CONSCIENCE, SIGNIFICANT OTHERS, AND RATIONAL CHOICE: EXTENDING THE DETERRENCE MODEL

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We propose that significant others and conscience function as agents of social control in a manner similar to the State. All three pose possible threats or costs that are more or less certain and severe which actors take into account in considering whether or not to violate the law. State-imposed costs, which have been addressed in the literature on deterrence, are material deprivations in the form of fines and incarceration. Socially imposed costs are the embarrassment or loss of respect actors might experience when they violate norms which significant others support. Self-imposed costs are shame or guilt feelings which actors might impose upon themselves when they offend their own conscience by engaging in behaviors they consider morally wrong. The threats of shame and embarrassment, like the threat of legal sanctions, affect the expected utility of crime and, thus, the likelihood that crime will occur. In the research reported here, parallel measures are developed of the perceived threats of each of these three kinds of punishment for three illegal behaviors (tax cheating, petty theft, drunk driving). The effects of these perceived threats on people's intentions to violate the law are then examined in a random sample of adults. Threats of shame and of legal sanctions inhibit the inclination to commit each of the three offenses, but the findings for embarrassment appear less compatible with the expected utility model.

In sociology in the early 1960s, it was a foregone conclusion that the threat of legal sanctions had no deterrent effect (see Horton and Leslie, 1960; Sutherland and Cressey, 1966)—a conclusion based primarily on the lack of evidence for a relationship between capital punishment and homicide. States with provisions for capital punishment did not necessarily have lower murder rates, and for most sociologists that was sufficient evidence for the conclusion that the threat of legal sanctions was not a deterrent to crime. The lack of interest in studying deterrence was consistent with rejection of the view that crime was a function of rational decision-making. As Sutherland and Cressey (1966: 342) stated at the time: "Generally, the notion that punishment reduces crime is based on

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the hedonistic assumption that people regulate their behavior by calculation of pleasure and pain. In the recent period this assumption has been seriously challenged." In fact, Hirschi (1986: 106) more recently has noted that the disciplines of sociology and criminology have deep roots in a "general revolt against the rational choice perspective."

Toward the end of the 1960s, however, three studies appeared which sparked a sudden interest in the possible deterrent effects of legal sanctions, and the study of deterrence has now been a central topic in criminology for the past twenty years. Both Gibbs (1968) and Tittle (1969) reported evidence of a relationship between the certainty of legal sanctions and crime rates in aggregates (states), while Jensen (1969) reported evidence of a relationship between perceived risk of legal sanctions and self-reported delinquency in a sample of juveniles.

During the past twenty years, much effort with mixed results has been devoted to refining and expanding these early studies by Gibbs, Tittle, and Jensen. Some researchers have focused on aggregates and on the application of more sophisticated techniques of estimating the effects of legal sanctions on crime (e.g., Logan, 1975; Ehrlich, 1973; Greenberg and Kessler, 1982; Ross, 1982). Field experiments (Tittle and Rowe, 1973; Sherman and Berk, 1982; Lempert, 1981; Green, 1985) and laboratory experiments (Ward *et al.*, 1986) have been conducted, and recently some researchers have used the vignette method (Anderson *et al.*, 1983; Miller and Anderson, 1986; Klepper and Nagin, 1989a, 1989b).

Many sociologists, however, have concentrated on survey data which provide the greatest opportunity to measure a wide variety of variables and, thus, to compare and potentially to integrate deterrence theory with those theories which emphasize sources of compliance with the law other than the threat of legal sanctions. Typically, these have been theories which emphasize (1) moral beliefs about right and wrong and/or (2) attachments to peers, family and various significant others. Such variables are difficult, if not impossible, to measure at the aggregate level or to manipulate in experiments. Unfortunately, the most common approach among survey researchers to incorporating these variables into the study of deterrence has been simply to compare the direct effect on illegal behavior of perceived threat of legal sanctions to the direct effects of variables drawn from other theories (e.g., Burkett and Jensen, 1975; Jensen *et al.*, 1978; Meier and Johnson, 1977; Tittle, 1977; Silberman, 1976; Grasmick and Green, 1981; Bishop, 1984; Paternoster *et al.*, 1983; Berger and Snortum, 1986; Lanza-Kaduce, 1988). Especially in recent years, based primarily on accumulating evidence from panel studies of juveniles, the emerging conclusion appears to be that the effect of legal sanction threat is not as great as the effects of variables from other theories, and, in fact, the perceived threat of legal sanctions might have no deterrent effect at

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all. This conclusion is in marked contrast to the conclusions from the experimental and vignette methods where research tends to uncover evidence of a deterrent effect of the threat of legal sanctions.

In nearly all the survey research, the focus has been on the differences between deterrence theory and other theories, rather than on commonalities and linkages (for exceptions, see Grasmick, 1985; Williams and Hawkins, 1986, 1989; Eckland-Olson *et al.*, 1984; Lempert, 1981). Thus, little has been integrated. We contend, however, that the explicit emphasis in deterrence theory on rational decisionmaking, with actors taking into account the threat of punishment, provides a perspective for reconceptualizing those theories which emphasize internalized norms and significant others as sources of compliance and noncompliance with the law. There is a renewed interest in criminology in developing an explicitly articulated "rational choice perspective" on crime (see Cornish and Clarke, 1986; Paternoster, 1989), and we propose that conscience and significant others can be incorporated into such a perspective.

I. SHAME, EMBARRASSMENT, AND EXPECTED UTILITY

Our strategy follows the suggestion of Meier *et al.* (1984: 68; see also Williams and Hawkins, 1986):

> From a sociological viewpoint, the concept of deterrence is unduly restricted for sanction-behavior relationships because it deals only with legal sanctions and illegal conduct. There is no theoretical reason why the notion of deterrence cannot be extended to other types of sanctions and other types of conduct, but the research literature has generally ignored them.

We propose that both conscience (internalized norms) and attachments to significant others (broadly defined to include friends, family, etc.) function as potential sources of punishments which, like state-imposed legal sanctions, vary in both their certainty and their severity. Thus, both conscience and significant others potentially influence criminality by decreasing the expected utility of crime. While expected utility theory is an admittedly unrefined decisionmaking model, our basic arguments eventually could be elaborated to incorporate various refinements that have been proposed in decisionmaking theory (see Kahneman *et al.*, 1982; Johnson and Payne, 1986; Carroll, 1986, 1987; Carroll and Weaver, 1986; Lattimore and Witte, 1986).

Conventional deterrence theory focuses attention on state-imposed legal sanctions in the form of physical and material deprivations (i.e., fines and incarceration). In the traditional expected utility model (Becker, 1968), individuals are assumed to formulate estimates or perceptions of the likelihood (certainty) of such sanctions and the magnitude (severity) of such sanctions should they

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be imposed. The resulting perceived threat of legal sanctions, conceptualized as the product of certainty and severity, is a cost factor in the expected utility of crime. The product is important because if actors are rational, severe punishments will have a greater deterrent effect when they are fairly certain to be imposed and will have no deterrent effect if the actor perceives a zero probability of apprehension. Likewise, the certainty of punishment will have a greater deterrent effect when that punishment is perceived to be rather severe (see Grasmick and Bryjak, 1980; Klepper and Nagin, 1989b).

The internalization of a norm poses another kind of potential cost or punishment for violating the law—the threat of guilt feelings or shame for doing something which the actor considers morally wrong. While some might argue that internalization makes it impossible for one to violate a norm, such a position implies that people never do things they think are wrong. An alternative perspective (see Blake and Davis, 1964; Briar and Piliavin, 1965; Reckless, 1967) is that, in contemplating whether or not to engage in a particular behavior, individuals take into account whether they would feel ashamed and the effect that shame might have on their self-image or self-esteem. The most immediate adverse consequence of such guilt feelings probably is a physiological discomfort, but more long-term consequences might include a damaged self-concept, depression, anxiety, etc., which could impede normal functioning in one's social environment. While some researchers view moral beliefs as a "nonpunitive source of social control" (Paternoster, 1989: 28), we suggest that shame can be considered a form of potential self-imposed, or reflective, punishment. Like the threat of state-imposed legal sanctions, the threat of self-imposed shame can be viewed as more or less certain and more or less severe. The greater the perceived threat of shame, the lower the expected utility of crime, and the less the likelihood that crime will occur.

Our third possible punishment which decreases the expected utility of crime is embarrassment and is closely linked to the idea of informal sanctions which is central to various versions of control theory such as that proposed by Hirschi (1969). (See also the discussion of "attachment costs" in Williams and Hawkins, 1986.) In fact, Hirschi (1986) sees considerable compatibility between his theory and the growing interest in the development of a rational choice perspective on crime. While the state and the self potentially are sources of punishment threat, so are significant others—friends, family, employer, etc., whose opinions about an actor are considered important by that actor. This kind of punishment occurs primarily in the form of embarrassment when such people might lose respect for an actor if she/he engages in a particular behavior. While shame is a self-imposed punishment in our formulation, embarrassment is a socially imposed punishment, although

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for both the most immediate consequence probably is a physiological discomfort. More long-term consequences of embarrassment might include a loss of valued relationships and perhaps a restriction in opportunities to achieve other valued goals over which significant others have some control. Embarrassment, like legal sanctions and shame, also has the dimensions of certainty and severity. In a rational choice perspective, when calculating the projected costs of illegal behavior, individuals take into account the probability (certainty) that they will be embarrassed and the severity of this sanction should it occur. (The dimensions of certainty and severity of "informal" sanctions were recognized by Tittle, 1977, 1980.)

We are suggesting, therefore, that at least three kinds of potential costs, emanating from three different sources and linked to different theoretical emphases in criminology, might be taken into account by individuals in their "rational" decision of whether to comply with a law: (1) state-imposed physical and material deprivation, (2) self-imposed shame, and (3) socially imposed embarrassment. The rational choice model need not be restricted to a consideration of legal sanctions. Our approach differs from, but is not incompatible with, the recent effort toward theoretical integration by Williams and Hawkins (1986, 1989; see also Jensen and Erickson, 1978). Williams and Hawkins argue that legal sanctions might trigger other mechanisms of social control. An arrest, for example, might be followed by adverse reactions from peers or by a loss of self-esteem so that legal sanctions might have direct deterrent effects plus indirect deterrent effects through these other control mechanisms. Our own argument is not inconsistent with this view, but we suggest that the threats of shame and embarrassment need not be contingent upon legal sanctions. An actor can feel ashamed or be embarrassed even if the state does not detect the behavior. Conscience and significant others, like the state, pose threats, which are more or less certain and more or less severe, that reduce the expected utility of crime.

While some might prefer to restrict the term "deterrence" to legal sanctions, we, like Meier *et al.* (1984), see no reason to do so. In everyday usage, to be deterred is to refrain from doing something out of fear of consequences. These adverse consequences need not be limited to those emanating from the state. Perhaps a distinction could be made between strictly legal deterrence and deterrence in general, but the term "general deterrence" unfortunately has another meaning in the literature. An alternative might be to refer to these punishment threats as factors that inhibit illegal behavior. But the lack of opportunity to violate the law also inhibits illegal behavior in ways unrelated to fear of consequences. Thus, in the absence of a better term, we are comfortable referring to shame and embarrassment, along with legal sanctions, as possible deterrents.

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We do not mean to suggest that the threats of shame and embarrassment are the only ways through which conscience and significant others influence conformity and nonconformity with the law. Rather, we simply are suggesting that shame and embarrassment are one source of their influence. Furthermore, there might be other kinds of punishment whose certainty and severity we have overlooked (e.g., see the discussion of "commitment costs" in Williams and Hawkins, 1986). Nor do we mean to argue that our perspective offers a complete theory of crime. Like control theory in general, our argument has nothing to say about motivation and opportunities for illegal behavior. Our objective is more modest—to suggest that an emphasis on conscience and significant others can be quite compatible with a model that assumes that individuals make "rational" decisions concerning criminality, taking into account the possible adverse consequences or punishments.

Our goal in the present research is to develop parallel measures of the perceived threats of legal sanctions, shame, and embarrassment, tapping both the certainty and the severity of each. Then, using survey data, we will examine the deterrent effects of these various perceived threats of punishment on people's inclinations to violate the law.

II. METHODS

Data were collected in 1985 in face-to-face interviews with a random sample of adults (18 and older) in a Southwestern city with a population of about 400,000. A simple random sample of 360 names was drawn from the *R. L. Polk Directory*. Initial contact was in the form of a letter briefly describing the nature of the survey and indicating that a member of the research team would soon try to schedule an appointment with the person. Attempts to schedule the appointments were made in person by trained field supervisors and interviewers. Members of the target sample who refused to participate were replaced by random selection until the target size of 360 was attained.[1] The sample was compared to 1980 Census data for the city for percentage female, percentage white, and mean age. For none of these comparisons did the sample differ significantly from the population. In the various analyses reported below, we have excluded cases with missing data on any of the variables. Never does this involve more than seven cases.

The appropriate survey methodology for examining the deterrent effect of perceived threat of legal sanctions has been a controversial topic. The same controversies apply when the effects of

[1] About 60 percent of the names drawn from the *Polk Directory* resulted in completed interviews. Among the other 40 percent, about a fifth resulted in undeliverable letters and the remainder could not be located or refused to participate. In general, use of names in the *Polk Directory* probably undersampled recent movers whose listing was no longer accurate by the time the *Directory* was in print.

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shame and embarrassment are examined. The early survey studies treated self-reported *past* illegal behavior as the dependent variable with present perceptions of risk as the independent variable. Thus, in effect, these studies attempted to explain past behavior in terms of present characteristics of the individual. This is a plausible design only under the assumption that perceptions of punishment threat do not change over time. In this case, one could assume that a person's present perceived threat is the same as it was in the past when she/he decided to commit or not commit an offense. Studies based on this assumption tended to find evidence of a deterrent effect: perceived threat of legal sanctions was inversely related to self-reported past illegal behavior.

But Paternoster and his colleagues (Paternoster *et al.*, 1983; Saltzman *et al.*, 1982) clearly demonstrated that perceptions of risk are not stable over time and justifiably challenged the validity of those studies which interpreted the inverse correlation between past behavior and present perceived threat of legal sanctions as evidence of a deterrent effect. They argued that the inverse correlation indicated an "experiential effect" rather than a deterrent effect: illegal behavior in the past tended to reduce the level of perceived risk in the present. Advocating instead the use of panel designs to study deterrent effects, they proposed that the effect of perceived threat measured at time 1 on subsequent self-reports of behavior that occurred during the interval between time 1 and time 2 (usually about a year) could be examined. Such designs tended to produce mixed results concerning the deterrent effect of perceived risk of legal sanctions (e.g., Bishop, 1984; Meier *et al.*, 1984; Paternoster, 1988, 1989), but in general the evidence of deterrence was much weaker in the panel studies than in the earlier cross-sectional studies. In the majority of these studies, the lagged effect of perceived threat of legal sanctions on illegal behavior has not been significant when various control variables are included.

More recently, the assumptions underlying panel studies have been called into question (Williams and Hawkins, 1986; Lundman, 1986; Murray and Erickson, 1987; Klepper and Nagin, 1989a, 1989b). A most basic problem with panel designs is that they do not solve the problem they are intended to address—the fact that perceived threat changes over time. (For views similar to ours, see Piliavin *et al.*, 1986: 115–16; Williams and Hawkins, 1986: 555–57.) Panel designs assume that the perceptions of threat stay constant during the interval between two waves so that the measurement made at time 1, since it does not change during the interim, can rightfully be used to predict behavior which occurs between time 1 and time 2. But there is no a priori reason to assume that an individual's perception of the threat of legal sanctions is invariant during the interval (typically about a year in most panel studies) between time 1 and time 2 measures. There is no guarantee that an individual's *proximate* perception of threat at various times during

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the interval is the same as the perception measured at time 1. Thus, an individual's various decisions concerning crime made during the period between time 1 and time 2 measures do not necessarily occur with the level of perceived threat of sanctions measured at time 1.[2]

In fact, a rational decisionmaking model assumes that deterrent effects, if they exist, are *instantaneous* rather than lagged: actors' present perceptions of "costs" affect the present expected utility of crime. If perceptions of threat are unstable over time, then the most appropriate survey design for studying deterrence would not be a panel design. Panel designs would tend to find lagged effects for independent variables that remained relatively stable over time, such as moral beliefs and fear of parents' reactions as possible examples, but no lagged effects for independent variables, such as perceived risk of legal sanctions, which are not so stable.

Experiments and vignettes, on the other hand, do provide a format for examining the relatively instantaneous effect of sanction threat on decisions subjects make in experiments or say they would make in hypothetical vignette situations. But with these methods, variables such as moral commitments, attachments to significant others, etc., are more difficult to incorporate. While it might be possible to experimentally manipulate some of these variables and measure others in these designs, researchers generally have failed to do so.

We suggest that an appropriate method for studying deterrence, which allows for a possible instantaneous, rather than lagged, deterrent effect while also permitting inclusion of other variables that have been measured and controlled in panel designs, would be a cross-sectional survey examining the effect of present perceptions of threat on respondents' present estimates of whether they will commit an offense in the future. Such a design captures the effect of current perceived threat, and any other independent variables which are measured, on current *inclination* to violate the law. The dependent variable we are proposing is similar to the notion of "behavioral intention" in the work of Fishbein and Ajzen (1975). (See also Murray and Erickson, 1987. For earlier uses of this design, see Tittle, 1980; Grasmick *et al.*, 1984.) Of course we recognize that behavioral intention and subsequent behavior are not synonymous. An actor's present inclination is not necessarily manifested in actual behavior in the future. But according to our rational decisionmaking model, any discrepancy between present intention and future behavior is expected to result from changes

[2] One possibility is that perceptions do change over time, but not dramatically, so that during the interval between time 1 and time 2 the rank order of individuals remains essentially the same. Unfortunately, we simply have no evidence concerning how much and how often people's perceived risks fluctuate during any length of time.

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over time in the expected utility of crime, including changes in perceived costs.

In our analysis, the dependent variable is respondents' present inclinations to commit three offenses: tax cheating, petty theft (less than $20), and drunken driving. We intentionally chose offenses for which potential adverse consequences tend to be somewhat serious, in contrast to more minor offenses such as parking violations, littering, minor forms of illegal gambling, etc. Respondents were simply asked whether they thought they would commit each of the three offenses in the future. The response options were "yes" (coded 1) and "no" (coded 0). In the face-to-face interviews, respondents recorded their answers to these questions on an answer sheet which the interviewer did not see. This strategy was intended to minimize social desirability effects. In the sample, 17.0 percent said they would "fail to report certain income or claim an undeserved deduction" on their income tax return; 7.6 percent said they would "take something from someplace worth less than $20" that did not belong to them; 28.0 percent said they would "drive an automobile while under the influence of a moderate amount of alcohol."

One of our objectives is to develop comparable or parallel measures of perceived threats of shame, embarrassment, and legal sanctions. At the same time, we need to assess both perceived certainty and perceived severity for each of the three kinds of costs. For certainty for each of the three offenses, respondents were asked:

SHAME:	Would you feel guilty if you . . .
EMBARRASSMENT:	Would most of the people whose opinions you value lose respect for you if you . . .
LEGAL SANCTIONS:	Do you think you would get caught if you . . .

Responses were given on a four-point scale ranging from "definitely would not" (coded 1) to "definitely would" (coded 4).[3] The means and standard deviations (in parentheses) are presented in Table 1 in the columns labeled "*C*." The means for the certainty

[3] We are treating the terms "shame" and "guilt feelings" as interchangeable. In the introduction to the section of the questionnaire concerning shame, respondents were presented with the following statement: "Although the particular activity is illegal, you personally might not consider it so wrong to do it. That depends on your own personal beliefs about what is right and wrong. So doing these things might cause you to feel guilty or remorseful, or it might not. That depends on how wrong you think the activity is." The wording was intended to elicit respondents' views about the personal feelings they would have if they committed the offense, independent of how anyone else might react to their behavior. On the other hand, the questions concerning embarrassment were prefaced by the statement: "Think of the people you know whose opinions about you matter the most to you. Think about how they would feel about you if you committed each of the minor law violations." This statement was intended to encourage respondents to think about how other people might react.

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of shame tend to be higher than for the other two types of punishment threat. The largest certainty mean in the table is the 3.67 for certainty of shame for theft. The lowest is the 2.38 for the certainty of embarrassment for tax cheating.

Our measure of perceived severity is an extension of the measure developed by Grasmick and Bryjak (1980; see also Jensen and Erickson, 1978) which captures the *subjective* severity of the punishment—the meaning the actor attaches to the punishment. (For a discussion of "subjective" expected utility, see Tuck and Riley, 1986.) Respondents were asked the following questions for each of the three offenses:

SHAME:	If you did feel guilty for doing this, how big of a problem would it create for your life?
EMBARRASSMENT:	If most of the people whose opinions you value did lose respect for you, how big a problem would it create for your life?
LEGAL SANCTIONS:	If you were caught and the courts had decided what your punishment would be, how big a problem would it create for your life?

The response options were "no problem at all" (1), "hardly any problem" (2), "a little problem" (3), "a big problem" (4), and "a very big problem" (5). The means and standard deviations (in parentheses) are reported in Table 1 in the columns labeled "*S*." In contrast to the certainty means which tended to be highest for shame, the severity means tend to be somewhat higher for the threat of legal sanctions. The highest severity mean is the 4.31 for legal sanctions for drunken driving, followed by the severities of legal sanctions for theft (4.10) and tax cheating (3.97). The lowest is the severity of embarrassment for tax cheating (3.13).

In the social psychology literature on rational decisionmaking, there is some controversy concerning whether the effects of certainty and severity of punishment should be treated as additive or as multiplicative (Carroll, 1982, 1986), but in traditional expected utility theory, the product of certainty and severity is the theoretically important variable that reduces the expected utility of crime (see Becker, 1968). Rational actors, in making their decisions, presumably multiply the probability (certainty) of punishment times the expected magnitude (severity) of punishment to arrive at a projected cost. This product then is expected to influence their decision.

In this attempt to integrate conscience and significant others into a rational decisionmaking model, we have chosen to adhere for now to the basic expected utility model. For each of the three types of punishment (shame, embarrassment, legal sanctions) for each of the three offenses, we multiplied the certainty item times

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Table 1. Means (and Standard Deviations) of Certainty (C), Severity (S), and the Product of C and S ($C \times S$) of Shame, Embarassment, and Legal Sanctions

	C	S	$C \times S$
		Shame	
Tax cheat	3.025	3.307	10.626
	(0.96)	(1.16)	(5.79)
Theft	3.673	3.922	14.793
	(0.71)	(1.02)	(5.15)
Drunk driving	3.242	3.538	12.165
	(0.92)	(1.21)	(6.12)
		Embarrassment	
Tax cheat	2.385	3.130	8.003
	(0.88)	(1.02)	(4.78)
Theft	3.171	3.709	12.269
	(0.81)	(0.99)	(5.26)
Drunk driving	2.891	3.525	10.824
	(0.94)	(1.08)	(5.71)
		Legal Sanctions	
Tax cheat	2.874	3.969	11.689
	(0.76)	(0.89)	(4.77)
Theft	2.894	4.103	12.171
	(0.79)	(0.88)	(4.86)
Drunk driving	2.749	4.313	12.050
	(0.81)	(0.79)	(4.70)

the severity item. These products are the independent variables in the analysis which follows.[4] Each potentially ranges from 1 to 20, and the means and standard deviations are reported in the columns labeled "$C \times S$" in Table 1. For tax cheating the mean product is greatest for legal sanctions, while for theft it is greatest for

[4] In the traditional expected utility model, the product of certainty and severity is the theoretically important variable, and that is the variable we use in the analysis. Researchers often test for "interaction" effects with a stepwise regression procedure in which the main effects (e.g., certainty and severity) are included in the first step. Then, in the second step, the product term is added. A significance test for the product term is interpreted as an indication of whether the interaction term adds any explanatory power beyond the main effects (see Carroll, 1978). Such a procedure assumes that the main effects are the theoretically important variables; the product term is important only if it happens to increase the ability to predict the dependent variable. In our model, however, the product term is the theoretically important variable. (See note 7 for further discussion of this issue.)

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shame. For drunk driving, the mean products are nearly identical for shame and legal sanctions, and both of these are higher than the mean for embarrassment.

We also have included three sociodemographic control variables that previous studies suggest might be related to intentions to commit these kinds of offenses and that might also be related to the risk variables (Grasmick *et al.*, 1984). The control variables are gender, age, and years of formal education. Gender is a dummy variable coded 1 for males and 0 for females and having a mean (i.e., proportion male) of .49. Age is an interval variable with a mean of 43.7 and standard deviation of 16.6. Years of education also is interval with a mean of 14.1 and standard deviation of 2.7. (Post high school training but no college was treated as equivalent to one year of college.)

Finally, the analysis controls for prior offending. Previous research demonstrating an experiential effect suggests that past offending affects present perceived risk of legal sanctions. We would expect the same for shame and embarrassment. In addition, whatever variables affected prior offending are likely also to affect intention to commit the offense in the future. Therefore, both present perceived threat and present inclination to commit the offense are dependent to some extent on past involvement in the illegal behavior. Prior offending, consequently, is a potential source of spuriousness in our analysis and will be controlled. For each of the three offenses, respondents were asked whether they had committed it at least once in the past five years. In the sample, 19.1 percent said they had been dishonest on their taxes; 14.4 percent said they had committed theft; and 40.3 percent said they had driven while under the influence of alcohol. These items, coded 1 for respondents who said they had committed the offense and 0 for those who said they had not, enable us to examine the effects of present perceived threat on present inclination to commit the offense while controlling for prior offending.

III. ANALYSIS

A. Correlations

Before estimating direct effects of the three perceived threats in a multivariate logistic regression, we first examined all bivariate relationships among the variables we use as predictors. For each of the three offenses, all three perceived threats (i.e., products of certainty and severity) are positively correlated. The correlations range from a low of +.41 for the threats of shame and legal sanctions for tax cheating to a high of +.63 for the threats of shame and embarrassment for drunk driving. All nine of these correlations are significant at the .001 level (two-tailed test).

Furthermore, the sociodemographic control variables tend to be related to the perceived threats. For all three threats for all

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three offenses, men perceive significantly ($p<.05$) lower levels of threat than women, with correlations in the range of $-.10$ to $-.20$. Age has a significant positive correlation with each of the threat-offense combinations. These correlations are in the range of .10 to .30. Education is less consistently related to perceived threat. For theft, education has a significant inverse correlation ($-.15$) with legal sanctions but no correlation with the other two threats. For both drunk driving and tax cheating, education is inversely correlated with embarrassment ($-.13$ and $-.11$) and legal sanctions ($-.16$ and $-.18$) but not with shame.

Prior offending is significantly correlated with all three perceived threats ranging from a low of $-.15$ ($p<.01$) for the correlation between embarrassment and prior theft to a high of $-.52$ between shame and prior drunk driving.

Table 2 reports the bivariate correlations (two-tailed significance tests) involving the dependent variables (i.e., the inclinations to commit each of the three offenses). These correlations, especially comparisons across types of offenses, should be interpreted with some caution since the uneven distributions of the dependent variables affect the maximum possible value of any particular correlation coefficient. Despite this caveat, we found that prior offending clearly is more strongly correlated with the dependent variables than are punishment threats and sociodemographic variables. However, all nine bivariate correlations involving punishment threats and behavioral intentions are inverse, as predicted, and statistically significant. With the exception of the correlation between threat of embarrassment and theft ($p=.01$), all the significance levels are beyond .001.[5]

B. Logistic Regressions

With a dichotomous dependent variable (whether or not the respondent intends to commit the offense in the future) and interval-level independent variables, logistic regression is an appropri-

[5] Below are the bivariate correlations between inclination to commit the offense and the certainty (C) and severity (S) components of the product terms.

	Shame		Embarrassment		Legal Sanctions	
	C	S	C	S	C	S
Tax cheat	$-.458$	$-.294$	$-.334$	$-.197$	$-.374$	$-.221$
Theft	$-.291$	$-.250$	$-.180$	$-.088$	$-.245$	$-.142$
Drunk driving	$-.566$	$-.448$	$-.479$	$-.281$	$-.390$	$-.187$

All of these are significant beyond the .001 level except the severity of embarrassment for theft ($p=.098$) and the severity of legal sanctions for theft ($p<.01$). In general, the correlations are stronger for the certainty items than for the severity items.

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Table 2. Bivariate Correlations of Perceived Threats and Control Variables with Behavioral Intention (1=yes; 0=no)

	Tax Cheating (N=353)		Theft (N=355)		Drunk Driving (N=353)	
	r	p	r	p	r	p
Shame	−.395	<.001	−.299	<.001	−.538	<.001
Embarrassment	−.295	<.001	−.145	<.01	−.425	<.001
Legal sanctions	−.346	<.001	−.238	<.001	−.385	<.001
Gender (1=male, 0=female)	.128	<.05	−.006	>.05	.044	>.05
Education (years)	.065	>.05	−.046	>.05	−.002	>.05
Age (years)	−.240	<.001	−.182	<.001	−.333	<.001
Prior offending	.621	<.001	.610	<.001	.679	<.001

ate multivariate technique for analyzing the direct effects of perceived threats of shame, embarrassment, and legal sanctions while controlling for gender, education, age, and prior offending. Typically, however, logistic regression generates metric rather than standardized regression coefficients, making comparisons of the relative direct effects of two or more predictor variables (such as comparisons of standardized regression coefficients from OLS) impossible. But we want to be able to compare the direct effects of perceived threats of shame, embarrassment, and legal sanctions on the predicted log-odds of inclinations to violate the law. To achieve this objective, we standardized the three perceived threat measures (but not the dependent variable). Thus, each is measured in terms of standard deviation units. Using these Z-score transformations of the punishment threat variables, the logistic regression coefficient associated with a particular threat indicates the effect of an increase in the threat of one standard deviation on the predicted log-odds of being inclined to commit the offense. Thus, we can compare the effects of standard deviation increases in threats of shame, embarrassment, and legal sanctions.[6]

Table 3 reports the results of the logistic regressions for each of the three offenses. For each offense, the first column is the conventional metric coefficient, while the second column is based on Z-scores for the threat variables. Since we are interested in gender, education, age, and prior offending only as control variables, not in terms of their relative direct effects, we have not converted the control variables to standard scores. The standardized coeffi-

[6] The logistic regression coefficient produced with this procedure is simply the metric coefficient multiplied by the standard deviation of the predictor variable. Although this transformation affects the standard error, it yields the same t and significance level as does the metric coefficient. For a previous use of this strategy, see Bynum (1982).

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cients can be used to compare effects of the threat variables. The metric coefficients will be used to compute predicted probabilities of intending to violate the law at different levels of the threat variables, each of which ranges from 1 to 20 in metric form. In Table 3 we have used two-tailed significance tests with $p<.05$ as the criterion for rejecting the null hypothesis.[7]

Table 3. Logistic Regressions of Intention to Violate the Law on Perceived Threats and Control Variables (Two-tailed Tests)

	Tax Cheating (N=353)			Theft (N=355)			Drunk Driving (N=353)		
	Metric	Standardized Threat	p	Metric	Standardized Threat	p	Metric	Standardized Threat	p
Shame	−.174	−1.007	.003	−.134	−.690	.031	−.143	−.875	.002
Embarrassment	−.047	−.225	.502	.070	.368	.327	−.064	−.365	.178
Legal sanctions	−.124	−.591	.031	−.191	−.929	.028	−.132	−.621	.016
Male	−.057	−.057	.889	−1.209	−1.209	.045	−.252	−.252	.510
Education	.102	.102	.251	−.004	−.004	.968	−.132	−.132	.075
Age	−.025	−.025	.131	.021	.021	.358	−.010	−.010	.478
Prior offending	3.034	3.034	.000	4.516	4.516	.000	3.559	3.559	.000
(Intercept)	(−.174)	(−3.852)		(−1.964)	(−5.400)		(2.644)	(−1.386)	

Tax Cheating. For the standardized threat variables for the offense of tax cheating, the threats of shame and legal sanctions have significant inverse direct effects on the predicted log-odds of intending to cheat in the future, with the effect of shame (−1.007) being more than one and a half times as great as the effect of legal sanctions (−.591). However, while the coefficient for the threat of embarrassment is negative (−.225) as expected, it is not signifi-

[7] As a concession to the more common treatment of product terms (see note 1), we also estimated the equations in Table 3 with certainty, severity, and the product (for each type of punishment) as predictor variables. With no exceptions, when the two components and the products are in the equation, neither of the components nor the product has a significant effect independent of the others for any of the three offenses. In effect, therefore, it is statistically impossible to untangle main and interaction effects. This, of course, occurs because of multicollinearity (i.e., the product is highly correlated with its components), which is common in the use of product terms in conjunction with components of the product in a single regression equation. Had our theory predicted main effects, we would have then eliminated the product term and estimated only main effects. However, in our theory the appropriate variable is the product term. We conclude, therefore, that the independent effects of the components of the product do not increase our ability to predict the dependent variable beyond the product. Therefore, we retain the product in Table 3 and eliminate the independent effects of the components from the equations.

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cant. None of the three sociodemographic variables have significant effects, while the effect of prior offending is significant beyond the .001 level. It is important to emphasize that the significant effects observed for shame and legal sanctions on intention to cheat occur with a control for prior offending. These effects, therefore, cannot be attributed to the effects of prior offending on perceived threat and future intentions. But the significant positive direct effect of prior offending also suggests that while prior offending might affect future intentions indirectly through the three perceived threats, prior offending also has a direct effect independent of the punishment variables.

Predicted probabilities of intending to cheat were computed from the metric coefficients. All control variables, including the dichotomous prior offending, were fixed at their means. With legal sanctions and embarrassment fixed at 10 which is approximately the midpoint of their scales, we then computed the predicted probabilities of intending to cheat at the two extremes—1 and 20—of the shame scale. Under these conditions, the predicted probability of intending to cheat is .239 when shame is at its minimum of 1. When shame is at its maximum, the predicted probability drops to .011.

The same procedure was used to vary legal sanctions, the other threat that has a significant effect on intention to cheat. With the control variables at their means and the threats of shame and embarrassment fixed at 10, the predicted probability of intending to cheat when the threat of legal sanctions is 1 is .167. When the threat of legal sanctions is at its maximum of 20, the predicted probability drops to .019.

Theft. The results are somewhat different for theft where legal sanctions have the greatest effect. The standardized coefficient for the threat of legal sanctions (−.921) is greater than the standardized coefficient for shame (−.690), but both are inverse and significant. These coefficients include a control for prior offending which has a substantial direct effect. Again, the direct effect of embarrassment is not significant; in fact, it is positive (.368) in sign, contrary to the expected "deterrent" effect. Among the sociodemographic variables, only gender has a significant direct effect. But the negative sign, contrary to what we might have expected, indicates that with controls for the other variables men are less likely than women to indicate they will commit theft in the future. A more detailed analysis, not reported here, indicated that the significant inverse effect is a function of prior offending as a control variable. Without prior offending in the equation, the effect of gender is insignificant. But when prior offending is controlled, women are more likely than men to intend to commit theft.

With the control variables fixed at their means and embar-

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rassment and legal sanctions set at 10, the predicted probability of intending to steal with shame at the minimum of 1 is .084. On the other hand, with shame at the maximum of 20, the predicted probability is only .007. The effect of legal sanctions is even greater. When shame and embarrassment are fixed at 10 with the control variables at their means, the predicted probability of intending to steal is .132 when the threat of legal sanctions is 1, and only .004 when the threat of legal sanctions is 20.

Drunk Driving. Finally, for drunk driving, the standardized threats of shame and legal sanctions again are significant deterrents, even with a control for prior offending. The effect of shame (−.875) is somewhat greater than the effect of legal sanctions (−.621). While the coefficient for embarrassment (−.365) for drunk driving is in the predicted direction, it is not significant ($p=.178$). Among the control variables, only prior offending has a significant (positive) direct effect.

With the control variables equal to their means and the threats of embarrassment and legal sanctions set at 10, the predicted probability of intending to drink and drive for someone having the minimum of 1 on the shame scale is .391. For someone having the maximum of 20, the predicted probability is .041. With shame and embarrassment at 10 and the control variables at their means, a person with the minimum score of 1 on the legal sanctions scale has a predicted probability of intending to drink and drive of .368, in contrast to a predicted probability of .045 for someone having the maximum of 20 on the legal sanctions scale.

IV. DISCUSSION

Our objective has been to incorporate significant others and conscience, along with legal sanctions, into a rational decisionmaking model of crime. To do so, we have conceptualized significant others and conscience as sources of punishment analogous to the state. We have attempted to develop parallel measures of perceived threats of self-imposed shame, socially imposed embarrassment, and state-imposed legal sanctions. In accord with traditional expected utility theory, each threat is viewed as the product of its perceived certainty and severity. Because of the growing recognition that deterrent effects are expected to be instantaneous rather than lagged (Piliavin *et al.,* 1986: 115–16; Williams and Hawkins, 1986: 555–57), we estimated the direct effects of present perceptions of these threats on present inclinations to violate the law (i.e., "behavioral intention") while controlling for prior offending. In our opinion, this is the most appropriate causal ordering for survey research since previous evidence indicates that perceptions of threat change over time at an unknown rate.

For all three offenses, we find strong evidence of a deterrent

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effect of shame. For two of the three offenses (tax cheating and drunk driving), shame is the threat which has the greatest direct effect. These findings highlight the importance of internal control in producing conformity to the law and suggest that internal control might be conceptualized, at least to some extent, as a self-imposed punishment threat which can lower the expected utility of an illegal act. Our findings are consistent with the recent evidence presented by Williams and Hawkins (1989: 175–78) that the possibility of "self-stigma" resulting from an arrest is perhaps the most important indirect deterrent effect of an arrest for wife assault in a sample of adult males (see also Jensen and Erickson, 1978).

We would encourage other researchers to consider refinements in our measure of the threat of shame. It is possible that the certainty of shame, in contrast to embarrassment and legal sanctions, is best viewed as a binary construct rather than a probabilistic one. When confronting actual specific crime opportunities, actors might know with certainty whether they would feel ashamed since they themselves are the punishing agent. In contrast, not knowing for sure how the state or significant others would react, actors can only estimate the probability of legal sanctions or embarrassment. In their research, Klepper and Nagin (1989a, 1989b) asked respondents whether they would cheat on their taxes in very specific situations. In such a design, it would be reasonable to expect respondents to know whether they would feel guilty if they cheated in that context. Even in our research in which we asked about inclination to commit offenses without specifying particular contexts, there was a greater tendency for respondents to choose the extremes for the certainty of shame than for the certainty of either embarrassment or legal sanctions. Early research concerning the perceived risk of legal sanctions sparked considerable discussion and research concerning measurement; we hope our research will generate similar concern about the measurement of shame.

The findings for the threat of socially imposed embarrassment appear to be inconsistent with the rational decisionmaking model. For none of the three offenses did the threat of embarrassment have a significant inverse direct effect on the log-odds of intending to commit the offense. These findings are problematic since past research, including relatively recent panel studies, suggests that significant others play an important role in generating conformity and nonconformity with legal norms (e.g., Paternoster *et al.*, 1983). We examined the patterns of correlations among the independent variables (i.e., the threat variables and the control variables) to determine if the insignificant direct effect of embarrassment could be due to especially strong correlations with other variables. In fact, the correlations between embarrassment and the sociodemographic control variables are about the same in magnitude as the correlations between legal sanctions and these variables.

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Shame, not embarrassment, tends to be the threat most strongly related to the sociodemographic variables, especially to age. Likewise, prior offending is more strongly related to shame than to embarrassment or legal sanctions. Furthermore, for all three offenses the magnitudes of the correlations among the three threat variables are about the same. The only exception is the especially strong +.629 between shame and embarrassment for drunk driving. But drunk driving is the offense for which the threat of embarrassment came closest to being significant in the expected direction. Thus, the collinearity problems surrounding our measure of embarrassment are no more severe than those surrounding shame and legal sanctions. Consequently, multicollinearity cannot explain why the deterrent effect of embarrassment is not significant while the deterrent effects of shame and legal sanctions are significant.

One possibility is that differences between our measure and measures used in panel studies are producing different results. While there seems to be some consistency in the research literature in measuring perceived risk of legal sanctions, no such consistency occurs in measuring risk of "informal sanctions." Our measure was designed to capture just one mechanism through which significant others might influence illegal behavior—by posing a threat of embarrassment to the actor. Perhaps the effect that significant others have is through some mechanism other than this one (e.g., involvement with peers who commit crimes might reduce an actor's perceived risk of legal sanctions). On the other hand, however, our measure is not too different from that used by Paternoster *et al.* (1983), who asked respondents if various significant others would disapprove if the respondents committed the offenses. In that panel study of a student sample, "social disapproval" had a significant inverse effect on illegal behavior.

Another possibility concerns the distinction between the "stigma" of committing the offense and the stigma of being arrested for committing the offense (Williams and Hawkins, 1986). Our measure captures the former, while it might be the latter that serves as a deterrent. But there is an even more subtle measurement issue. We asked respondents if "most of the people whose opinions they value would lose respect" for them if they committed the offenses. It is possible that among some or all respondents an affirmative response means they think they would suffer a loss of respect *if* others knew about the transgression but they did not necessarily believe others would find out about the offense. If the perceived risk of detection by significant others is zero, then even if the perceived certainty times the severity of embarrassment *if* detected is high, the actor is experiencing no threat of embarrassment. (For a related observation, see the discussion of "crime and secrecy" in Tuck and Riley, 1986: 165.) A better measure might involve the perceived probability that significant others would detect

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the transgression, times the perceived probability that detection would lead to a loss of respect, times the subjective severity of such a sanction. Perhaps a more refined measure of threat of embarrassment such as this, taking into account the risk of detection, might have generated results more consistent with the rational decisionmaking model. However, the same potential problem exists in the "social disapproval" measure used by Paternoster *et al.* (1983). No distinction was made between the certainty of detection by significant others and the certainty of disapproval if detected. Nevertheless, in that panel study of students, the measure was significantly related to illegal behavior.

While measurement issues cannot be overlooked as explanations for why the threat of embarrassment did not have a deterrent effect in our data, there is another possibility. The panel studies in which informal sanctions appear to have significant effects (e.g., Paternoster *et al.,* 1983) are studies of student samples, while ours is a sample of adults. It is possible that the threat of informal sanctions, or embarrassment has a greater effect on adolescents than on adults. In fact, Williams and Hawkins (1989), in their study of wife assault using a sample of adult males (and self-reported past behavior), found that the threat of "social disapproval" (resulting from an arrest), unlike the threat of self-stigma, did not have a deterrent effect. In their study of adults, as in ours, conscience appears to be a stronger deterrent than is fear of what others might think.

Our consistent evidence of a deterrent effect of perceived threat of legal sanctions also is at odds with most of the recent panel studies. As noted earlier, this difference could stem from a difference in how the issue of causal order is addressed since we view the effect of perceived threat as instantaneous while panel studies operationalize it as lagged. If perceptions of the threat of legal sanctions are changing between time 1 and time 2, we would not necessarily expect a significant inverse effect of perceived threat measured at time 1 on the behavior that occurred during the interval. That would depend on how much and how often people's perceptions of threat changed during the interval.

However, the difference between adolescent and adult samples also could be an important factor for legal sanctions as well as for embarrassment. We intentionally chose as our dependent variables offenses for which the legal sanctions for adults are not trivial (tax cheating, theft, drunk driving).[8] On the other hand, for

[8] In the case of tax cheating, the time and anxiety involved in dealing with the Internal Revenue Service no doubt is part of the subjective severity of the punishment. Given what seems to be a general fear of the IRS, we suspect that in the typical case these costs are quite high. This probably explains why in Table 1 the mean legal sanctions severity score for tax cheating is about the same as the means for theft and drunk driving, even though the "objective" penalties for the latter two probably are greater than the typical fine for tax cheating.

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many of the offenses used in many of the panel studies of adolescents (e.g., marijuana use, writing a check with insufficient funds, property damage), the strictly legal consequences, independent of any informal sanctions contingent upon them (i.e., "stigma" of arrest), are at most trivial. In part, this is because our society is more reluctant to impose legal sanctions on juveniles than on adults, but, in addition, the offenses are not very serious. Williams and Hawkins (1986: 554) note that the panel study of adolescents which included the most serious offenses (Bishop, 1984), with presumably the most serious legal consequences, did report evidence of a direct effect of perceived risk of legal sanctions. It is possible that in our study of adults with the offenses we selected, the perceived threat of legal sanctions tends to reach the threshold necessary for deterrence, while this is not the case for samples of juveniles and the offenses typically used in such research. If we are correct in this speculation, then even in a sample of adults the direct effect of perceived threat of legal sanctions might be insignificant for minor offenses with relatively trivial legal consequences—offenses such as parking violations, littering, jaywalking, etc. But in our data, with the offenses we used, the threat of legal sanctions has a *direct* effect even when we control for shame, embarrassment, and prior offending. Thus, while legal sanctions, as Williams and Hawkins (1989) argue, might also trigger other control mechanisms and, thus, have indirect effects on compliance, we also find evidence of a direct effect independent of shame and embarrassment.[9]

In conclusion, we want to emphasize again that the rational choice model underlying our research has been intentionally simplistic in our initial attempt to incorporate significant others and conscience, along with the state, into a more general deterrence theory. We have considered only the cost factor in actors' calculations of expected utility, and we have not addressed the issue of why actors vary in their perceptions of the threats of shame, embarrassment, and legal sanctions (see Weaver and Carroll, 1985). We recognize the need for advances in measurement, especially of shame and embarrassment. We have assumed that the certainty and severity of each kind of punishment affect an actor's decision as a multiplicative function, while others (see Carroll, 1978) have

[9] There is a growing body of literature which, while still highly speculative, argues that adolescents experience the risktaking involved in delinquency as rewarding in and of itself, independent of any extrinsic rewards such behavior might produce. Baldwin (1985: 1326) refers to this as the "sensory rewards of thrill and adventure seeking (TAS)" of youth. Thus, although there might be a risk of adverse consequences of legal sanctions, this risk is offset, perhaps more than offset, in the expected utility calculation by the rewarding thrill of taking that risk. For other versions of this argument, see Gove (1985) and Katz (1988). If TAS is a characteristic of youth, we would expect to find less evidence of a deterrent effect of perceived risk of legal sanctions in samples of youths than in samples of adults.

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argued that the effects might be additive. We have not considered the possibility of variation across actors in the relative effects of the three kinds of punishment: some categories of actors might be more strongly influenced by the threat of legal sanctions, while others are more strongly influenced by the threat of shame or embarrassment (see Bursik and Baba, 1986). Nor have we considered the recent advancements in decisionmaking theory, such as prospect theory (Kahneman and Tversky, 1979) and the various heuristics actors might employ to simplify the calculation of expected utility, heuristics that make decisions less than completely optimal but nevertheless predictable (Carroll, 1987; Kahneman *et al.*, 1982). We would encourage others to incorporate these kinds of issues and other advances in decisionmaking theory into research not only on the deterrent effects of state-imposed legal sanctions but also on the effects of self-imposed shame and socially imposed embarrassment.

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