SHAME AND EMBARRASSMENT AS DETERRENTS TO NONCOMPLIANCE WITH THE LAW
The Case of an Antilittering Campaign

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ABSTRACT: The present research draws from theories in criminology which suggest that threats of shame, a self-imposed punishment, and threats of embarrassment, a socially imposed punishment, function much like threats of state-imposed legal sanctions to reduce the expected utility of illegal behavior and, thus, to increase the likelihood of compliance with the law. Antilittering campaigns that appeal to citizens' conscience or sense of community pride are attempts to increase the threats of shame and embarrassment for littering. The antilittering campaign in Oklahoma is such an appeal. A sample of residents of Oklahoma City was interviewed in 1982, five years prior to the initiation of that campaign. Another sample was interviewed in 1989, two years after the campaign began. In 1982, 39% of the respondents indicated they probably would litter in the future, compared to 31% in 1989. In 1982, only 37% strongly agreed that they would feel guilty if they littered, compared to 67% in 1989. Likewise, in 1982, only 8% believed they definitely would lose the respect of others if they littered, compared to 21% in 1989.

The Keep America Beautiful campaign and the events surrounding it in the late 1960s and early 1970s generated concern

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about the problems created by littering not only among the public and government officials but also among behavioral scientists. The past two decades have produced a wealth of research on littering as well as other environmental behaviors (e.g., Casey & Lloyd, 1977; Clark, Burgess, & Hendee, 1972; Durdan, Reeder, & Hecht, 1985; Geller, Winett, & Everett, 1982; Geller, Witmer, & Orebaugh, 1976; Geller, Witmer, & Tuso, 1977; Gendrich, McNees, Schnelle, Beegle, & Clark, 1982; Krauss, Freedman, & Whitcup, 1978; Levitt & Leventhal, 1986; Powers, Osborne, & Anderson, 1973; Reich & Robertson, 1979; Robinson, 1976). While important insights and policy implications have been developed, the research so far has seemed to overlook the fact that littering is illegal. Thus, researchers have not drawn upon theories from the field of criminology concerning determinants of compliance and noncompliance with the law.

On the other hand, despite the enormous costs to our society from widespread littering (Keep America Beautiful, 1970), criminologists interested in social control apparently do not view littering as a serious form of illegal behavior and have excluded it from their research. This is unfortunate since littering is a relatively common form of illegal behavior and affords researchers the opportunity to test hypotheses with an offense for which the proportion of the population who are offenders is fairly high.

The present study draws from the literature in criminology which suggests that threats of shame and embarrassment function in much the same manner as the threat of legal sanctions in generating compliance with the law. Shame, a self-imposed sanction, and embarrassment, a socially imposed sanction, increase the subjective cost of the illegal behavior and, thus, reduce the likelihood that the behavior will occur.

Now common in many states and communities, antilittering campaigns, which appeal to a sense of community pride or moral obligation, rather than threatening legal sanctions, can

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be viewed as attempts to increase the threats of shame and embarrassment for littering. One such campaign, initiated in Oklahoma in 1987 and continuing today, provides at least a quasi-experimental format for examining the possible impact of such an appeal on citizen reports of whether they would feel ashamed or be embarrassed if they littered and on their inclination to litter. Data concerning these issues were collected in a survey of a sample of the adult population in Oklahoma City in 1982, five years prior to the antilittering campaign. Another sample from the same community was interviewed in 1989, two years after the initiation of the campaign. The sampling procedures in the two surveys were identical, and exactly the same questions concerning littering were asked in 1982 and 1989. Merging these two data sets can indicate if there was a significant reduction between 1982 and 1989 in citizens' inclination to litter and, if so, whether this reduction can be attributed to increases in the community in the levels of shame and embarrassment for littering.

SHAME, EMBARRASSMENT, AND DETERRENCE

Cornish and Clarke (1986, p. vi) argued that the field of criminology and social control would benefit from an explicitly articulated "rational choice perspective" as a unifying theme, and Tuck and Riley (1986) suggested that such an approach could begin with a "subjective expected utility" model. Deterrence theory (e.g., Gibbs, 1975) has been one version of a rational choice perspective but has focused on only one factor, the perceived threat of legal sanctions, which might lower the expected utility of noncompliance with the law and, thus, enhance the likelihood of compliance. Meier, Burkett, and Hickman (1984) observed that the concept of deterrence has been unnecessarily restricted to legal sanctions. They suggested that "there is no theoretical reason why the notion of deterrence cannot be extended to other types of sanctions" (p. 68). Deterrence theory has focused on the state, with its threat of fines and incarceration, as an agent of social control. But significant

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others in an actor's social environment and the actor's own conscience play an analogous role. They pose threats of potential punishment which increase the subjective cost of noncompliance (Grasmick & Bursik, 1990; Grasmick & Green, 1980; Williams & Hawkins, 1986, 1989), and they are precisely the kinds of costs which are the focus of moral appeals as a strategy for increasing compliance with the law.

While the state threatens to fine or incarcerate actors who violate the law, significant others are a potential source of another kind of punishment. When actors violate norms, including legal norms, which are endorsed by people whose opinions they value, they run the risk of being embarrassed or suffering a loss of respect. This idea is closely linked to the concern with interpersonal sanctions in Hirschi's (1969) theory of social bonds and Tittle's (1977) emphasis on informal sanctions. The most immediate consequence of embarrassment is a physiological discomfort, but more long-term consequences, which could further increase the cost of violating the law, might be a loss of valued relationships and perhaps also a restriction in opportunities to achieve other valued goals.

Actors themselves are another source of punishment in the form of guilt feelings or shame (see the discussion of "self-stigma" in Williams & Hawkins, 1989). When actors violate norms they have internalized, they incur the risk of guilt feelings, or feeling ashamed. While embarrassment is a socially imposed sanction, shame is a self-imposed or reflective punishment, which can occur even if the state and significant others do not detect the transgression. As is the case for embarrassment, the most immediate adverse consequence of shame is probably a physiological discomfort. More long-term adverse consequences might include depression, anxiety, or damaged self-concept, which could impede normal functioning in one's social environment. While some might argue that internalization of a norm eliminates the motivation to violate it, others (see Blake & Davis, 1964) maintain that, in deciding whether or not to engage in a particular behavior, individuals take into account whether they would feel ashamed if they did. The risk of shame is one

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of the costs that actors weigh against potential gains in deciding whether or not to engage in the behavior.

THE OKLAHOMA ANTILITTERING CAMPAIGN

From a social control perspective, appeals to conscience or to a sense of community spirit as a strategy for enhancing compliance with the law are attempts to increase the threats of shame and embarrassment in a community.[1] Their function, whether latent or explicit, is to make people feel guilty if they do not comply with the law and/or to convince citizens that noncompliance is condemned by other people in the community. This is precisely the agenda of the Oklahoma antilittering campaign.

Prior to 1987, Oklahoma had no organized effort to encourage citizens not to litter.[2] Beginning in 1987, the state adopted a twofold campaign, the Adopt-a-Highway program and the "Don't Lay that Trash on Oklahoma" program.[3]

Texas was the first state to develop an Adopt-a-Highway program, and Oklahoma and Missouri followed its lead. Currently, over half the states in the United States have such a program, and these are concentrated in the Midwest and South. In Oklahoma, a volunteer group (consisting of at least two people over the age of 11) and the State Department of Transportation sign a contract. The groups tend to be voluntary organizations as well as various businesses. The group agrees to pick up trash along a stretch of highway, usually a mile or two, at least four times a year for at least two years. The state agrees to provide trash bags and safety training and to post a sign along that stretch of highway noting the name of the group and acknowledging its contribution. Currently, over 1,300 contracts are in force. While one obvious function of the Adopt-a-Highway program is to remove litter from the particular designated areas, the signs along the highways are evidence to other citizens that some people in the community are concerned about the problem of littering and are devoting time and effort to it.

The second component of Oklahoma's antilittering effort is a media campaign centered around the slogan "Don't Lay that

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Trash on Oklahoma," which is incorporated into a song. The comparable slogan in Texas is "Don't Mess with Texas."[4] The state purchases commercial time from radio and television stations to promote this theme, which stresses the citizen's moral obligation to keep the state clean. Bumper stickers containing the slogan also are available at no cost, as are litter bags for vehicles. From a social control perspective, this effort is aimed at increasing the likelihood that citizens will feel ashamed if they litter.

Objective indicators in Oklahoma revealed a significant reduction in litter during the first full year of this antilittering campaign. Based on visual surveys of a sample of 105 sites along urban and rural streets, highways, and interstates and in state recreation areas, the Oklahoma Department of Transportation (1989) estimated that the number of "litter items" in the state decreased by 22.8% from February/March 1988 to February/March 1989. This figure includes corrections for changes in weather and in traffic and pedestrian volume, and the research was conducted by Daniel Syrek from the Institute for Applied Research (Sacramento, CA) who has conducted similar studies in other states.

The goal of the research described below was to determine first if there has been a reduction in citizens' inclination to litter, corresponding to the objective measure, since the initiation of the antilittering campaign. If so, can the change in inclination to litter be attributed to an increase in the levels of shame and embarrassment for littering? Thus, we have focused not just on the outcome of the antilittering campaign but also on the process by which that outcome might have been achieved.

RESEARCH PROCEDURES

Since 1979, the Department of Sociology, University of Oklahoma, has conducted an annual survey of adults (18 and older) in Oklahoma City. Questions concerning littering were included in the 1982 survey as part of a more general study of

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compliance with the law. The littering questions were repeated verbatim in 1989. Since the survey methodology, including the sampling procedure, has remained constant over time, it was possible to compare the results from the 1982 survey, five years prior to the initiation of the state's antilittering campaign, to the results from the 1989 survey conducted almost two years after the beginning of the campaign.

SAMPLING

Data for the Oklahoma City surveys are collected in face-to-face interviews with a random sample of adults. The target sample size in any one year is primarily a function of availability of funds. The total sample size was 350 in 1982 and 330 in 1989. A simple random sample of names and addresses was drawn from the *R. L. Polk Directory* for Oklahoma City. 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 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 sample size was attained.[5] The 1982 and 1989 samples were compared to 1980 census data for percent female and percent non-White. None of these comparisons showed that the samples differed significantly from the population. Cases with missing data on any of the variables (four cases in 1982 and six in 1989) were excluded from the analysis that follows.

MEASURES

To measure the risk of shame or guilt feelings for littering, respondents in the two surveys were presented with the statement, "Generally, in most situations I would feel guilty if I were to litter the highways, streets, or a public recreation area." They were asked to respond on a 4-point scale ranging from a low of

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strongly disagree (coded 1) to a high of *strongly agree* (coded 4). The threat of embarrassment was measured in a similar manner. Respondents were asked, "Would most of the people whose opinions you value lose respect for you if you were to litter the highways, streets, or a public recreation area?" Answers were given on a 4-point scale ranging from a low of *definitely would not* (coded 1) to a high of *definitely would* (coded 4).

Following the strategy used by Tittle (1977), the dependent variable was respondents' estimates of whether they would commit the offense in the future. Respondents were asked, "In the future, will you ever litter the highways, streets, or a public recreation area?" Such a measure is similar to the concept of behavioral intention in the work of Fishbein and Ajzen (1975). Answers of yes or no were recorded on a separate answer sheet, which the interviewer did not see, in an attempt to minimize social desirability bias. This measure of inclination to litter is preferable to reports of past littering because it avoids the causal order problem of examining the effects of present threats of shame and embarrassment on past behavior. Instead, the analysis examined the effect of present threats on present inclination to commit the offense.

It should be noted that the dependent variable was a self-report measure rather than an objective observation of behavior in a natural setting. In past research, these two methods sometimes have yielded different conclusions concerning at least some of the correlates of littering. (For a summary, see Durdan et al., 1985.) Hopefully, other researchers will expand the kind of analysis described below to incorporate additional measures of littering.

CONTROLS

Previous self-report research (Keep America Beautiful, 1968) as well as observational studies (e.g., Durdan et al., 1985) indicated that among adults, littering is more common in the younger age brackets. Furthermore, self-report research has sug-

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gested that men are more likely to litter than are women. While some observational studies (e.g., Durdan et al., 1985) have found an effect for gender, others (e.g., Finnie, 1973) have not. Because of these previous findings, age and gender were controlled in the analysis. The 1982 and 1989 samples were not expected to differ significantly in the distribution of gender, but, because of the aging of the population, the 1989 sample should be older than the 1982 sample. In addition to gender and age, years of formal education and race were included as controls because of possible sampling fluctuations between the two years and because of possible links between these variables and the threats of shame and embarrassment and the inclination to litter.

Obviously, the before-after comparison of the 1982 and 1989 samples was not a true experiment. There was no control community that did not experience an antilittering campaign. Thus, any reduction in the inclination to litter over the two sample periods, or any increases in the threats of embarrassment and shame, do not necessarily suggest that the antilittering campaign has had an effect. We can, however, address the possibility that any reduction in inclination to litter or increase in threats of shame and embarrassment for littering are part of a more general trend toward increased compliance with the law, not just the law against littering, and increased threats of shame and embarrassment for noncompliance in general. The 1982 survey contained questions about petty theft ("In the future, will you ever take something from someplace worth less than $20 that does not belong to you?") identical to those for littering. Between 1982 and 1989, petty theft was not the target of any particular compliance campaigns. If there had been a reduction in inclination to litter but not to commit petty theft, and if the risks of shame and embarrassment for littering but not for theft had increased between 1982 and 1989, the trends for littering could not be attributed to a more general trend across other offenses. This would provide stronger though still not conclusive evidence of a compliance-enhancing effect of the antilittering campaign.

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TABLE 1
Comparisons of 1982 and 1989 Samples on All Variables

Variable	*1982 (N = 346)*	*1989 (N = 324)*	t	p
Percentage male	45.95	51.54	1.45	>.050
Percentage White	82.95	81.79	–.39	>.050
Mean years of formal education	14.43	13.81	–1.27	>.050
Mean age	42.51	46.12	2.74	.003
Mean risk of shame for littering	3.10	3.52	6.60	<.001
Mean risk of embarrassment for littering	2.26	2.60	5.00	<.001
Percent who will litter in the future	39.02	30.56	–2.30	.011

NOTE: Data based on one-tailed tests.

RESULTS

Table 1 depicts one-tailed *t* tests to compare the 1982 and 1989 samples on all variables. The percent male, percent White, and mean years of education did not differ significantly across the two samples. However, as expected, the mean age was significantly higher in the 1989 sample than in the 1982 sample.

For both shame and embarrassment, the mean perceived risks were significantly higher in 1989 than in 1982. On a 4-point scale, the mean for shame was 3.10 in 1982 and 3.52 in 1989, and the difference was significant beyond the .001 level. Inspection of the full range of answers to this item revealed that in 1982, only 37% of the respondents "strongly agreed" that they would feel guilty if they littered. By 1989, the figure had increased to 67%. For the 4-point embarrassment measure, the mean increased from 2.26 in 1982 to 2.60 in 1989. This difference also was significant beyond the .001 level. At the extreme, in 1982, only 8% of the sample indicated that most of the people whose opinions they value "definitely would" lose respect for them if they littered. This increased to 21% in the 1989 sample.

Finally, Table 1 reveals a significant ($p = .011$) reduction in the percent of respondents who indicated they will litter in the future. In 1982, 39.02% said they would, compared to 30.56% in 1989. Thus, the increases in the risk of shame and embarrassment, as well as the increase in the average age, between 1982 and

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TABLE 2
Effects of Year and Control Variables on Threats of Shame and Embarrassment

Independent Variable	*Shame*			*Embarrassment*		
	beta	t	p	*beta*	t	p
Year	.229	6.39	<.001	.158	4.35	<.001
Age	.245	6.82	<.001	.318	8.73	<.001
Male	–.066	–1.84	.034	–.010	–0.27	>.050
White	.171	4.77	<.001	.052	1.43	>.050
Education	.023	0.64	>.050	.000	0.01	>.050
	R^2 = .162 p < .001			R^2 = .142 p < .001		

NOTE: In one-tailed tests, 0 = 1982, 1 = 1989; N = 670.

1989 have been accompanied by a reduction in the proportion of respondents who reported that they would litter.

To consider the possibility that the trends observed for littering reflect a more general trend toward compliance with the law rather than the impact of the antilittering campaign, questions concerning petty theft in the two surveys also were analyzed. In contrast to littering, the percent who said they would "take something from someplace worth less than $20" that did not belong to them actually *increased* between 1982 and 1989, from 4.91% to 10.49% ($t = 2.73, p = .006$). Furthermore, for petty theft, the mean scores for shame (3.74 versus 3.80) and embarrassment (3.29 versus 3.27) did not change significantly between 1982 and 1989. Thus, the tendency observed toward increased risks of shame and embarrassment for littering and reduced inclination to commit the offense were not matched by comparable trends for petty theft.

In Table 2, the two surveys were merged, and the year was treated as a dummy variable coded 0 for 1982 and 1 for 1989. The Ordinary Least Squares (OLS) regressions for shame and embarrassment as dependent variables consider the effect of year on these threats, with controls for the other variables. Standardized coefficients are reported. The control for age is especially important since, as anticipated, the 1989 sample was significantly older than the 1982 sample and since in the combined sample (N = 670) age is positively correlated with both

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the threat of shame ($r = .288, p < .001$) and threat of embarrassment ($r = .340, p < .001$). The increases in the threat of shame and embarrassment observed in Table 1 might simply reflect changes in the age distribution of the population rather than the effect of the antilittering campaign. In Table 2, male and White were the dummy variables for gender (coded 1 for males) and race (coded 1 for Whites). Age and education were interval variables measured in years.

As expected, age had a significant positive effect on both shame (beta = .245, $p < .001$) and embarrassment (beta = .318, $p < .001$). But the direct effects of year were positive and also significant beyond the .001 level. In other words, even with the controls, respondents in 1989 tended to score significantly higher than respondents in 1982 on the threats of shame (beta = .229) and embarrassment (beta = .158). For the threat of shame, gender and race also had significant effects. The beta of –.066 for male ($p = .034$) indicated that males scored significantly lower than females on the perceived risk of shame. The beta of .171 for White indicated that Whites scored significantly higher than non-Whites ($p < .001$). For the risk of embarrassment, no other variables besides year and age had significant direct effects.

Finally, Table 3 examined the extent to which the reduction in inclination to litter from 1982 to 1989 was the result of increases in risk of shame and embarrassment rather than changes in the age distribution of the population. In the various equations, the dependent variable was a dichotomy coded 1 for respondents who said they would litter in the future (34.9% of the combined samples) and 0 for respondents who said they would not. The standardized coefficients reported are those from OLS regressions. Because the distribution of the dependent variable was not extremely concentrated into either of the two categories, OLS procedures yielded the same conclusions concerning significance levels as did logistic regressions (not reported). The OLS estimates are reported to facilitate discussion of direct and indirect effects and comparisons of the magnitudes of the effects of independent variables.

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TABLE 3
Effects of Year and Other Independent Variables on Inclination to Litter

Independent Variable	*Equation 1*			*Equation 2*			*Equation 3*		
	beta	t	p	*beta*	t	p	*beta*	t	p
Year	−.096	−2.49	.007	−.069	−1.83	.034	.049	1.40	>.050
Male	.086	2.20	.014	.078	2.07	.020	.048	1.41	>.050
White	−.009	−0.23	>.050	.017	0.45	>.050	.099	2.89	.002
Education	−.051	−1.31	>.050	−.042	−1.11	>.050	−.031	−0.94	>.050
Age	—	—	—	−.245	−6.48	<.001	−.105	−2.91	.002
Shame	—	—	—	—	—	—	−.449	−12.01	<.001
Embarrassment	—	—	—	—	—	—	−.094	−2.54	.006
	$R^2 = .018$ $p = .022$			$R^2 = .076$ $p < .001$			$R^2 = .269$ $p < .001$		

NOTE: Data based on one-tailed tests; $N = 670$.

Equation 1 indicated that, with controls for gender, race, and education, year had a significant effect of −.096 (p = .007) on inclination to litter. In other words, respondents in 1989 were less inclined to litter, because of the negative sign, than respondents in 1982.

Equation 2 added age to the control variables to consider the possibility that the effect of year in Equation 1 was simply an artifact of the increased age of the population. With age in the equation, the effect of year was reduced to −.069, a reduction of about 30% from Equation 1. Thus, the higher average age of the 1989 sample, coupled with the inverse relationship between age and inclination to litter, accounted for about 30% of the effect of year on inclination to litter. Nevertheless, as Equation 2 indicates, even with the additional control for age, the inclination to litter was significantly lower in the 1989 sample (p = .034).

Equation 3 added the threats of shame and embarrassment to the variables in Equation 2. Now the inverse effect of year on the dependent variable vanished, and, in fact, the coefficient for year became slightly positive although not significant (beta = .049, $p > .05$). Thus, that part of the effect of year which was not due to age differences between the two samples (i.e., the beta of −.069 in Equation 2) was explained by the higher levels of shame and embarrassment in 1989 compared to 1982 and the effects of shame and embarrassment on the inclination to litter. In Equation 3, both shame and embarrassment had significant inverse effects on the dependent variable, although the effect of shame (beta = −.449) was much greater than the effect of embarrassment (beta = −.094).

Several other features of Table 3 are worth noting. First, in Equations 1 and 2, men were significantly more likely than women to say they will litter in the future. But in Equation 3, the effect of gender was insignificant. Table 2 indicated that males perceived a significantly lower risk of shame than females, and this difference, therefore, accounts for the greater inclination of males to litter.

The findings concerning race also are interesting. Table 2 suggested that Whites score significantly higher than non-Whites

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on the measure of shame. In Equations 1 and 2 of Table 3, race did not have a significant effect on inclination to litter. But in Equation 3, which includes shame, the effect of White was positive and significant (beta = .099, p = .002). In other words, were it not for the greater threat of shame experienced by Whites, Whites actually would be *more* inclined to litter than non-Whites.

Table 2 revealed a significant positive effect of age on both shame and embarrassment. In Equation 2 of Table 3, the direct effect of age, controlling for year, gender, race, and education, was –.245. But in Equation 3, when shame and embarrassment are added as controls, the effect of age was reduced to –.105, a reduction of over 50%. Thus, the greater threats of shame and embarrassment experienced by older people accounted for over half of the effect of age on inclination to litter.

DISCUSSION

Two years after Oklahoma initiated its antilittering campaign based on moral appeals rather than threats of legal sanctions, Oklahoma City residents in a sample were significantly less inclined to litter than were residents interviewed five years before the campaign began. To some extent, this difference was a function of the aging of the population, with older people being less likely than younger people to report that they would litter. But the sample interviewed two years after the campaign began also scored significantly higher on the threats of shame and embarrassment than did the earlier sample. These differences accounted for that portion of the reduction in inclination to litter which was not due to the aging of the population.

We cannot, however, unequivocally attribute the increased threats of shame and embarrassment and resulting reduction in inclination to litter to the state's antilittering campaign. In the absence of a control community that did not experience such a campaign, we cannot rule out the possibility that these trends were part of national trends concerning littering rather than the

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result of specific efforts in the state of Oklahoma. The changes might have occurred even in the absence of Oklahoma's antilittering campaign. We did, however, reject the possibility that the trends for littering reflected more general trends encompassing other offenses. The analysis of similar variables concerning petty theft suggested that inclination to commit theft actually increased from 1982 to 1989 and that the threats of shame and embarrassment did not significantly change.

Although in the absence of a controlled experiment we cannot be certain that the antilittering campaign has had its intended effect, it is apparent from our analysis that the threats of shame and embarrassment significantly reduce the reported inclination to litter. The research offers evidence supporting policies aimed at these social control variables as a means to address the problem of littering.

As other states and jurisdictions develop and implement programs to reduce the amount of litter, we hope they will design evaluation studies that build upon and improve upon our own. Our own study was not a planned evaluation because the initial 1982 survey was conducted long before Oklahoma's antilittering campaign was envisioned by planners. Our dependent variable, reported inclination to litter, could be supplemented with alternative and perhaps better indicators in future studies. We used face-to-face interviews in a single community in the state in 1989 because that was the method used in 1982. But the growing availability of research capabilities for relatively inexpensive telephone surveys, using random-digit dialing as a sampling technique, should facilitate more carefully planned and controlled research designs to evaluate and monitor programs intended to reduce littering. Such designs should include not only the jurisdiction in which the campaign against littering is conducted but also a control jurisdiction that is not the target of such a campaign.

While the kinds of "litter counts" conducted in many states by the Institute for Applied Research might provide indicators of the *outcome* of antilittering programs, they cannot determine

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whether that outcome was achieved through the intended *process* —in the case of Oklahoma, through an increase in the threats of shame and embarrassment. The kind of process evaluation we have offered can be especially important where the antilittering campaign has many components. Texas, for example, has a campaign similar to Oklahoma's but has also placed an increased emphasis on legal sanctions as a deterrent. From the perspective of fiscal policy, it is worth knowing the extent to which any observed reduction in littering can be attributed to any one component of the overall program. If, for example, the perceived threat of legal sanctions changes very little as a result of an antilittering campaign and contributes very little to the reduction in littering, it would seem wise to shift resources away from that component to other compliance-enhancing components of the campaign.

NOTES

1. See Schwartz and Orleans (1967) for an experiment on the effect of a moral appeal and taxpayer compliance and Tittle and Rowe (1973) on the effect of such an appeal on classroom cheating.

2. We wish to thank Joanne S. Orr, beautification coordinator, Oklahoma State Department of Transportation, for providing information about the antilittering campaign in Oklahoma and in other states.

3. Initially there was a third major component, an increase in the severity of penalties for littering. In 1988, the State Legislature set the maximum fine for littering at $1,000 and provided for the possibility of a jail sentence of up to 30 days. A few citations have been issued, but the courts have refused to enforce this law, maintaining that they have more important things to do. In effect, therefore, there has been no increase in Oklahoma in the threat of legal sanctions for littering. In contrast, Texas is experimenting with a litter-officer program, which has assessed $62,000 in fines and has a 98% conviction rate.

4. These prompts in Oklahoma and Texas are negatively worded (i.e., *don't* do something). Research by Geller et al. (1976) and Durdan et al. (1985) suggests that positive prompts might be more effective.

5. This sampling procedure has been used in the annual Oklahoma City Survey since 1979. Approximately 60% of the names drawn from the *Polk Directory* result in completed interviews. Among the other 40%, about a fifth result in undeliverable letters, and the remainder cannot be located or refuse to participate. Replacements are chosen at random until the target sample size is achieved.

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