

# RESPONSES TO PRISON FOR ENVIRONMENTAL CRIMINALS

## Impacts of Incident, Perpetrator, and Respondent Characteristics

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**ABSTRACT:** Qualitative work with water quality inspectors suggests that structured discretion shapes the transition from informal to administrative sanctions and depends both on impressions formed about the morality of the polluter and the seriousness of the incident. Undergraduates ( $n = 118$ ) at a diverse, urban university judged vignettes based on an actual prosecution. In a fully between  $2 \times 2 \times 2$  randomized design, the authors manipulated incident damage, polluter criminal history, and polluter-regulator relationship. These features influenced respondents' perceptions of offender cooperativeness and event seriousness. Cooperativeness influenced reactions to the appropriateness of prison; event seriousness influenced reactions to the appropriateness of a long prison term. Results suggest the factors influencing reactions to the transition from civil to severe criminal sanctions are somewhat similar to the factors influencing regulators' transitioning from informal to administrative sanctioning; in both sets of processes impressions formed of the incident and the offender mediate the relevant dynamics.

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**Officials at the state, local, and federal levels** rely on different tools to induce individuals or corporations to comply with environmental regulations and to deter them from committing environmental crimes (Clifford, 1998). Generally speaking, enforcement techniques fall into three categories: informal persuasion efforts, administrative sanctions, and criminal sanctions.<sup>1</sup> The current work looks at lay reactions to severe criminal sanctions for an environmental crime and asks if the same factors shaping regulators' transition from informal compliance to administrative sanctions also affect these lay reactions. Of particular interest are views about the seriousness of the event and the criminality of the offender.

Regulators' decisions to move from reliance on informal persuasion to obtain compliance to administrative sanctions depends on several factors (Hawkins, 1984a, 1984b). An ethnographic study of British water quality inspectors by Hawkins (1984a, 1984b) suggested, through grounded theorizing, that although inspectors—for a number of reasons—heavily favored informal pressures to secure compliance, incident, firm, and perpetrator characteristics all influenced decisions to begin a process of generating administrative sanctions. Relevant features of the polluting incident(s) were noticeability (1984b, p. 74), and expected environmental (pp. 74, 77) and political impacts (p. 97). Larger, or more frequent discharges, or discharges in locations more likely to attract public attention garnered stronger responses from the inspectors.

Although it might seem plausible that incident features should have the strongest influence on inspectors' responses, how the polluter behaved could supersede the importance of incident features. "A polluter who displays an immediate willingness to take whatever action is necessary may well discover that the gravity of the pollution itself is accorded less importance by the officer" (Hawkins, 1984b, p. 109). Compliance by the polluter signifies a willingness to cooperate and to continue a working relationship with the regulators. "The discharger who does what the field man asks—even though he may still be polluting—will be thought of as compliant" (Hawkins, 1984b, p. 110).

From the behaviors of the polluter, as well as other information gathered about his or her background and company attributes, and information shared with other agency personnel, the regulators in Hawkins's (1984b) study constructed four types of discharger personalities (pp. 110-113): socially responsible, unfortunate, careless, and malicious. The last three characterizations address the reasons behind the polluting event. These characterizations influenced regulators' choices of enforcement strategies (p. 115).

Hawkins' grounded theorizing about moving from informal to administrative sanctions suggests that regulators' structured discretion relies heavily

on a composite image of the incident and the polluter, and together these generate an image of how cooperative the polluter is, how serious—now and in future—the event is, and, therefore, how deserving the polluter is of being administratively sanctioned. The current investigation will examine the impact of these image factors on how deserving a polluter is who receives a severe criminal sanction—20 years in prison.

The administrative context for environmental regulators is certainly different between the United States and the United Kingdom (Adams, 1990, p. 324; Sewell & O’Riordan, 1976, pp. 6-8). Part of that context difference is increased attention in the United States on the transition from administrative to potentially severe criminal sanctions.<sup>2</sup> The domestic focus on strong criminal sanctions emerged in part because of concerns that civil or administrative sanctions may be ineffective and thus have little deterring or economic impact because they are too modest (Russell, 1990, p. 252). These worries sparked increased interest in criminal penalties for violators.

The transition from imposing civil or administrative penalties to imposing criminal penalties is at least as complex as the decision of whether to start administrative proceedings and similarly laden with discretion (Yeager, 1991, p. 253). Of course, discretion does not rule out a structure to enforcement decisions. One study found that at the federal (Environmental Protection Agency [EPA]) level, cases were viewed as better targets for enforcement efforts when the health impacts of noncompliance were greater, the firm was not dealing honestly with the agency, and the amount of environmental damage resulting from the violation was greater (Yeager, 1991, p. 255). Federal guidelines from the mid-1970s suggested that criminal rather than civil prosecution should be pursued only in cases “where the authority of the agency has been intentionally and deliberately flouted” (Yeager, 1991, p. 256). So, the case parameters structuring discretion in the move to criminal sanctions at the federal level appear roughly parallel to those used by Hawkins’ water quality regulators in their decisions to start administrative procedures.

Despite the interest in criminal sanctions, rates of criminal sanctioning for environmental violations has been in general extremely low according to some observers. Thus, the bulk of the “action” is in noncriminal sanctions. But noncriminal sanctions are not applied equitably; the distribution of these sanctions reproduces extant inequalities between firms (Yeager, 1987, 1991). Bigger firms have more resources and thus can more successfully invoke regulatory proceedings, like adjudicatory hearings, resulting in a smaller number of sanctions or less severe sanctions being levied against such companies.

Given concerns about the low rates at which polluting firms have been sanctioned, and the extremely low rate at which serious criminal sanctions have been applied, many have called for increasing imposition of criminal

sanctions against polluting firms (Allan, 1987; Carter, 1980; M. Cohen, 1989, 1991; Fromm, 1990; Glenn, 1973; Hedman, 1991; Kuruc, 1985; McMurry & Ramsey, 1986; Note, 1988; Riesel, 1985; Starr, 1986a, 1986b). Such sanctions may include jail time for high-level officials within a firm. One way this has played out has been the emergence, since the early 1980s, of more vigorous state-level prosecution of violating polluters (Celebrezze, Muchnicki, Marous, & Jenkins-Smith, 1990).<sup>3</sup>

For example, in December 1992, Steve Madonna, then state environmental prosecutor for the state of New Jersey, successfully prosecuted two individuals who, several years earlier, had run an illegal dump disguised as a recycling center. The owners accepted materials to be recycled, such as tires, used motor oil, solvents, and a broad range of highly toxic chemicals. They charged customers for recycling the materials, but in fact just stored them. They had received court orders to clean up the site. A fire broke out at the site damaging a major multilane interstate leading to New York City, forcing its closure for several months. Heat from the fire was so intense it damaged steel bridges and buckled the road; the highway required extensive reconstruction.

The fire, which smoldered for days, blazed in mounds of debris stacked as high as 30 feet under an elevated section of I-78. After the fire, 4,593 trailer-loads of debris were trucked from the site at a cost of \$8 million. (U.P.I., 1992)

The sentence handed down to one of the two owners, Michael Harvan, was 20 years in prison (8 years before being eligible for parole) and a \$100,000 fine. Harvan had been previously convicted on bribery and racketeering charges. At the time, this was the longest sentence for an environmental crime delivered in the state of New Jersey ("Co-owner of Illegal Dump," 1992). The partner, Richard Bassi, was sentenced 3 days later to a 15-year term, not to be eligible for parole before 6 years (U.P.I., 1992).

Despite the numerous advocates of more vigorous state-level criminal prosecution of firms not in compliance with environmental regulations, some argue against such a strategy (M. Cohen, 1992; Davies, 1983). Such stiff penalties, including jail time for high-level officials within a firm, may, they caution, over-deter corporations, making the latter less likely to produce needed products. If a firm knows that toxic, difficult-to-dispose byproducts will result from the manufacturing of a new item and that the penalties for improper handling or disposal of such byproducts include lengthy prison time, the firm may decide not to make the new product at all. Partially as a response to those concerns, the EPA has been searching for ways to reinvigorate the deterrent power of civil sanctions (Murray, 1999).

The above argument suggests that those more concerned about business productivity may be less willing to endorse severe sanctions on firms committing environmental crimes. Recognizing the trade-off between environmental regulations and business productivity—at least in the short term—those with more probusiness views may be less likely to sanction severe penalties.<sup>4</sup>

But how do people view the appropriateness of serious criminal sanctions for serious environmental crimes? We know from the general work on seriousness scaling and sentencing that it is not only the seriousness of the convicted person's offense that matters. In addition, previous record and amount of damage or loss also matter (Rossi & Berk, 1997, p. 12; Schlegel, 1990; Wolfgang, Figlio, Tracy, & Singer, 1985). But, with the exception of Rossi and Berk's (1997) most recent national study, previous crime seriousness and punishment studies did not include a number of environmental crimes (e.g., Wolfgang et al., 1985).<sup>5</sup> Wolfgang et al. (1985) included only one extreme environmental crime in their scaling exercise; the other studies included none because they were concentrating on street crimes for the most part. Consequently, we do not know if the factors that have proved important generally in the work on crime seriousness and punishments apply similarly to environmental offenses of varying seriousness.

The seriousness and punishment work also suggests little connection between judgments and respondent characteristics: "Variation in sentencing is only weakly related to socioeconomic characteristics of citizens . . . there are no consistent differences by other socioeconomic characteristics or by race or ethnicity" (Rossi & Berk, 1997, pp. 12-13). Again, we do not know whether this lack of consistency also would appear when considering environmental crimes. In the case of environmental offenses, race, business attitudes, and gender all might affect views about appropriate sentences.

In the case of race, work on environmental racism has documented the additional environmental burden borne by communities of color in urban as well as suburban and rural locations (Bullard, 1994; Bullard & Feagin, 1991). Although important questions persist about the independent influences of race versus poverty in determining these higher burdens, the patterning by community racial composition may lead to a more punitive response toward violating polluters among African Americans. The increased punitiveness may be general or it may be contingent on either the severity of the violation and/or the occurrence or future possibility of significant harm to the community resulting from the violation.

Those with probusiness attitudes, in response to the significant costs often linked to compliance with environmental regulations, may raise questions about the legitimacy of the latter (DiMento, 1986). Public opinion appears to be divided on the issue (Erskine, 1972; Gillroy & Shapiro, 1986). For

example, in a 1978 national Harris poll, respondents were focused on “how responsive the government should be to a company that says it must close down a plant because the cost of pollution control is too high” (Louis Harris and Associates, 1978). In that context, they were asked whether they agreed or disagreed that “a clean environment is so important that no compromises should be made even if economic hardship is involved” (Louis Harris and Associates, 1978). Forty-three percent agreed; 42 percent disagreed. A 1988 New Jersey poll asked residents 18 and older what they thought about “companies that knowingly break the law by polluting the environment” and whether violators “should face criminal charges and go to jail if found guilty” (Eagleton Institute, 1988). Although two thirds of respondents (67%) found such a sentence fair, 20% thought it too strict, and 9% thought it was not enough.

Given these variations, we expect those with more probusiness attitudes are likely to be less in favor of violating polluters doing prison time. The relationship may be a broad one or it may be contingent on the level of harm inflicted or the incorrigibility of the corporate personnel, with attitudes proving less relevant as harm and offending history become more serious.

In the case of gender, some work on the environmental justice “frame” suggests women may be more environmentally concerned than men (Capek, 1993; Draper, 1993). Again, this may be a widespread effect or may prove relevant only with particularly severe environmental crimes.

One final issue examined is the possibility of future harm. In criminal justice, although future danger is problematic as a relevant factor in sentencing of street criminals, it is more readily factored into pretrial release decisions (Goldkamp, 1985). In thinking about environmental crimes, one important way they are different from street crimes and many other types of white collar crimes is the potentially long latency before harmful effects surface (Heilbroner, 1996). Significant time may elapse before hazardous elements migrate through soil or water, or the biological changes from the hazards become noticeable. This time lag makes for a range of prosecutorial difficulties (Harr, 1996). But Hawkins’ (1984b, p. 97) ethnographic work with water quality inspectors also shows their sensitivity to future damage and future public reaction. Respondents in the present study may think that if future problems are more likely, stemming from violations of environmental regulations, then the firm personnel are more guilty at present and more deserving of prison time.

The current investigation sought to learn if, and under what circumstances, lay people thought lengthy prison time was an appropriate punishment for a severe environmental crime. EPA guidelines and field work on discretion exercised by water quality inspectors suggest that both features of the incident and the perpetrator might prove relevant. Regulators respond

more severely to firms failing to comply with earlier requests (Hawkins, 1984b). Therefore, prison time may be seen as more appropriate for noncooperative parties. Furthermore, polluters who have a past history of polluting and getting convicted for it are viewed more negatively by regulators, especially if the firm in question has the capacity to remain in compliance and not pollute past permitted limits. Hawkins's work points out how these current and past attributes lead to moral characterizations. Research on seriousness scaling and punishments does find that offender and incident harm characteristics matter, but to date scant attention has been focused on seriousness of environmental crimes.

Furthermore, given Hawkins's (1984b) work, impacts of offender and incident on perceived appropriateness of severe punishments may be mediated by the views respondents form of the perpetrators and incidents. His work highlights how the moral impressions regulators formed of the offender and of the incident's overall seriousness guide decisions about how to proceed. Similarly, respondents here may form impressions of the incident and the offender, based in part on what happened and offender history, and be guided by those impressions. We will test this possibility by allowing these impressions and related expectations to mediate impacts of offender and incident characteristics.

Our two main outcomes here are whether respondents thought a long prison term was appropriate given a serious environmental crime and if they thought the term given was too long, long enough, or too short. The impacts of event seriousness, offender criminality, and the offender-regulator relationship on reactions to the sentence will, we hypothesize, be mediated by impressions of the incident and the offender. With regard to incident characteristics, we hypothesize that more damage taking place will result in the event being seen as more serious, chances of future problems as higher, and in turn, prison as more appropriate. With regard to the offender, we expect offenders with a prior history will be viewed as more likely to offend in the future and therefore more deserving of prison or of longer prison. With regard to the offender-regulator relationship, we expect if the offender had begun cleanup before the arrest, he or she will be seen as more cooperative and thus less deserving of prison or long prison time. With regard to demographics, we expect African Americans and women will be harder on the violator and see prison as more appropriate. Race and gender may directly affect the outcome, or they may influence mediating perceptions. Women and African Americans may see events as more serious and expect a greater likelihood of future harm. Finally, we will control for probusiness attitudes.

In short, the purpose of this exercise is not to learn what sentences respondents think appropriate for serious environmental crimes. Rather, the focus is

on their reactions to a serious criminal penalty, along the lines of these advocated more recently, and in at least one case actually delivered. The concern is whether respondents agree with such a sentence and how these reactions are mediated by impressions of the offender and the event, while controlling for features of respondents.

## METHOD

We asked a diverse set of undergraduates at a large public university to read about and respond to eight environmental crime scenarios based on a real crime described above, which was successfully prosecuted by the New Jersey Office of the State Environmental Prosecutor ("Co-owner of Illegal Dump," 1992).

*Respondents.* Students in a number of criminal justice courses were asked to voluntarily complete the questionnaire as an extra credit option during their classes.<sup>6</sup> A total of 118 usable questionnaires were returned. Although criminal justice classes were used, the respondent pool proved extremely diverse: 52.5% women, 47.5% men, 38.1% African American, 45% White, 4.2% Hispanic, and the remainder affiliating with other ethnic groups. Although the median age was 21, one third of the respondents were over 22, and 9.5% were 27 or older.<sup>7</sup> When asked about the size of their hometown, although over half (53.4%) reported living in a large city of over 500,000, 13.6% reported living in a rural area, 22% reported living in a small town, and 11% reported living in a medium-sized city. They were politically diverse as well. Although almost half (48%) reported voting Democratic in the preceding presidential election, 27% voted either Republican or independent, and 25% reported not voting. When asked if they were environmentalists, 53% said they were, and 44% said they were not.<sup>8</sup> In short, even though this was a college pool, it was a remarkably diverse one.

*Design.* We used a  $2 \times 2 \times 2$  (Fire  $\times$  Record  $\times$  Complied) fully between, randomized design varying seriousness of event (Fire), previous criminality of the offender (Record), and cooperativeness of the offender (Complied). The scenario was based on the illegal, scam recycling operation successfully prosecuted in New Jersey in 1992. In the low seriousness scenario, there was no explosion or fire. In the high seriousness scenario, respondents were told that there was an explosion and a fire that released toxic smoke into the surrounding community. No mention was made of health effects or deaths. In the

low cooperativeness scenario, respondents were told the operator had been ordered by the court to begin cleaning up the site, but at the time of his prosecution he had not yet begun cleanup. In the high cooperativeness scenario, respondents were told that the operator had begun on-site cleanup to comply with the court order; the cleanup had begun before the current prosecution started. In the low criminality condition, respondents were told the operator had no prior criminal record; in the high criminality condition, they were told he had a prior criminal record for environmental offenses (the punishment was not specified). So, in what would be the most serious situation, using Hawkins' heuristic, an operator with a prior criminal record had refused to comply with a prior court order to clean up the illegal "recycling" site, and an explosion with a subsequent fire took place at the site and released a cloud of toxic smoke into the neighboring community. In what would be the least serious scenario using Hawkins' heuristic, an operator, with no prior criminal record, at the time of the arrest had begun on-site clean up in compliance with an earlier court order, and, at the time of the arrest, no explosion or fire had occurred at the site. All scenarios received equivalent descriptions of the conditions found at the site.

All eight conditions were presented in varying orders, with order of presentation counterbalanced across the different conditions. Across the 118 subjects, the high versus low split on each of these three variables was even (59 high, 59 low for each of the three factors).

In all the scenarios, the respondents were told the operator had been tried and convicted, and that his sentence included a 20-year prison term and a \$100,000 fine.

*Dependent variables.* Respondents were asked whether they thought Mr. X should have been sent to prison for his environmental crime. Overall, 83.6% agreed that he should, and 16.4% thought that he should not. In addition, they were asked if the prison term handed down was *much shorter*, *somewhat shorter*, *neither too long nor too short*, *somewhat longer*, or *much longer* than it should have been.

*Mediating variables.* We expected that *perceived cooperativeness* (Question 2) would mediate the impacts of Complied. Respondents typically judged the offender to be uncooperative (median = 1.0), but ratings ranged from *extremely uncooperative* to *extremely cooperative*. We expected Future Crime Likelihood (Question 10) to mediate the impacts of Record. Respondents were asked what they thought the chances were that Mr. X would commit additional environmental crimes after his release from prison. Respondents typically rated future offending as *likely* (median = 2.0), but, again,

used all categories from *extremely unlikely* to *extremely likely*. We expected that two variables might mediate the impacts of Fire: the perceived seriousness of the environmental crimes (Question 7) and the expected future damage, that is, the likelihood of a (another) fire or explosion on the site (Question 10).<sup>9</sup> The average seriousness rating for the scenario was between *as serious* and *more serious* than a hospitalization for violent crime injuries, mean = 2.42, median = 2.0, but, again, all categories were used. Expected chances of future fires or explosions ranged from *no chance* to *better than a 90% chance*, with most of the responses occurring at the higher end; mean = almost a 70% likelihood (6.8), median = 80% likelihood.<sup>10</sup> Distributions and statistics for outcome and mediating variables appear in Table 1.

*Demographic predictors.* We used the respondent's gender (Question 79; 0 = female; 1 = male) and race.<sup>11</sup> We explored two race dummy variables. The African American variable separated those classifying themselves as African American (coded 1) from others (coded 0). The White dummy variable separated all those identifying themselves as Caucasian (coded 1) from others (coded 0) classifying themselves as people of color.<sup>12</sup>

*Business and environmental attitudes.* We asked respondents a series of items specifically about business and the environment. We attempted to construct indices from these different indicators but the various attitudes proved remarkably divergent. We ended up concentrating on two separate items that appeared to have the biggest impact on the outcomes. For each of these two items, the response format used was *disagree strongly* (coded 0) to *agree strongly* (coded 6), with no midpoint. The two items were: "In general, businesses in this country are regulated too much by local, state, and federal government" (mean = 1.76, median = 1.0, *SD* = 1.33), and "In the long run, environmental regulations imposed on industries will result in *higher* unemployment rates" (mean = 2.08, median = 2.00, *SD* = 1.31).

## RESULTS

### EFFECTS OF BETWEEN-SUBJECT FACTORS ON MEDIATING PERCEPTIONS

In a series of  $2 \times 2 \times 2$  fully between ANOVAs via regression or PROBIT, the latter for dichotomous outcomes, we confirmed impacts of the between-subjects factors on the mediating perceptions.<sup>13</sup>

**TABLE 1**  
**Distributions on Outcomes and Mediating Variables**

	<i>Value</i>	<i>n</i>	<i>%</i>
<b>Outcomes</b>			
(Q5) Do you think Mr. X should have been sent to prison for his environmental crimes?			
No	0	19	16.1
Yes	1	98	83.1
Missing	1		0.8
(Q4) Do you think the 20-year prison term handed down to Mr. X is			
Much shorter than it should have been	0	9	7.6
Somewhat shorter than it should have been	1	10	8.5
Neither too long nor too short	2	55	46.6
Somewhat longer than it should have been	3	32	27.1
Much longer than it should have been	4	11	9.3
Missing	1		0.8
Mean = 2.22			
Median = 2.00			
SD = 1.00			
<b>Mediating variables</b>			
(Q2) Prior to his conviction on the environmental crimes, how cooperative had Mr. X been with the authorities?			
Extremely uncooperative	0	54	45.8
Uncooperative	1	45	38.1
Cooperative	2	17	14.4
Extremely cooperative	3	2	1.7
Mean = 0.72			
Median = 1.00			
SD = 0.772			
(Q3) If conditions at the dump were not changed, what do you think the chances are that a (another) fire or explosion would occur there in the next 5 years?			
No chance	0	2	1.7
About a 10% chance	1	2	1.7
About a 20% chance	2	3	2.5
About a 30% chance	3	4	3.4
About a 40% chance	4	3	2.5
About a 50% chance	5	27	22.9
About a 60% chance	6	7	5.9
About a 70% chance	7	9	7.6
About a 80% chance	8	16	13.6
About a 90% chance or better	9	44	37.3
Missing	1		0.8

TABLE 1 Continued

	Value	n	%
Mean = 6.80			
Median = 8.00			
SD = 2.35			
(Q7) Compared to a violent crime, such as a person being beaten so badly by a stranger that he or she is hospitalized for several weeks, how serious were the environmental crimes of Mr. X?			
Much less serious	0	3	2.5
Somewhat less serious	1	19	16.1
About equally serious	2	51	43.2
Somewhat more serious	3	16	13.6
Much more serious	4	29	24.6
Mean = 2.42			
Median = 2.00			
SD = 1.10			
(Q10) What are the chances that Mr X will commit additional crimes after he is released from prison?			
Very unlikely	0	12	10.2
Unlikely	1	26	22.0
Likely	2	54	45.8
Very likely	3	23	19.5
Missing	3		2.5
Mean = 1.77			
Median = 2.00			
SD = 0.892			

NOTE: Q = question.

Looking at cooperativeness, we found the expected significant impact of Complied,  $F(1, 108) = 7.95, p < .001$ .<sup>14</sup> Those polluters working to clean up their site before the current prosecution as ordered by the court were seen as more cooperative generally. A marginally significant impact of Fire,  $F(1, 108) = 1.35, p < .12$ , suggested that respondents also saw Mr. X as somewhat less cooperative if a fire and explosion had taken place.

Looking at future offending, we found respondents thought it much more likely if the offender had a Record,  $F(1, 108) = 11.41, p < .001$ . But an unexpected impact of Complied surfaced as well,  $F(1, 108) = 3.71, p < .05$ , suggesting that if the offender had cooperated with authorities prior to the current prosecution, he or she was less likely to offend again when released. No interactions approached having a significant impact on expected future offending. These dual impacts of Record and Complied suggested respondents

somewhat conflated these two effects when forming the impressions of the offender and his future criminality. This conflation fits with Hawkins' discussion about regulators' categorizing polluters.

We expected Fire to affect both perceived seriousness and future damage. The main effect of Fire on seriousness was marginally significant,  $F(1, 111) = 2.55, p < .12$ ; no other main or interaction effects approached having a significant impact on seriousness. Fire's impact on future damage was significant,  $F(1, 110) = 7.65, p < .01$ ; no other main or interaction effects approached significance.<sup>15</sup>

### SHOULD OFFENDER HAVE GONE TO PRISON?

#### OVERALL AGREEMENT

The majority of respondents did agree with sending the offender to prison for his environmental crime, despite the lengthiness of the sentence: 83% agreed with this sentence, and 16% disagreed; this proportion is significantly higher than chance agreement by the  $Z$  test for single sample differences in proportions,  $Z = 7.39, p < .001$ . But it is also significantly lower than almost total agreement,  $Z = -16.4, p < .001$ . In short, there is more than chance agreement that prison is appropriate, but there is not perfect consensus either.

#### PREDICTING SUPPORT FOR PRISON SENTENCE

Because it was not possible to show the full set of relationships between predictors, mediating variables, and the binary outcome, we show just the direct effects of the mediating variables on the outcome.<sup>16</sup> Table 2 shows the results for three sets of models: with just the mediators (A), with the mediators and the demographics (B), and with the mediators, demographics, and environmental attitude items. In all three sets of models, perceived seriousness of the incident exerts a significant (all  $ps < .001$ ) impact on agreeing or disagreeing with going to prison. For example, in the full model (C), the probability of someone agreeing that prison is deserved increases from a 62% probability for those scoring the seriousness of the event 0 to an 89.5% probability for those scoring the seriousness 3.

Up until we add in the two attitude variables, cooperativeness influences whether respondents think prison is right at our stated alpha level ( $p < .10$ ).

**TABLE 2**  
**Direct Effects on Agreement Versus Disagreement With Prison Sentence**

<i>Predictor</i>	<i>Model</i>					
	<i>A</i>		<i>B</i>		<i>C</i>	
	<i>b</i>	<i>b/SE</i>	<i>b</i>	<i>b/SE</i>	<i>b</i>	<i>b/SE</i>
Cooperativeness (Q2)	-.338	-1.81*	-.347	-1.83*	-.283	-1.42
Seriousness (Q7)	.537	3.87****	.511	3.46****	.558	3.52****
Future criminality (Q10)	.065	<1	.064	<1	.139	<1
White (0 = other; 1 = White)	—		.015	<1	-.016	<1
Gender (0 = female; 1 = male) (Q79)	—		.147	<1	.274	<1
Attitude: Regulations cause unemployment (Q39)	—		—		-.084	<(-)1
Attitude: Too much regulation (Q36)	—		—		-.084	<(-)1
$\chi^2$	12.16*** ( <i>df</i> = 2)		12.40** ( <i>df</i> = 4)		3.82** ( <i>df</i> = 6)	
<i>N</i> = 118						

NOTE: Q = question. Full text of attitude items is as follows: Q39: In the long run, environmental regulations imposed on industries will result in higher unemployment levels. Q36: In general, businesses in this country are regulated too much by local, state, and federal governments. Higher scores reflected stronger agreement with the statements. All estimates made using maximum likelihood PROBIT procedures via LIMDEP 7.0. We also estimated versions of Model C with just one attitude item, and the results were virtually identical to those seen here.

\* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ . \*\*\*\* $p < .001$ .

For example, the probability of agreeing that the offender should go to prison decreased from 53% to 44% to 36% as we go from those seeing him as uncooperative to those seeing him as cooperative to those seeing him as extremely cooperative. But when we add in the two business versus environment attitude variables, the impact becomes nonsignificant.

Neither of the demographic variables had a significant impact.<sup>17</sup> Neither did the business versus environment attitude variables.<sup>18</sup> In short, this analysis showed consistent, significant impacts of event seriousness, in the expected direction, on agreeing with sending the offender to prison for the stated term. Increasing offender cooperativeness made respondents less likely to agree with going to prison, but this impact did not persist after business versus environment variables were entered into the model.

### AGREEMENT VERSUS DISAGREEMENT WITH PRISON SENTENCE LENGTH

Separate from the question of whether the offender should go to prison at all is the question of whether the 20-year prison sentence delivered is too long, too short, or the correct length. A higher score means the respondent thought the term was longer than it should have been. Agreeing with prison at all is only moderately related to seeing the sentence as too long or too short ( $r = -.19$ ). Because the outcome was relatively normally distributed, we carried out path analysis of observed variables using structural equation modeling.<sup>19</sup> In the table, we show just the direct effects of the mediating variables, attitudes and demographics on the outcome, but in the text, we discuss some of the indirect effects of the between-subjects factors. As with the first outcome, we ran three sets of models: mediators (Model A), mediators plus demographics (Model B), and mediators plus demographics plus attitudes (Model C). Results appear in Table 3.

The offender's cooperativeness demonstrated significant impacts on the outcome in all three sets of models. The more cooperative he had been, the more respondents agreed his sentence was too lengthy. Every unit increase in cooperativeness increased outcome scores about .4 units (Model A), even after demographics were added (Model B; both  $ps < .01$ ). But adding in the attitude items reduced the coefficient by about a third, to .24, although the direct impact was still significant ( $p < .05$ ). In short, whether the offender had undertaken steps to remediate the site prior to prosecution for the current conviction consistently influenced judgments about the justness of the length of the prison term, regardless of the other items in the model.

Although event seriousness had the expected zero-order relationship with the outcome—the more serious the event, the less likely respondents saw the sentence as too long ( $\gamma = -.12$ )—in the initial path model (Model A) the impact was reversed and significant ( $p < .10$ ). But this unanticipated direct effect disappeared when we added in demographics (Model B). It seems, therefore, that perceived event seriousness, which had proved critical in shaping reactions to the prison versus no-prison decision, had no independent impact on reactions to the length of the prison term.

The last mediator, anticipated future offending, showed the expected zero-order relationship with the outcome ( $\gamma = -.25$ ): The greater they thought Mr. X's chances of reoffending in future, the less likely they were to agree that the sentence was too long. But in Models A and B, a significant effect in the opposite direction surfaced. Perceived likelihood of future offending, however, also correlated with business versus environment

**TABLE 3**  
**Direct Effects on Responses to Length of Prison Sentence**

Predictor	Model					
	A		B		C	
	b	b/SE	b	b/SE	b	b/SE
Cooperativeness (Q2)	.425	3.34***	.402	3.18***	.242	1.99**
Seriousness (Q7)	.136	1.81*	.071	<1	.018	<1
Future criminality (Q10)	.331	3.59****	.324	3.41****	.152	1.62
White (0 = other; 1 = White)	—		.100	<1	.09	<1
Gender (0 = female; 1 = male) (Q79)	—		.319	1.50	.031	<1
Attitude: Regulations cause unemployment (Q39)	—		—		.258	3.85****
Attitude: Too much regulation (Q36)	—		—		.119	1.64
$F^2$	.109		.108		.144	
$N = 118$						

NOTE: Q = question. Outcome variable was "Do you think the 20 year prison term handed down to Mr. X was (0) much shorter than it should have been/(1) somewhat shorter than it should have been/(2) neither too long nor too short/(3) somewhat longer than it should have been/(4) much longer than it should have been." Full text of attitude items is as follows: Q39: In the long run, environmental regulations imposed on industries will result in higher unemployment levels. Q36: In general, businesses in this country are regulated too much by local, state, and federal governments. Higher scores reflected stronger agreement with the statements. All estimates made using AMOS v. 3.6. For indirect effects, see Note 18.

\* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ . \*\*\*\* $p < .001$ .

attitudes, so that after introducing the latter, the impact of expected future offending was rendered nonsignificant.

Of the two attitude variables, one showed a significant net impact; those who agreed more strongly that environmental regulations caused unemployment were more likely to agree that the 20-year sentence was longer than it should have been ( $p < .001$ ). In sum, in the final model we have two significant impacts: The more cooperative the offender, the more respondents agreed the sentence was too long, and the more detrimental they thought environmental regulation, the more they agreed the sentence was too long.

The patterns of indirect effects (results not shown) were complex.<sup>20</sup> The most important point emerging from these analyses was that the predictors (Fire, Complied, Record) maintained their significant impacts on the mediating variables in the full models, even when demographic and attitude items also affected those same mediating variables.<sup>21</sup>

## DISCUSSION

The results have numerous limitations. We have used a series of convenience samples. Although respondents are diverse demographically, we would want to be cautious about generalizing because we did not use probability sampling procedures. But, it is also worth remembering that external validity is an empirical question and cannot be judged a priori (Taylor, 1994, pp. 164-165). In our modeling, we have adjusted our Type I error rate slightly to obtain acceptable statistical power and in keeping with the investigative spirit of our enterprise, given what is currently known about this specific area (J. Cohen, 1969). Furthermore, we have investigated only one particular type of environmental offense. On the positive side, however, we explored responses across two relatively independent outcome measures, randomly assigned different vignette characteristics, and based both our punishment described and the vignette core on an actual case.

Bearing these limitations in mind, we think the current results provide some support for extending Hawkins's (1984b) discussion of structured discretion. The grounded theorizing emerging from his work suggested incident, polluter, and surrounding circumstances converged to create impressions of event seriousness and moral descriptions of the polluter. His discussion centered on the transition from informal to administrative sanctions. Using vignettes based on an actual case, we have found that these impressions similarly shape responses among lay observers to the transition from civil to serious criminal sanctions. Impressions formed about event seriousness influence judgments about sentence length, net of offender impressions and respondent attributes; impressions of cooperativeness shaped reactions to the appropriateness of prison at all, net of other factors. When we could explore the connections between event and polluter background, mediating impressions, and outcomes, we found that the impressions served to completely mediate impacts of the event and offender history.

The important intervening role played by perceived event seriousness underscores our need to know more about how respondents form these severity judgments. Schlegel (1990) has strongly argued that our inability to understand seriousness judgments about corporate crime, and to use those in framing sanctioning responses, is a crucial weakness in the area of white-collar crime. The present results underscore the centrality of such seriousness judgments.

Even though these results support extending Hawkins's framework, they raise questions at the same time. It appears that different impressions are tied

to different punishment reactions. Whereas views about event seriousness shaped reactions to whether prison should be used at all, views about offender cooperativeness shaped reactions to prison sentence length. And, these two questions about the criminal sanction appeared relatively independent of one another. Furthermore, environmental attitudes proved to have a net impact on one outcome (length of prison) but not the other. One direction for future investigation is to clarify how respondents might think differently about different aspects of severe environmental punishments.

Neither gender nor race proved influential.<sup>22</sup> Of course, the scenario used did not specify necessarily that a community was affected by the event. It may be that race-based judgments about punishment appropriateness are activated only when the victims of the incident are identified as disadvantaged populations, or when community impacts are more clearly specified. Alternatively, this may be one area where our sample limitations create problems. Given the sample background, it was possible to model race in only two ways: separating African Americans from others, and separating Whites from non-Whites. We looked at race both ways in the analyses. But because we did not have enough members of other racial groups, we could not examine contrasts between different racial groups. Null findings are of course always difficult, if not impossible, to interpret. Here we may have a number of factors contributing including stimulus characteristics, respondent characteristics, or a mix of both.

Finally, the results may have implications for those arguing that long sentences may be too punitive. Although respondents here were just a convenience sample, and not representative of the population in a locale, over three quarters of them did agree that prison was appropriate, and about 60% thought the sentence was too short, or of appropriate duration. Granted, the form did not ask them to think about prison costs, which surely may have changed their responses. But, at least in this convenience sample, judging vignettes based on a real case, respondents did not differ strongly with the severity of the punishment. Again, whether these levels also appear in more representative probability samples cannot be known until we have those data.

The present study suggests some strong similarities between how environmental regulators structure discretion when moving from informal to administrative sanctions and how lay people react to severe criminal punishments for environmental offenses. In both cases, categorizations about the offender's character and event seriousness prove relevant. Numerous questions remain about the determinants of these lay reactions to a broader range of environmental crimes, and to a broader array of punishments.

## NOTES

1. We are leaving aside civil sanctions, which can be brought by officials but are most likely to be used by injured private parties.

2. Although line-level discretion in responding to potential environmental violations may be broader in the United Kingdom as compared to the United States, the same range of responses are available here—informal, civil or administrative, and criminal.

3. In addition to shifts in broader public opinions and policy initiatives, moves toward or away from stiffer sanctions can be affected by who is in power at the state and federal level. In spite of public opinion or the thinking of officials charged with ensuring compliance, leaders at the very top can advance or retard such efforts. Perhaps best known and well documented (Yeager, 1991) was the decline in enforcement initiatives by the Environmental Protection Agency during the Reagan administrations.

4. But those with probusiness attitudes and concerns about business productivity may at the same time support public concerns in unexpected ways. For example, they may support the public's right to know, hoping such a move might strengthen business responsibility. In addition, they may favor public-private partnerships, hoping that such collaborations might obviate the need for strong enforcement efforts.

5. More recently, in a national sample from the mid-1990s, Rossi and Berk (1997) asked about sanctions for a range of environmental crimes. For these crimes, 25% recommended probation, and the rest recommended prison time; the typical prison time recommended was one year. Many of the environmental crimes they discussed, however, were low impact with no or little health impact described.

6. One reviewer has raised questions about the over-representation of criminal justice majors in our respondent group. He or she was concerned the majors may be more punitive than others or may make connections between variables that are different. The questionnaire was completed in the spring semester, when the courses participating have heavy enrollment of nonmajors. Over all the classes, the total proportion of criminal justice majors was 71%. But on both of our outcomes, the criminal justice majors were not different from the other majors. Whereas 87% of the criminal justice majors approved of a prison term, 79% of the other majors approved, exact likelihood ratio chi square (1) < 1, *ns*. In addition, on the second outcome, reactions to the time of the prison term, the two groups were virtually identical; 2.23 for non-criminal justice majors vs. 2.22 for criminal justice majors,  $t(df = 49.5) < 1, ns$ . The question about whether the over-representation of criminal justice majors in the respondent group may have affected some of our patterns of results, and whether a different pattern would have been obtained with a different mix, is a question of external validity. As must always be the case, such questions are empirical, awaiting the actual results of future efforts, and cannot be decided a priori (Taylor, 1994, pp. 164-165).

Another question raised by the same reviewer was whether the demand characteristics of the testing situation—completing the questionnaire to get extra credit—may have affected results. Again, we cannot know this at the current time because this, too, is a question of external validity.

7. To not embarrass some older, returning students, the highest age category used was 27 and older.

8. 2.5% did not answer this item.

9. If respondents received conditions where a fire and explosion had taken place, they were asked to think about the likelihood of another such occurrence.

10. Given the skewed distribution on this item, we repeated the analyses shown here using a dichotomized form of the variable (0 = 0-7; 1 = 8-9). Results were not markedly different from those shown here.

11. Age was by years up to 26, and ages 27 and up were collapsed. We tried using it in the models shown here as an additional covariate (results not shown). It had occasional impacts, but in no cases were those impacts well patterned or strong, nor did they affect the coefficients shown for the other predictors. We have opted to show the results obtained without age.

12. The results we show here use the White dummy variable. It appeared to provide stronger impacts than models with African American. Nonetheless, when we used the latter race variable, it did not diminish the impacts of the predictors on the mediating variables, or of the mediating variables on the outcomes.

13. Power analysis confirmed that, assuming a moderate effect size ( $f = .25$ ), setting alpha at .10, and conducting two-tailed tests, provided statistical power of .84 for main effects and two-way interaction effects. This exceeds the recommended minimum power level of .80 (Cohen, 1969). Statistical power with this design was too low (.28) to capture small effect sizes with this alpha level.

For the PROBIT analyses reported here we used maximum likelihood estimation via LIMDEP v. 7.5.

We also tested for two-way interactions; none exceeded our significance level of .10, although a Fire  $\times$  Record interaction approached statistical significance ( $p < .11$ ).

14. Of course, as an astute reviewer has reminded us, strictly speaking, the reporting of significance levels in the results is inappropriate because respondents were not sampled using probability sampling procedures. Nonetheless, we follow the practice, widely used in psychology—see, for example, a recent issue of the *Personality and Social Psychology Bulletin*—of reporting significance levels as a way of directing our attention to the most sizable results.

15. Dichotomizing Question 3 and using PROBIT analysis confirmed the same pattern of a main effect for Fire,  $b = .63$ ,  $b/SE = 3.00$ ,  $p < .01$ .

16. Current PROBIT models do not allow such modeling, and there were insufficient cases to generate the required asymptotic matrices so such analyses could be carried out in structural equation modeling.

17. We also tried entering each demographic separately, but in those models neither had a significant impact.

18. Again, we tried entering each attitude variable separately, but the results were not significant.

19. We used AMOS, v. 3.6.

20. We estimated an extensive array of different models, both full and trimmed, with different pathways between predictors and mediators, and among mediating variables.

21. Complied continued to influence cooperativeness,  $b = .52$ ,  $t = 3.88$ ,  $p < .001$ . The direct effect of Complied on future offending was nonsignificant because it was mediated by the impacts of cooperativeness on future offending,  $b = -.26$ ,  $t = -2.72$ ,  $p < .01$ , but the total effect of Complied on future offending was sizable and in the expected direction (-.348). The impact of Record on expected future offending was direct and significant in model C,  $b = .62$ ,  $t = 4.14$ ,  $p < .001$ . Fire's influence on event seriousness was mediated by the impact of Fire on the likelihood of future damage,  $b = 1.14$ ,  $t = 2.74$ ,  $p < .01$ , and the impact of expected future damage on event seriousness,  $b = .10$ ,  $t = 2.48$ ,  $p < .05$ . The total effect of Fire on event seriousness was sizable (.294). Thus, the predictors sustained their connections with the mediating variables in the model even after adding in attitude items and demographics.

22. There was some suggestion that race was relevant in a contingent way to the in/out prison decision, as revealed in a series of CHAID (chi square automatic interaction and detection) models. But we were unable to complete an internal replication of these results, suggesting they may have been unstable.

## REFERENCES

- Adams, C. (1990). Environmental policy. In A. Heidenheimer, H. Hecllo, & C. Adams (Eds.), *Comparative public policy: The politics of social change in America, Europe and Japan* (pp. 308-344). New York: St. Martin's Press.
- Allan, R. H. (1987). Criminal sanctions under federal and state environmental statutes. *Ecology Law Quarterly*, *14*, 117-159.
- Bullard, R. D. (1994). *Dumping in Dixie: Social justice, race and the environment* (2nd ed.). Boulder, CO: Westview.
- Bullard, R. D., & Feagin, J. R. (1991). Racism and the city. In M. Gottdiener & C. G. Pickvance (Eds.), *Urban life in transition* (pp. 55-76). Newbury Park, CA: Sage.
- Capek, S. M. (1993). The "environmental justice" frame: A conceptual discussion and an application. *Social Problems*, *40*, 5-24.
- Carter, R. M. (1980). Federal enforcement of individual and corporate criminal liability for water pollution. *Memphis State University Law Review*, *10*, 576, 583-584.
- Celebrezze, A. J., Jr., Muchnicki, E. D., Marous, J. M., & Jenkins-Smith, M. K. (1990). Criminal enforcement of state environmental laws: The Ohio solution. *Harvard Environmental Law Review*, *14*, 217-251.
- Clifford, M. (Ed.). (1998). *Environmental crime: Enforcement, policy and social responsibility*. Gaithersburg, MD: Aspen.
- Cohen, J. (1969). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Cohen, M. A. (1989). Corporate crime and punishment: A study of social harm and sentencing practice in the federal courts 1984-1987. *American Criminal Law Review*, *26*, 605.
- Cohen, M. A. (1991). Corporate crime and punishment: An update on sentencing practice in the federal courts, 1988-1990. *Boston University Law Review*, *71*, 247.
- Cohen, M. A. (1992). Environmental crime and punishment: Legal/economic theory and empirical evidence on enforcement of federal environmental statutes. *Journal of Criminal Law and Criminology*, *82*, 1054-1108.
- A Co-owner of illegal dump gets 20 years. (1992, December 13). *The New York Times*, B2.
- Davies, J. C., III. (1983). The effects of federal regulation on chemical industry innovation. *Law and Contemporary Problems*, *46*, 41-58.
- DiMento, J. F. (1986). *Environmental law and American business: Dilemmas of compliance*. New York: Plenum.
- Draper, E. (1993). Fetal exclusion policies and gendered constructions of suitable work. *Social Problems*, *40*, 90-107.
- Eagleton Institute. (1988). Eagleton Poll of New Jersey, September 1988, Question 49F. University of North Carolina at Chapel Hill Howard W. Odum Institute for Research in Social Science, Question Detail. Retrieved December 2, 1999, from <http://www.irss.unc.edu>
- Erskine, H. (1972). The polls: Pollution and its costs. *Public Opinion Quarterly*, *36*, 120-135.

- Fromm, E. M. (1990). Commanding respect: Criminal sanctions for environmental crimes. *St. Mary's Law Journal*, 21, 821.
- Gillroy, J. M., & Shapiro, R. Y. (1986). The polls: Environmental protection. *Public Opinion Quarterly*, 50, 270-279.
- Glenn, M. K. (1973). The crime of "pollution": The role of federal water pollution criminal sanctions. *American Criminal Law Review*, 11, 835-882.
- Goldkamp, J. S. (1985). Danger and detention: A second generation of bail reform. *Journal of Criminal Law and Criminology*, 76, 1-74.
- Harr, J. (1996). *A civil action*. New York: Random House.
- Hawkins, K. (1984a). Creating cases in a regulatory agency. *Urban Life*, 12, 371-395.
- Hawkins, K. (1984b). *Environment and enforcement: Regulation and the social definition of pollution*. New York: Oxford University Press.
- Hedman, S. (1991). Expressive functions of criminal sanctions in environmental law. *George Washington Law Review*, 59, 889-899.
- Heilbroner, R. (1996). *An inquiry into the human prospect* (2nd ed., rev.). New York: Norton.
- Kuruc, M. (1985). Putting polluters in jail: The imposition of criminal sanctions on corporate defendants under environmental statutes. *Land and Water Law Review*, 20, 93-108.
- Louis Harris and Associates. (1978). Harris Poll 7882, Question 9e. University of North Carolina at Chapel Hill, Howard W. Odum Institute for Research in Social Science Question Detail. Retrieved December 2, 1999, from <http://www.irss.unc.edu>
- McMurry, P. C., & Ramsey, J. (1986). Environmental crime: The use of criminal sanctions in enforcing environmental laws. *Loyola Law Review*, 19, 1133-1169.
- Murray, P. C. (1999). Inching toward environmental regulatory reform. *American Business Law Journal*, 37, 35-71.
- Note. (1988). In search of effective hazardous waste legislation: Corporate officer criminal liability. *Valparaiso University Law Review*, 22, 385, 392.
- Riesel, D. (1985). Criminal prosecution and defense of environmental wrongs. *Environmental Law Reporter*, 15, 10065.
- Rossi, P. H., & Berk, R. A. (1997). *Just punishments: Federal guidelines and public views compared*. New York: Aldine.
- Russell, C. S. (1990). Monitoring and enforcement. In P. R. Portney (Ed.), *Public policies for environmental protection* (pp. 243-274). Washington, DC: Resources for the Future.
- Schlegel, K. (1990). *Just desserts for corporate criminals*. Boston: Northeastern University Press.
- Sewell, W.R.D. & O'Riordan, T. (1976). The culture of participation in environmental decisionmaking. *Natural Resources Journal*, 16, 1-21.
- Starr, J. W. (1986a). Countering environmental crimes. *Boston College Environmental Affairs Law Review*, 13, 379-386.
- Starr, J. W. (1986b). Countering environmental crimes. *Environmental Affairs*, 13, 380-381.
- Taylor, R. B. (1994). *Research methods in criminal justice*. New York: McGraw-Hill.
- U.P.I. (1992, December 15). Partner gets 15 years for HUB fire. *UPI Regional News Section*. Retrieved March 10, 2000 from Lexis/Nexis database.
- Wolfgang, M. E., Figlio, R. M., Tracy, P. E., & Singer, S. I. (1985). *The national survey of crime severity*. Washington, DC: Government Printing Office.
- Yeager, P. C. (1987). Structural bias in regulatory law enforcement: The case of the U.S. Environmental Protection Agency. *Social Problems*, 34, 331-344.
- Yeager, P. C. (1991). *The limits of law: The public regulation of private pollution*. Cambridge, UK: Cambridge University Press.