−.009	.238
Social Disapproval	−.117	−.552	.104
Moral Commitment	−.187	−.495	.008
Generalized Other Being Convicted	−.070	−.010	.234
Social Disapproval	−.117	−.552	.103
Moral Commitment	−.187	−.494	.008
Severity of Punishment for Self	−.048	−.098	.420
Social Disapproval	−.119	−.561	.103
Moral Commitment	−.192	−.508	.006

constructed for both samples by summing and averaging across the five offenses. A principal component factor analysis and reliability check was performed on the scale items. In both data sets, a one-factor model fit the data; all factor loadings for the principal component were .30 or higher for the college sample and .40 for the high school respondents. Cronbach's alpha for the social disapproval scale was .86 for the college data set and .91 for the high school data set.

case but one. In every instance the variable with the most explanatory power is moral commitment, which has the largest beta value and is significant at the .01 level in all six regressions. Although it never reaches statistical significance, the effect of social disapproval is the second-best predictor in five of the six analyses. Only for the perceived threat of a generalized other being caught is there a significant deterrent effect once other inhibitors are controlled, and even then it is not the best predictor of subsequent criminal involvement. The high school data also show the absence of any strong deterrent effect for perceived legal punishment. Table 6B reveals that in each instance the best explanatory variable is the respondent's moral commitment to the rules; in all three cases it had the largest beta and was significant at the .001 level. Unlike the college sample, however, the second-best predictor for the high school sample was the legal threat variable, although in no case did it attain statistical significance.

Grasmick and Green significantly misinterpreted their data, reaching the critically erroneous conclusion that the perceived threat of legal punishment is part of an "exhaustive set of factors which inhibit illegal behavior."[29] Their data collection strategy does not allow such a conclusion since they were not really examining the deterrent effect. The analysis reported here suggests quite the opposite conclusion: perceived certainty and severity of formal legal punishment play almost no role as a deterrent.

TABLE 6B

MULTIPLE REGRESSION FOR DETERRENT EFFECT: RELATIONSHIP BETWEEN TIME 1 INHIBITORY VARIABLES AND SUBSEQUENT BEHAVIOR—HIGH SCHOOL SAMPLE

	Beta	b	p
Generalized Other Being Caught	−.113	−.007	.065
Social Disapproval	−.061	−.161	.394
Moral Commitment	−.273	−.387	.000
Generalized Other Being Convicted	−.100	−.007	.104
Social Disapproval	−.061	−.160	.399
Moral Commitment	−.277	−.393	.000
Severity of Punishment for Self	−.112	−.221	.064
Social Disapproval	−.059	−.157	.407
Moral Commitment	−.282	−.400	.000

[29] Grasmick & Green, *supra* note 2, at 334.

IV. Summary and Discussion

For a number of years, perceptual deterrence researchers have been reporting negative correlations between measures of perceived legal punishment and illegal behavior as evidence of a deterrent effect. In their recent article, Grasmick and Green utilize refined measures but retain the cross-sectional strategy of deterrence research. They found a significant relationship between perceived legal punishment and criminal behavior even after controls for other inhibitory factors. It has been argued that before such cross-sectional correlations be used as support for the deterrence doctrine, there must be considerable stability in the perceptions involved. Without such stability, perceptual deterrence researchers may simply be reporting the change that criminal behavior produces on estimates of punishment certainty and severity. Using two sets of panel data, one from college students and another from high school students, our data revealed little perceptual stability over time, even over as short a time span as six months. Personal estimates of risk were less stable than estimates of the risk for a generalized other. Perceptions were no more stable even when measured as an organized set; composite scales of certainty and severity also showed significant change over time.

In finding little stability in perceptions of legal punishment, the data raise questions about the conclusions of prior deterrence studies and suggest the importance of the experiential effect—the effect of behavior on perceptions. Using panel data, we calculated independent deterrent and experiential effects for both groups of respondents and found the zero-order correlation between Time 1 behavior and Time 2 perceptions (experiential effect) to be consistently stronger than the effect of Time 1 perceptions on Time 2 behavior (the deterrent effect). The experiential effect was particularly strong with self-referenced measures of perceived risk. The finding of greater perceptual change and stronger experiential effects for personal estimates of risk may account for the stronger relationships with these measures found in the literature and mistakenly interpreted as showing the salience of self-referenced measures for the deterrence process.

Even though the true deterrent effect was weaker than what the literature had suggested, however, the zero-order correlations revealed evidence of a deterrent effect. Once regression analysis introduced controls for other inhibitory factors (moral commitment and social disapproval), however, all but one of the negative correlations were reduced to non-significant levels. These findings thus offer little support to the deterrence doctrine. Rather, they bolster Greenberg's objection that Grasmick and Green's and almost all of the earlier perceptual research tell us nothing about deterrence effects.

Clearly, additional research is necessary, particularly regarding the experiential effect. Other variables besides experience in criminal behavior affect perceptions of the threat of punishment. One of these certainly is one's experience with actual sanctions. It seems plausible that some kinds of perceived risk (for example, the risk of arrest) may be substantially affected if one were to be apprehended for a criminal act but received informal disposition of one's case. It also seems reasonable to expect a positive experiential effect in instances where criminal involvement *does* result in apprehension and arrest. Perceptions can be influenced not only by one's own experience in criminal behavior or experience with formal sanctions, but may also be affected by knowledge of other's experience. In general, since perceived certainty and severity have been *independent* variables in deterrence research, little is known about how perceptions are shaped and reshaped over time.