Drugs and the Law: A Psychological Analysis of Drug Prohibition

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There is an ongoing American policy debate about the appropriate legal status for psychoactive drugs. Prohibition, decriminalization, and legalization positions are all premised on assumptions about the behavioral effects of drug laws. What is actually known and not known about these effects is reviewed. Rational-choice models of legal compliance suggest that criminalization reduces use through restricted drug availability, increased drug prices, and the deterrent effect of the risk of punishment. Research on these effects illustrates the need for a more realistic perspective that acknowledges the limitations of human rationality and the importance of moral reasoning and informal social control factors. There are at least 7 different mechanisms by which the law influences drug use, some of which are unintended and counterproductive. This framework is used to explore the potential behavioral effects of decriminalization and legalization.

For at least 20 years, a debate has waxed and waned in the United States over the appropriate legal status for psychoactive drugs.1 The major alternatives to the current prohibition regime are decriminalization, in which a drug remains illegal but penalties for personal possession are reduced or eliminated, and legalization, in which the possession and sale of a drug become legal but are probably regulated like the possession and sale of alcohol. The debate involves a complex nexus of empirical and philosophical issues. Although the philosophical issues are important, they tend to boil down to differences in core values that are difficult to resolve, for example, public order versus personal liberty and paternalism versus permissiveness. The empirical questions are also difficult, but perhaps not insurmountably so. They are ultimately questions about behavior, but advocates on all sides of the debate have relied more heavily on anecdote and intuition than on theories of behavior or empirical research. In this article, I review and evaluate what is known and not known about the behavioral impact of drug laws and evaluate the implications of behavioral research for the legalization/decriminalization debate.

We do know something about the effects of decriminalizing one drug: marijuana. Twelve states have already decriminalized marijuana—Oregon in 1973; Colorado, Alaska, and Ohio in 1975; California, Maine, and Minnesota in 1976; South Dakota, Mississippi, New York, and North Carolina in 1977; and Nebraska in 1978.2 The available evidence suggests that decriminalization had little or no reliable impact on the prevalence of marijuana use, as measured by longitudinal and cross-sectional comparisons of drug use indicators in decriminalization and nondecriminalization states (Johnston, O’Malley, & J. G. Bachman, 1981; Maloff, 1981; National Governors Conference, 1977; Single, 1989).3 Survey indicators suggest that although some states observed slight, temporary increases, they were followed by gradual decreases below baseline.

These data must be interpreted cautiously for several reasons. First, the policies were not implemented as controlled experiments, and the evaluations were subject to a variety of well-known threats to validity (Cuskey, Berger, & Richardson, 1978). For example, historically, marijuana decriminalization coincided with a general decline in the prevalence of marijuana use as the baby boom generation matured (J. G. Bachman, Johnston, O’Malley, & Humphrey, 1988; Johnston, O’Malley, & J. G. Bachman, 1989). Second, marijuana appears to be safer and less addictive than many other psychoactive drugs (Goldstein & Kalant, 1990; Goode, 1989), and it would be hazardous to assume that the effects of decriminalizing other drugs would be similar. Finally, the states’ decriminalization policies were much less radical than legalization; indeed, the actual changes in marijuana laws and their enforcement were fairly subtle (Single, 1989).

The effects of legalizing an illicit drug cannot be predicted with any certainty, short of actually trying legalization experimentally and seeing what happens, which seems an unlikely prospect. Alternatively, one can examine the effects of histori-

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1 This debate has recently resurged with a virtual explosion of articles and essays, for example, those by Farr (1990), Goldstein and Kalant (1990), Jacobs (1990), Nadelmann (1989), and Wilson (1990). In addition, special symposia on the debate have appeared in the February 1989 issue of American Behavioral Scientist, the Fall 1990 issue of the Journal of Drug Issues, the Spring 1990 issue of the Hofstra Law Review, and two 1991 issues of the Milbank Quarterly. At present, advocacy of drug law reform is a minority view; for example, recent national surveys show public opinion running about 70%–80% against the legalization of marijuana (Corcoran, 1989; Skelton, 1990).

2 South Dakota and Alaska subsequently repealed their decriminalization laws.

3 A subtle exception to this conclusion is found in Model’s (in press) analysis of effects on emergency room mentions of illicit drugs, which is discussed later.
The Deterrence Paradigm

Classical Deterrence Theory

Deterrence theory has its origins in the political philosophy of Jeremy Bentham (1789/1948) and Cesare Beccaria (1764/1963). Assuming human nature to be essentially hedonistic, they argued that crime is motivated by the potential for gain but can be deterred by the prospect of certain, swift, and severe punishment. Thus, policing and punishment by legal authorities not only serve the goals of retribution and incapacitation but also can achieve general deterrence: discouraging other would-be offenders from engaging in criminal acts.

Modern deterrence theory (e.g., Andenaes, 1974; Becker, 1968; Cornish & Clarke, 1986; Gibbs, 1975, 1986; Zimring & Hawkins, 1973) is an application of the rational-choice paradigm, rooted in Bentham's utilitarianism, which has been so influential in contemporary economics. Rational-choice theorists assume that actors rationally select actions that will maximize expected utility. Most formal statements of modern deterrence theory (e.g., Becker, 1968; Carroll, 1978; Piliavin, Thornton, Gartner, & Matsueda, 1986; Stover & Brown, 1975) are variations on the following basic model, which postulates that an actor engages in a criminal act whenever its expected utility, E(U)c, exceeds that of the most profitable alternative, E(U)c. E(U)c is derived as follows:

\[ E(U)c = U(G)c \times P(G)c + U(L)c \times P(L)c, \]

where U(G) is the utility of the gains associated with successful completion of the crime. P(G) is the subjective probability of obtaining those gains. U(L) is the disutility of legal sanctioning if caught (a negative value), and P(L) is the subjective probability of legal sanctioning.4 U(L) and P(L) are the primary focus of most deterrence research and are generally referred to as the severity and certainty of legal sanctions, respectively. E(U)c is modeled in the same fashion.

To deter any given individual, the certainty and severity values must be sufficiently large to reduce the relative attractiveness of crime. Although perceptions of certainty and severity

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4 This is apparent in the list of nine explicit policy goals set by the National Drug Control Strategy (The White House, 1992). Eight targeted reductions in drug use either directly or indirectly, whereas only one—a reduction in drug-related medical emergencies—addressed the consequences of use. As a baseline on prevalence, in 1991 roughly 16% of high school seniors reported using an illicit drug in the previous month (Johnston & O'Malley, 1992). A 1991 national household survey indicated that 12.6 million Americans (roughly 6% of the population) reported illicit drug use in the previous month (National Institute on Drug Abuse, 1991). These figures are generally assumed to be underestimates.

5 Other goals of punishment can include retribution, rehabilitation, incapacitation, and specific deterrence; the last generally refers to the effect of punishment on the offender's future (postincarceration) behavior.

6 The certainty parameter, P(L), can be decomposed into the probabilities of detection (D), arrest (A), prosecution (P), conviction (C), and incarceration or other punishment (I). Thus, P(L) = P(D) × P(A) × P(P) × P(C) × P(I). This chaining principle implies that P(L) can be dramatically attenuated by substantial case attrition at any point in the criminal justice process.
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vary across individuals and situations, any increase in the value of either parameter should deter individuals for whom \( EU_x \approx EU_y \). The theory's implication for the drug policy debate is clear: Deterrence theory predicts that, ceteris paribus, if decriminalization or legalization were to reduce or even eliminate the perceived certainty and severity of legal sanctions, the result would be an increase in the expected utility of drug consumption and therefore drug consumption would become more prevalent.

Aggretate-Level Research

Systematic empirical testing of deterrence theory began in the late 1960s (e.g., Campbell & Ross, 1968; Gibbs, 1968). Throughout the next decade, the theory was tested primarily at the aggregate, macro level of the community or state, rather than the micro level of the individual actor (for reviews, see Blumstein, Cohen, & Nagin, 1978; Cook, 1980; Gibbs, 1986; H. L. Ross & LaFree, 1986). There are two categories of macro deterrence studies (Cook, 1980): the criminal opportunity and policy impact paradigms. In criminal opportunity studies (e.g., Gibbs, 1968), researchers have examined how crime rates covary with arrest, conviction, or sentencing rates over time, across jurisdictions, or both. These studies tend to find effects for the certainty but not severity of punishment; however, a variety of methodological problems leave the findings open to alternative explanations (Blumstein et al., 1978; Cook, 1980; Gibbs, 1986; Gibbs & Firebaugh, 1990; H. L. Ross & LaFree, 1986).

In policy impact studies (e.g., Campbell & Ross, 1968; H. L. Ross, 1973), researchers have assessed the impact of major changes in laws or enforcement policies using quasi-experimental designs; these studies appear to be more methodologically sound (Cook, 1980). Many of the most carefully conducted policy impact studies have focused on the effects of legal interventions against drunk driving, a crime that arguably has far greater salience to the drug policy debate than the violent or property crimes that are more often studied. Like the illicit drugs, alcohol is a psychoactive substance that people commonly ingest to achieve a state of intoxication that, as a byproduct, can produce serious costs for other people.

H. L. Ross and his colleagues (Campbell & Ross, 1968; Nichols & Ross, 1988; H. L. Ross, 1973, 1975, 1977, 1982; H. L. Ross & LaFree, 1986) have conducted some of the major policy impact studies. H. L. Ross (1975) challenged what he called "the Scandinavian myth" that Norway and Sweden have dramatically reduced drunk driving using per se laws, in which driving with a blood alcohol level that exceeds a certain threshold—generally .08% to 10%—constitutes an offense, regardless of the driver's conduct or demeanor. These laws are intended to increase the certainty of legal sanctions. A consistent finding in evaluations of per se laws is that they achieve a deterrent effect, often measured by a reduction in road fatalities, but the effect is generally short-lived, and the problem returns to baseline levels within a year (H. L. Ross & LaFree, 1986). Other jurisdictions have attempted to deter drunk driving by increasing the severity of sanctions. H. L. Ross and LaFree (1986) reviewed evidence for the failure of such interventions in Finland, Australia, and Chicago. In a recent quasi-experimental study, West, Hepworth, McCall, and Reich (1989) did document an immediate reduction in traffic fatalities in the wake of Arizona's extremely punitive 1982 policy against first-time drunk driving offenders, but the fatality rate returned to baseline levels within 2 years.

Ironically, severity-based policies appear to undermine the certainty of punishment. The ceteris paribus logic of deterrence theory is subverted by the dynamics of the criminal justice system, whose actors have considerable discretion to respond in ways that undermine the intent of formal policies. This has been established very clearly in the case of policies that increase sentence severity. First, defendants are more aggressive in fighting the charges. Following New York's adoption of a strict drug sentencing law in 1973, the percentage of defendants who demanded trial increased from 6% to 15% (Goode, 1989). The introduction of tougher drunk driving penalties has produced a similar response (West et al., 1989; Zamichow, 1990).

Second, various actors in the criminal justice system tacitly conspire to avoid imposing the harsher penalties (H. L. Ross, 1976; H. L. Ross & Foley, 1987; Tschebelis, 1990). Mandatory penalties are undermined by prosecutors during plea bargaining and by judges during sentencing (H. L. Ross, 1976; H. L. Ross & Foley, 1987). In addition, as penalties become more severe, judges and jurors are more likely to acquit defendants; this has been observed following changes in drug sentencing and drunk driving laws (Goode, 1989; H. L. Ross, 1976) and in a mock jury experiment in which the strength of trial evidence was held constant (Kerr, 1978). Because the certainty component appears to have a greater deterrent impact than the severity component, severity-based policies may actually reduce the general deterrent effects of the law.

Perceptual Deterrence Research

H. L. Ross (1982) speculated that the effects of drunk driving crackdowns and other deterrence-based interventions may be short-lived because they are mediated by the temporary salience provided by media coverage. This underscores a point that is often neglected in aggregate analyses: Deterrence theory is a perceptual theory, a theory of how an actor's own perceptions of risks and rewards motivate his or her decisions and actions (e.g., Waldo & Chiricos, 1972). Policymakers can influence perceived sanctions only indirectly, by controlling actual sanctions and perhaps by using publicity to enhance or exaggerate those perceptions. Information about laws and enforcement policies is diffused through the mass media, interpersonal channels, and personal experience (Geerken & Gove, 1975; Gibbs, 1986; Sah, 1991). Because laws and enforcement policies may not be implemented as written or intended, the public may receive mixed signals regarding the threat of punishment.

When social diffusion distorts or attenuates legal threats, efforts to achieve general deterrence are probably more like pushing a string than cracking a whip. Because the relationship between actual sanctions and behavior is mediated by perceptions, it is attenuated if the initial perceptual link is weak.7

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7 A dynamic model of deterrence by Sah (1991) implies that the influence of changes in sanctioning severity can take years, or even generations, to be observed. Evidence cited later, however, suggests that highly salient enforcement can have immediate, if short-lived, effects.
Thus, when the association between legal sanctioning and crime rates is observed to be weak or unreliable at the aggregate level, we must ask whether the weakness lies in the enforcement–perception link, the perception–behavior link, or both. This raises two questions for researchers. First, how accurately do citizens perceive legal sanctions? Second, do the perceived sanctioning risks—the risks of arrest and punishment—deter criminal conduct?

How accurate are perceptions of legal risk? In general, the public’s direct knowledge of the details of the criminal law and its enforcement appears to be quite limited (Sarat, 1977). Most of the information Americans receive about the criminal justice system comes from the movies and television, and, given the just-deserts schema so prevalent in Hollywood plot logic, it should come as little surprise that the general public often exaggerates the risks of arrest and punishment for many crimes (California Assembly Committee on Criminal Procedure, 1968; M. L. Erickson & Gibbs, 1978; Parker & Grasmick, 1979; Walker, 1969).

Citizens who have had personal experience with arrest, as an offender, victim, or acquaintance of an offender or victim, perceive greater risks of legal sanctions than do citizens without such experience (Horney & Marshall, 1992; Parker & Grasmick, 1979). This finding can be explained by the availability heuristic, that is, the tendency for people to exaggerate the likelihood of events that are vivid, salient, and come readily to mind (Slovic, Fischhoff, & Lichtenstein, 1982; Tversky & Kahneman, 1974). Because of this tendency, highly visible enforcement campaigns can enhance and even exaggerate perceived sanctioning risks. For example, during a period in which the objective arrest rate for drunk driving was higher in Fairfax County, Virginia, than in Montgomery County, Maryland, citizens in both counties nevertheless estimated a higher rate for Montgomery County, apparently because of that county’s regular use of roadside sobriety testing (A. F. Williams & Lund, 1984).

Indeed, if deterrence theory is valid, it is tempting to conclude that the general public’s exaggerated belief in the law’s omniscience may actually help to preserve the social order. Although it is difficult to estimate accurately the actual likelihood of arrest or imprisonment for any given criminal act, the actual sanctioning risks for many crimes, particularly crimes involving drug and alcohol use, are probably fairly low. For example, the probability of arrest for drunk driving has been estimated at somewhere between 1 in 200 and 1 in 7,500 (Turrisi & Jaccard, 1991). The risk per transaction for either drug users or drug dealers is probably less than 1 in 1,000. In contrast, the cumulative legal risk associated with psychoactive drugs is much steeper. Reuter (1992) estimated that in the United States in 1990, the average annual risk of arrest was about 2% for marijuana users and 6% for cocaine users; he cautioned that these risks probably varied considerably across demographic groups and that many of those arrested for possession are actually drug dealers. Reuter, MacCoun, and Murphy (1990) estimated that street-level drug dealers in Washington, DC, had about a 1 in 5 likelihood of incarceration in a year of dealing on a weekly basis; their arrest risk may have been twice as high. Clearly, these risks look very different depending on whether individuals evaluate them in cumulative or noncumulative terms; this is an issue that merits further research (Diamond, 1990). If risks are evaluated in noncumulative terms, heightening the salience of the cumulative risks might be an effective policy intervention.

Experienced criminal offenders generally perceive lower sanctioning risks than does the general nonoffending public (Parker & Grasmick, 1979; Reuter et al., 1990; Walker, 1969; see also P. G. Erickson & Murray, 1989). It is not clear whether offenders are actually better at estimating sanctioning risks than other citizens or are simply more optimistic. There is evidence in many domains for a robust optimism bias, a belief in one’s unique invulnerability to accidents, illnesses, unwanted pregnancies, and other risks (DeJoy, 1989; Perloff & Fetzer, 1986; Svenson, 1981; Svenson, Fischhoff, & MacGregor, 1985; Weinstein, 1987). For example, most drivers consider themselves to be safer and more skillful than the average driver (DeJoy, 1989; Svenson, 1981; Svenson et al., 1985), and intoxicated individuals often believe that they can safely drive a motor vehicle and evade detection and arrest (Beck, 1981; Green, 1989; Turrisi & Jaccard, 1991). Perhaps offenders’ greater accuracy in estimating sanctioning risks is inadverent, or perhaps they are more optimistic than nonoffenders, but their optimism bias counteracts a larger media bias in the opposite direction (cf. Parker & Grasmick, 1979). There is also evidence consistent with a learning interpretation. Perceptual deterrence studies, described in the next section, have documented a reliable experiential effect, in which estimates of sanctioning risks are inversely related to amount of prior criminal experience (Minor & Harry, 1982; Paternoster, 1987; Paternoster, Saltzman, Waldo, & Chiricos, 1983; Saltzman, Paternoster, Waldo, & Chiricos, 1982).

Effects of perceived legal risks. Do perceived legal risks deter criminal behavior? One answer comes from studies in which people were simply asked whether they viewed the law as a deterring influence on their own conduct. For example, in surveys of male college students, about 35% reported some likelihood that they would commit rape if they could be assured that they would not be caught and punished (Malamuth, 1981). In a 1988 national survey of high school seniors (Johnston et al., 1989), 69% said they would not smoke marijuana were it to become legally available, 7% said they would try it, 13% said they would use it about as often as they did now, 4% said they would use it more often, and 2% said they would use it less often. Of course, responses to such questions are vulnerable to social desirability biases and to individuals’ inability to anticipate how they would respond under counterfactual conditions (Nisbett & Ross, 1980).

In most perceptual deterrence studies, researchers have ex-

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8 A recent study of boundary effects of vague risk information (Casey & Scholz, 1991) suggests that enhanced enforcement clarity would actually reduce compliance when enforcement risks are low.

9 Consistent with this speculation, perceptions of personal risk have greater influence on criminality than perceptions of universal risk (Jensen, Erickson, & Gibbs, 1978; Teeven, 1976).

10 Studies of drug dealers (Ekland-Olsen, Lieb, & Zurcher, 1984) and shoplifters (Weaver & Carroll, 1985) indicate that experienced offenders strategically evaluate situations to reduce their sanctioning risks.
amined the relationship between perceived sanctioning risks and self-reported criminal activity using either cross-sectional designs or panel designs that permit lagged analyses (for reviews, see Paternoster, 1987; K. R. Williams & Hawkins, 1986). For present purposes, the most relevant data come from studies of the deterrence of marijuana use (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Anderson, Chiricos, & Waldo, 1977; Bailey & Lott, 1976; Burkett & Jensen, 1975; Jacob, 1980; Jensen, 1969; Meier, Burkett, & Hickman, 1984; Meier & Johnson, 1977; Minor, 1977; Minor & Harry, 1982; Paternoster et al., 1983; Saltzman et al., 1982; Silberman, 1976; Teevan, 1976; Tittle, 1977; Waldo & Chiricos, 1972).

Paternoster (1987) found that the average correlation between the certainty of sanctions and marijuana use across cross-sectional studies was about -.26. Across lagged tests from panel studies, in which experiential effects were controlled, Paternoster found an average correlation of -.21. There was less evidence for a deterrent effect of the perceived severity of punishment. Across 14 studies, Paternoster found an average correlation of -.17 between perceived severity and marijuana use, but he argued that this effect may have been spurious, because in most perceptual deterrence studies, perceived severity has been assessed in ways that confounded the severity of legal sanctions with the severity of informal social sanctions (discussed later). As a result, Paternoster concluded that “perceived severity plays virtually no role in explaining deviant/criminal conduct” (p. 191).

In both macro and micro deterrence research, the effects of severity of punishment have been unreliable and, when observed, usually quite small. Why does severity matter so little? Formally, severity and certainty are predicted to combine multiplicatively rather than additively: Severity is most likely to matter when punishment is highly probable (Grazmick & Bryjak, 1980). Some researchers have found an interaction between certainty and severity (Anderson et al., 1977; Friedland, 1990; Grazmick & Bryjak, 1980; Grazmick & Bursik, 1990; Logan, 1972; Teevan, 1976), but others have not (Bailey & Lott, 1976; Carroll, 1978; Cohen, 1978; Green, 1989; Howe & Brandau, 1988; Paternoster & Ioannou, 1986; Piliavin et al., 1986; Teevan, 1976). This may simply reflect the greater robustness of additive regression models (Dawes, 1988), although it is noteworthy that in two of the studies in which no interaction was found, factorial experimental designs were used (Carroll, 1978; Howe & Brandau, 1988).

The empirical record suggests that deterrence theory has some validity, but is it adequate for explaining illicit drug use and other criminal behaviors? Certainty and severity effects are quite modest in size, generally accounting for less than 5% of the variance in marijuana use reported in perceptual deterrence surveys. This does not imply that legal sanctions have no policy significance for achieving general deterrence. At the national level, an influence of such small magnitude can affect a large number of lives (Rosenthal, 1990). However, it is clear that most of the variance in marijuana use remains to be explained by other factors.

In considering the implications of the deterrence literature for the drug decriminalization debate, it is important to bear in mind that in almost every existing study, relative, rather than absolute, deterrence has been examined (Cook, 1980; Nichols & Ross, 1988). In other words, researchers have compared the effects of variations in the certainty and severity with which criminal sanctions are meted out or in individuals’ perceptions of certainty and severity, but they have not compared criminalization regimes with decriminalization or legalization regimes. This has both methodological and substantive implications.

Methodologically, this restriction in the range of variation in the deterrence variables—a floor effect—attenuates any absolute effects on behavior that they might have in principle (Nunnally, 1978). For this reason alone, absolute deterrent effects are likely to be larger than relative deterrent effects. Substantively, tests of absolute deterrence might reveal a category boundary effect, in which a given increment in sanctioning risks would have the greatest impact at the transition from a zero to nonzero probability. Category boundary effects are predicted by prospect theory’s weighting function (Kahneman & Tversky, 1984), which overweights increments from zero probability values compared with similar increments from nonzero probability values. In addition, the mere fact that an act is illicit might have an influence on behavior that is independent of the actual magnitude of the threat of punishment. This symbolic threshold hypothesis is discussed in more detail later.11

**Limited Rationality and Deterrence**

There is little doubt that expected risks and rewards influence decision making; that is, reasoning processes can mediate the effects of legal sanctions on behavior. Nevertheless, there is considerable psychological evidence that people do not combine information in the manner suggested by expected utility formulations (e.g., Dawes, 1988; Kahneman & Tversky, 1984; Nisbett & Ross, 1980; Tversky & Kahneman, 1974; also see Cherniak, 1986). For example, Carroll (1978) asked adult and juvenile offenders and nonoffenders to evaluate 72 hypothetical crime opportunities that factorially varied in terms of the probability of success, amount of gain, probability of capture, and amount of penalty. More than 70% of the respondents focused primarily on a single dimension rather than fully integrating all four parameters.

Carroll’s (1978) experiment is one of the surprisingly few studies in which the relative influences of the rewards and risks of crime have been compared. Carroll found that gains were more influential than penalties and the probability of success was more influential than the probability of capture. Similar results were found in two correlational studies (Piliavin et al., 1986; Tittle, 1977). Drug use was not examined in any of these studies. Of course, the expected rewards of drug use are well known: People seek drugs for stimulation; entertainment; escapism;

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11 Klepper and Nagin (1989) recently argued that many people view any nonzero probability of legal sanctioning as an "absolute deterrent" (p. 739). Their argument bears some similarity to the category boundary and symbolic threshold effects hypothesized here, but it clouds an important distinction between fear-based and morality-based compliance. Regrettably, the term absolute deterrence is also used in the literature to refer to the complete avoidance of criminal activity, as opposed to restrictive deterrence, a reduction in the actor’s amount of offending (e.g., Nagin & Paternoster, 1991); in this sense, absolute deterrence might be better labeled complete deterrence.
personal or spiritual exploration; or, in the case of addiction, the cessation of withdrawal symptoms (Goode, 1989; Weil, 1972). But these effects do not appeal to everyone; in public opinion surveys (reviewed by Maloff, 1981), nonusers have been much more likely to mention “not interested” than “fear of legal reprisals” as the primary reason why they did not use marijuana.

One reason why gains may loom larger than risks is that gains tend to be immediate, whereas legal sanctions are not only uncertain but also in the remote future. Several criminological theorists (e.g., Gottfredson & Hirschi, 1990; Wilson & Herrnstein, 1985) have argued that criminal offenders are prone to impulsiveness and an inability to delay gratification. This suggests that the swiftness—or celerity, as it is called by deterrence theorists—of punishment should play an important role in the deterrence process. Little is known about the effects of celerity, which has been largely neglected in deterrence research, but existing tests provide mixed support (Howe & Brandau, 1988). In an attempt to deter drunk driving, some communities have enhanced punishment celerity by using administrative rather than criminal sanctions, for example, confiscating drivers’ licenses when drivers fail or refuse to take blood alcohol level tests (Nichols & Ross, 1988). It is doubtful, however, that the criminal justice system could ever mete out punishment for drug offenses rapidly enough to counteract impulsivity effects without greatly curtailing civil liberties.

The perceptual deterrence literature should not be taken to indicate that potential drug users are mostly impervious to the risks of their actions. Perceived health risks may be more influential than legal risks. Schelling (1992) documented the singular role that health information has played in bringing about a dramatic decline in cigarette consumption in the United States, a trend that occurred well in advance of any serious mobilization of the force of law. J. G. Bachman et al. (1988; J. G. Bachman, Johnston, & O’Malley, 1990) presented evidence that a rise in health-related concerns played a major role in the decline in drug use among high school seniors since 1979.

When people do reason about risks and rewards, it is clear that they do not always do so in accordance with the dictates of expected utility theory. But the rational-choice paradigm is also unrealistic in its assumption that actions are necessarily reasoned at all. Like many behaviors, repeated drug use may come increasingly under the control of unreasoned influences (Ronis, Yates, & Kirscht, 1989; Triandis, 1979). Physiological addiction is, of course, the most familiar example of this process (Goldstein & Kalant, 1990), but it is surprisingly difficult to draw a hard and fast line between the physiological and psychological processes of addiction (Baker, 1988; Marlatt et al., 1988; Pomerleau & Pomerleau, 1987). It is useful to consider a continuum of mechanisms that can influence behavior in the absence of explicit reasoning, ranging from higher level cognitive processes to very low-level neurological mechanisms. These unreasoned influences not only affect behavior directly, but also influence the selective recall, interpretation, and integration of risk and reward information during the reasoning process (Uleman & Bargh, 1990).

A mechanism at the higher end of the continuum is the self-concept (Oyserman & Markus, 1990). Many people may never bother to ponder the risks and rewards of drug use because they simply conclude that drug use does not match their self-definition: “I’m not that kind of person.” Cook (1980; cf. Paternoster, 1989) called such judgments “standing decisions,” and they are an interesting example of how the nonuse of a drug might be habit forming. At a lower level are automatic cognitive processes, well-rehearsed procedures that eventually occur more or less autonomously, with little conscious attention or instigation (reviewed by Uleman & Bargh, 1990). Lower still are conditioned responses, which are known to play a major role in the development of drug dependence (Baker, 1988; Marlatt et al., 1988; Pomerleau & Pomerleau, 1987). For example, users often learn to experience craving for a drug in the presence of environmental cues that have been frequently paired with the drug in the past. Of course, this craving mechanism is not unique to psychoactive drugs, as dieters, ex-smokers, and Pavlov’s dogs have all discovered. Automatic processing and classical and operant conditioning are pervasive, influencing humans’ entire repertoire of behaviors—driving a car, playing the piano, making an omelet. They need not imply that the drug user has become an addict in the most stigmatized sense of the word, although they may indeed create difficulties for many drug users.

An important implication is that as the behavior gradually shifts from the control of reasoned influences to the control of relatively unconscious processes, any new information about the behavior that the individual subsequently encounters may have relatively little influence on behavior (Ronis et al., 1989; Triandis, 1979). This suggests that legal sanctions may have the most influence on the initial decision to use drugs and that their influence steadily diminishes as use becomes more frequent. A panel study by Paternoster (1989) provides some support for this hypothesis. He observed a reliable certainty-of-punishment effect on adolescent marijuana use in the first wave of data collection but no such effect in the second wave. On the other hand, in panel studies of adolescent smoking and alcohol use, health-related beliefs were found to have a greater influence on postinitiation use than on initial use (P. L. Ellickson & Hays, 1991); this may indicate that for those who quit, quitting is a reasoned action.

Other Instrumental Considerations: Availability and Price

Classical deterrence theory is only a subset of the rational-choice analysis of drug laws. In principle, anything that makes crime more costly should discourage potential offenders (e.g., Becker, 1968). Conversely, increased opportunities for crime should increase its likelihood (Ritter, 1988; Smith, 1990; Stalans, Kinsey, & Smith, 1991; Weaver & Carroll, 1985; also see Bandura, 1986; Triandis, 1979). The availability (or accessibility) and price of drugs are two major opportunity factors for drug use (Reuter & Kleiman, 1986; Warner, 1991). Drug laws and their enforcement are generally expected to reduce the availability of drugs, thereby reducing opportunities for consumption. Moreover, in keeping with basic microeconomic principles, reductions in availability should increase the price of drugs, and, to the extent that the demand for drugs is elastic (i.e., sensitive to price), price increases should also discourage drug use (Reuter & Kleiman, 1986).
The evidence for these propositions is mixed. First, the price elasticity of demand—the percentage increase in demand for a 1% increase in price—is difficult to estimate for illicit drugs (Reuter & Kleiman, 1986), but demand is likely to be quite inelastic for some experienced users. Estimates cluster around −0.4 for cigarettes and −0.7 for alcoholic beverages (Manning, Keeler, Newhouse, Sloss, & Wasserman, 1991); by way of contrast, elasticity is around −1.5 for automobiles and −3.5 for movies. This suggests that there may be some insensitivity to price among drug users. Reuter and Kleiman (1986) suggested that any impact of price increases on consumption may occur only over the long run, possibly through the effect of substitution (a shift to cheaper intoxicants).

Second, the evidence for an availability effect on the consumption of intoxicants is inconsistent and controversial (J. G. Bachman et al., 1990; J. G. Bachman et al., 1988; Goldstein & Kalant, 1990; Rutter, 1988; Single, 1988; Watson, 1991). For example, national survey data suggest that availability played little or no role in the steady decline in high school students' drug use in the United States in the past decade (J. G. Bachman et al., 1990; J. G. Bachman et al., 1988). Similarly, the recent privatization of bottled wine and spirits distribution in Iowa did not result in significant consumption increases despite a massive increase in availability (Fitzgerald & Mulford, 1992). On the other hand, several studies have documented the effects of minimum drinking ages on the alcohol consumption of 18- to 21-year-olds (see Bonnie, 1986; however, this intervention confounds availability effects with deterrent effects and other causal factors discussed in this article).

Logically, there must be some lower threshold on availability and upper threshold on price, beyond which drug use becomes impossible for the consumer, but those levels are probably unattainable by drug law enforcement. Recent analyses suggest that enforcement activities are surprisingly limited in their impact on the availability and price of illicit drugs (Reuter, Crawford, & Cave, 1988; Reuter & Kleiman, 1986; see Altman, Foster, Rasenick-Douss, & Tye, 1989, for a study of cigarette purchases by minors). As with deterrence research, however, existing studies of this question have examined relative, rather than absolute, effects; that is, they have examined the effects of existing patterns of enforcement rather than comparing enforcement with its absence. Whereas the availability and price of drugs are only modestly affected by current levels of enforcement or interdiction, they might be more dramatically affected by the complete elimination of enforcement brought about by legalization. Nevertheless, it is noteworthy that in the Netherlands, where cannabis has been de facto legalized since 1976 and is readily available in coffee shops and nightclubs, its use among young people is considerably less prevalent than in the United States (Leuw, 1991).

The Role of Informal Personal and Social Norms

Sociologists (e.g., Black, 1976; Braithwaite, 1989; Horwitz, 1990) and psychologists (e.g., Ajzen & Fishbein, 1981; Bandura, 1986; Cialdini, Kalilgren, & Reno, 1991; Cohn & White, 1990; Tapp & Kohlberg, 1971; Triandis, 1979; Tyler, 1990) have long recognized that informal personal and social norms and sanctions play a major role in the regulation of conduct. Although the focus of this article is on the effects of formal legal controls on drug use, a brief consideration of informal personal and social norms is relevant because of the possibility that informal norms either moderate or mediate the effects of the law (see Baron & Kenny, 1986, for a discussion of the moderator-mediated distinction).

Noninstrumental Self-Control Factors

Morality and legitimacy: As a framework for thinking about legal compliance, deterrence theory lends itself to an overly cynical view of human nature, one that suggests that laws are only effective if backed by strict punitive enforcement. This ignores the crucial moral force of law (e.g., Etzioni, 1988; Tyler, 1990; Zimring & Hawkins, 1973). Although violations of personal moral standards may be "costly" to the individual, moral judgments are both conceptually and empirically distinct from instrumental judgments about risk and reward (Etzioni, 1988; Grasmick & Bursik, 1990; Mansbridge, 1990; Tyler, 1990). It is useful to distinguish three different categories of noninstrumental personal judgments that are relevant to compliance decisions: the perceived morality of the act, the perceived morality of the law, and the perceived legitimacy of the law.

Some theorists have suggested that the perceived morality of the act may moderate the deterrence effects of legal sanctions. Specifically, sanction threats are hypothesized to be irrelevant to individuals who have either internalized the legal norm or judged the behavior to be morally repugnant (e.g., Etzioni, 1988; Gibbs, 1975; Tittle, 1977; Zimring & Hawkins, 1973). Thus, the deterrence effect should be stronger among individuals with fewer moral inhibitions. In three studies in which this prediction was tested, (R. Bachman, Paternoster, & Ward, 1992; Grasmick & Green, 1981; Paternoster, 1989), only one (R. Bachman et al., 1992) supported it, although all three found that perceived morality of the act had an important independent influence on decisions.

Although deterrence effects may not be moderated by the perceived morality of the act, they might be moderated by a related but distinct concept, the perceived morality of the law: Research on moral reasoning and legal socialization (e.g., Cohn & White, 1990; Kelman & Hamilton, 1989; Tapp & Kohlberg, 1971) suggests that people differ in their reasons for choosing to comply with laws. Following Kohlberg's theory of moral development, Tapp and Kohlberg (1971) categorized responses to questions such as "Why do you follow rules?" in terms of a progressive scale of three different levels of legal development.12 It is interesting to speculate about how individuals at each level might be affected by legal sanctions against drug use.

Individuals at the preconventional level have a rule-obeying perspective; they comply with laws to avoid punishment by authorities. These individuals would seem to be most susceptible to the deterrent effects of drug laws. In fact, the image of the citizen offered by deterrence theory is strikingly similar to the citizen with the rule-obeying perspective. Thus, we might expect the relationship between the perceived certainty and sever-

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12 Kelman and Hamilton (1989) provide evidence for a similar trichotomy of rule, role, and value orientations toward authority.
ity of punishment to be strongest for these individuals, and they should be deterred by drug laws only to the extent that they believe detection and punishment of users is likely. Decriminalization and legalization would enhance the likelihood of drug use among these individuals by eliminating the likelihood of punishment. Ceteris paribus, the magnitude of a legalization effect should be proportional to the magnitude of the perceived sanctioning risk under the current regime.

Individuals at the conventional level have a rule-maintaining perspective; they exhibit an approval-seeking conformity, emphasizing the importance of maintaining the social order. They should be influenced by drug laws in a more complex manner than that depicted by deterrence theory. For this group in particular, the mere fact that an act is illicit might have an impact on behavior independent of the actual magnitude of the threat of punishment. Such an effect would resemble the category boundary effect of prospect theory (Kahneman & Tversky, 1984) but would be attributable to the symbolic rather than the instrumental effects of legal status. This symbolic threshold hypothesis is one reason why the effects of legalization might differ from those of decriminalization, which leaves the drug’s legal status intact. Note that the symbolic threshold effect is not a deterrence effect; the distinction between the two corresponds closely to French and Raven’s (1959) distinction between legitimate power and coercive power. If this is the case, this group might be quite susceptible to a change in legal status, even if they currently believe that sanctioning risks are quite low.

Finally, individuals at the postconventional level have a rule-making perspective; they evaluate laws in terms of abstract philosophical principles. Relative to the other two groups, these individuals should be influenced less by sanctioning risks and legal status than by their own beliefs about the morality and appropriateness of drug use (Meier & Johnson, 1977). These individuals are unlikely to be completely impervious to sanctioning risks, but if they perceive the risks to be low, then drug legalization might have relatively little effect on their decision to use drugs. If they are already using drugs, they would continue to use them; if they do not currently use drugs, they would be less likely than the other groups to start. Thus, the perceived morality of the act may moderate deterrent effects only for postconventional individuals.

A third consideration is the perceived legitimacy of the law (Tyler, 1990; Tyler & Lind, 1992), the evaluation of the source of the laws and the process of their implementation. Tyler and Lind (1992) argued that the perceived fairness and legitimacy of authorities and laws are important noninstrumental determinants of legal compliance. Using structural equation analyses of panel survey data, Tyler (1990) demonstrated that the perceived legitimacy of laws and the fairness of their enforcement by authorities significantly influenced the general public’s subsequent level of compliance. Although Tyler and Lind did not specifically examine drug use, their analysis has an important implication for drug policy. Many critics have claimed that drug laws constitute an invasion of privacy, that sentences for drug offenses are too harsh, that minorities are singled out for enforcement, and that the licit status of alcohol and tobacco makes our current regime hypocritical. Tyler and Lind’s work suggests that such perceptions, to the extent that they are shared by the general public, actually undermine the effectiveness of drug laws.

The forbidden fruit effect. There is a popular intuition that the illicit status of marijuana and other drugs might heighten their attractiveness for young people—a forbidden fruit effect. In a sense, this is the opposite of a symbolic threshold effect, although the psychological mechanisms probably differ. Although the forbidden fruit hypothesis has not been studied systematically, there are at least three psychological mechanisms that might produce such an effect.

First, reactance theory (Brehm & Brehm, 1981) predicts that restrictions on freedom of choice enhance the attractiveness of an object or activity. Second, the principle of scarcity (Cialdini, 1985; Lynn, 1992) suggests that artificial scarcity can enhance the desirability of a commodity, because we have learned to associate scarcity with quality. For example, 2-year-olds are significantly more interested in playing with toys when they are placed behind a barrier that restricts their access (Brehm & Weintrob, 1977); people become significantly more interested in information when it is being censored by authorities (e.g., Worchel & Arnold, 1973; and there is a documented Romeo and Juliet effect (Driscoll, Davis, & Lipetz, 1972), in which young couples experience heightened feelings of romance as parental interference in their relationship increases. Third, forbidden fruit effects might reflect a disposition for risk (Lopes, 1987; Streufert, 1986) or sensation (Zuckerman, Buchsbaum, & Murphy, 1980) seeking; some individuals may have a heightened attraction to the thrill and mystery of psychoactive drugs and a diminished fear of the legal risks that accompany them.

The magnitude and prevalence of the forbidden fruit effect in the drug arena are not known. There may be important boundary conditions on these phenomena, particularly in the case of the reactance and scarcity mechanisms. For example, the active removal of an existing freedom should engender more psychological reactance than exposure to an object or experience that has always been prohibited (Brehm & Brehm, 1981). Also, restrictions on freedom may be tolerated when an acceptable rationale is provided (Tyler, 1990). Most important, although a forbidden fruit effect may occur when other factors are held constant, in natural settings other factors may covary with prohibition in ways that attenuate or eliminate the effect. For example, forbidden fruits are often less available, more expensive, less healthy, and more stigmatized than many unprotected products and activities.

Informal Social Norms

Considerable social psychological research demonstrates that the effects of informal social norms on behavior are measurable, reliable, and often quite powerful (for reviews, see Aji...

Cialdini et al. (1991) demonstrated the utility of distinguishing two different types of informal social norms: injunctive norms and descriptive norms. Injunctive norms are an individual's perceptions of how other people believe the individual should behave. Of course, different potential reference groups—peers, parents, siblings, coworkers, neighbors, the mass media, authority figures, and members of the church, for example—communicate different injunctive norms. The power of injunctive norms varies directly with an individual's bonding to (Hirschi, 1969) and motivation to comply with (Ajzen & Fishbein, 1981) their source. When the target is highly motivated to disobey or reject the source's influence, a source may be influential in a contrary direction (Brehm & Brehm, 1981). In the case of drug use, the content of injunctive norms involves the appropriateness of obedience to drug laws versus the acceptability of drug use or intoxication.

Descriptive norms are an individual's perceptions of how reference groups themselves actually behave. Descriptive norms provide contextual cues as to appropriate or acceptable situational conduct (Cialdini et al., 1991) as well as powerful means for vicarious learning (Bandura, 1986). A number of studies have demonstrated that if people learn that others have broken a law, they are more likely to break that law (Cialdini et al., 1991; Mullen, Cooper, & Driskell, 1990; Stalans et al., 1991).

The distinction between injunctive and descriptive norms suggests that these types of norms can and will conflict from time to time, as in a parent's admonition to "Do as I say, not as I do." In fact, with regard to drug use, adolescents often do what their parents do (Stein, Newcomb, & Bentler, 1987; cf. Johnson, Marcos, & Bahr, 1987; Kandel, 1980), but a more important influence on adolescents appears to be their peers' drug-using behavior (e.g., Elliot et al., 1985; Johnston et al., 1989; Kandel, 1980; Skinner & Cattarello, 1989; Stein et al., 1987; Warr & Stafford, 1991). Without careful measurement, it is often difficult to tease apart the injunctive and descriptive components of such an association, because the two are often correlated. But Johnson et al.'s (1987) recent multivariate analysis led them to conclude, "It is not so much that adolescents use drugs because the drug use of their friends makes drug use seem right or safe; rather, they apparently use drugs simply because their friends do" (p. 336).

The immediate social context—a party, a classroom, the workplace, one's home, a freeway—plays an important role in establishing the relative salience of descriptive and injunctive norms. Thus, the impact of norms is a function of not only bonding and motivation to comply but also situational salience (Carver & Scheier, 1981; Cialdini et al., 1991). Social psychologists have documented the power of situations to lead people into behaviors they might normally find inappropriate (L. Ross & Nisbett, 1991). The social context also influences the perception of formal controls; the perceived riskiness of a crime appears to vary across situations (Ekland-Olsen et al., 1984; Weaver & Carroll, 1985).

Informal Sanctioning, Stigmatization, and Reintegrative Shaming

Descriptive and injunctive norms refer to passive sources of information, sometimes manifested in the form of active social sanctioning, such as overt expressions of disapproval, ridicule, resentment, or rejection. Thus, informal norms have an instrumental dimension: When deciding whether to engage in deviant behavior, potential offenders may consider not only the legal risks but also the shame, embarrassment, or harm to their reputation they might suffer if observed engaging in deviant behavior (Braithwaite, 1989; Gibbs, 1975; Grasmick & Bursik, 1990; K. R. Williams & Hawkins, 1986, 1989).

K. R. Williams and Hawkins (1986, 1989; Gibbs, 1975) argued that some informal social costs, such as the humiliation, loss of relationships, and loss of opportunities that can follow arrest and prosecution, should properly be included in deterrence theory. They predicted an interaction effect such that deterrence is stronger when such social costs are higher. Nagin and Paternoster (1991) failed to find support this hypothesis, but they acknowledged that questionnaire limitations and an adolescent sample provided a somewhat weak test. K. R. Williams and Hawkins (1989) reanalyzed data from a national survey of married men and demonstrated that the perceived severity of arrest for wife assault was more strongly related to social costs than to potential jail time, but they did not directly test their interaction hypothesis.

The labeling theory tradition in psychology and sociology (reviewed by Archer, 1985) suggests that the stigmatization associated with criminal sanctioning can produce deleterious effects. Labeling theory predicts that rather than deterring criminal behavior, legal sanctions can actually enhance the likelihood of future offending. In essence, the argument is that the stigma associated with criminal sanctioning alienates the individual from conventional society, promotes contact with deviant referent groups (Elliot et al., 1985; Kandel, 1980; Paternoster, 1989), and enhances the likelihood of future deviance befitting the label, creating a self-fulfilling prophecy. For example, Farrington (1977) compared a sample of adolescents convicted of delinquency with a demographically matched sample of adolescents who were similarly delinquent in conduct but had not been convicted of any offense. As predicted by labeling theory, the sample of convicted youth were significantly more delinquent at a later age. In a study of U.S. Army companies, Hart (1978) demonstrated that the punishment of Black soldiers was stigmatizing and, in accordance with labeling theory, apparently increased subsequent offending.

These examples are by no means conclusive, and findings of other studies have been less supportive (e.g., Tittle, 1974). Paternoster and Iovanni (1989) argued that most researchers have tested only straw-man versions of the theory; an improved labeling theory should indicate the precise conditions under which stigmatization effects will or will not occur. Braithwaite's (1989)
theory of reintegrative shaming is one such theory; he predicted that the deleterious effects of labeling can be avoided if social disapproval is temporary, occurs in a context of interdependence and communitarianism, and is followed by gestures of forgiveness and reacceptance. Under such conditions, social shaming is predicted to increase subsequent compliance. In the absence of such conditions, shaming is disintegrative and can foster the stigmatization effects predicted by labeling theory (see Orcutt, 1973, for a similar distinction, between inclusive and exclusive reactions to deviance). Unfortunately, the conditions for reintegrative shaming are frequently absent for many drug law offenders in contemporary American society.

Implications for the Decriminalization/Legalization Debate

Multiple Influences of Drug Laws on Behavior

Thus far I have examined a variety of mechanisms by which the legal system can influence drug use. Figure 1 summarizes these mechanisms by delineating seven different causal pathways. The rational-choice paradigm suggests three pathways: the perceived fear of legal sanctioning and the availability and price of drugs. Social-psychological theory and research suggests four additional pathways: the symbolic threshold effect, the forbidden fruit effect, stigmatization effects, and the mediating effects of informal social control factors. This last pathway represents the potential effect of drug laws on the net anti-drug thrust of the descriptive and injunctive norms, informal sanctions, and drug-related information in the social environment. Of course, these informal social control factors directly influence drug use, regardless of whether they actually mediate the influence of formal social controls.

What, then, is the cumulative effect of drug laws on drug use? No one really knows. Figure 1 is an attempt at an explicit, exhaustive list of the mechanisms by which drug laws influence behavior, but it does not indicate the relative strengths of these effects. Existing data are simply not adequate to operationalize Figure 1 as a predictive model. Some of the mechanisms (symbolic threshold effects, forbidden fruit effects, and stigmatization effects) would be extremely difficult to operationalize in a fashion that permitted nationally representative estimates of their magnitude. More important, as argued earlier, effect sizes estimated within a criminalization regime may fail to capture the impact of a shift to legalization.

Decriminalization and Legalization

Although quantitative predictions are not feasible, the framework presented in Figure 1 is useful for thinking through the ways in which decriminalization or legalization might affect the prevalence of a drug's use and the ways in which the two policies differ in their behavioral implications. If we simplify matters by assuming unit weighting and multiply the mediating links in each pathway, then Figure 1 suggests that there are five pathways (the symbolic threshold effect, the fear of legal risks, the effects of availability and price, and the reinforcement of informal social controls) by which the current regime discourages drug use and two pathways (forbidden fruit and stigmatization effects) by which it can inadvertently encourage drug use.

Figure 2 depicts the effect of decriminalizing a drug on these mechanisms. Decriminalization reduces the penalties for using a drug and in practice leads to reduced enforcement efforts against users (Single, 1989), but it leaves the drug's legal status intact. Decriminalization would reduce deterrence effects and stigmatization effects, although it may not eliminate them. Recall that the deterrent effects of drunk driving crackdowns tend to be temporary. The effects of decriminalizing a drug would possibly be similarly short-lived but in the opposite direction: an immediate reduction in perceived risk, followed by a gradual return to baseline (Johnston et al., 1981; Maloff, 1981; Single, 1989). When decriminalization first takes place, the publicity would probably heighten the salience of the reduced risks, but with the passage of time some individuals who know that the drug is illegal would be unaware of the specific penalties for possession and use.

Five of the seven mechanisms would remain relatively unchanged by decriminalization. The fact that the drug would still be illegal would still motivate some people to avoid it (the symbolic threshold effect) and others to seek it out (the forbidden fruit effect). Because decriminalization would leave sanctions against drug sales intact, it would have a negligible effect on a drug's manufacture and distribution. Thus, unless the reduction in deterrence increased demand substantially, there would be little or no effect on drug availability and price. Most important, informal self-controls and social controls would
probably remain largely unaffected. For example, survey evidence suggests that marijuana decriminalization in the 1970s had no such effects on adolescents' attitudes and beliefs about marijuana use (Johnston et al., 1981; Single, 1989).

Recent research suggests some interesting complexities in the effects of decriminalization on drug use. Model (in press) analyzed data from the Drug Abuse Warning Network for the years 1975–1978 in states that either did or did not decriminalize marijuana. She found that decriminalization was associated with an increase in marijuana mentions in emergency room records (although such mentions nevertheless remained a low-frequency event) but a decrease in total mentions of illicit drugs other than marijuana. Model interpreted this as evidence for a substitution effect, suggesting that users shifted from harder drugs to marijuana after its legal risks decreased. Additional evidence for a substitution effect is provided by recent findings that states in which the legal minimum drinking age was raised during the 1980s may have unintentionally increased marijuana consumption (DiNardo & Lemieux, 1992). From a policy viewpoint, increased prevalence of a more benign substance might be acceptable if it is accompanied by a decrease in the use of more dangerous substances.

Figure 3 depicts the situation after legalization of a drug and illustrates how decriminalization and legalization differ in their behavioral implications. Legalization would change both the legal status and its enforcement. After legalization, symbolic threshold, forbidden fruit, deterrence, and stigmatization effects would all be eliminated, at least for adults, although legal controls for minors might well remain in place, as in the case of cigarettes and alcohol today.

Legalization would open the possibility of radical changes in a drug's distribution. This is often viewed as a major benefit of legalization (Nadelmann, 1989), because it would dramatically reduce criminal drug markets and their attendant corruption and violence. The effects of legalization on a drug's availability and price would depend on the nature of the postlegalization market and the manner in which it is regulated (Jacobs, 1990; Nadelmann, 1989; Warner, 1991). Although general deterrence effects on street-level dealers appear to be very weak (MacCoun & Reuter, 1992; Reuter et al., 1990), the current drug laws are extremely effective at deterring legitimate firms (e.g., the tobacco and alcohol industries) from selling illicit drugs. Unless strict regulations were adopted, a legalization regime might well lead to the kind of aggressive marketing of psychoactive drugs that we now see for tobacco and alcohol (Jacobs, 1990). In that sense, drug legalization might indeed open the floodgates. But most legalization advocates (e.g., Nadelmann, 1989) call for a significant increase in public health campaigns aimed at substance misuse and abuse in tandem with a relaxation of drug laws.

A key question is, How would legalization affect informal self-controls and social controls regarding drug use? The existing social science research indicates that these informal factors play a major role—perhaps the major role—in regulating psychoactive drug use (J. G. Bachman et al., 1990; J. G. Bachman et al. 1988; Elliott et al., 1985; Goode, 1989; Kandel, 1980; Paternoster, 1989; Paternoster et al., 1983). It is conceivable that even in the absence of formal legal controls, informal social control and self-control factors would prevent most people from serious drug involvement. If so, then a change in drug laws might open some spigots, but it would not open any floodgates. Most current nonusers would remain nonusers.

Thus, much would depend on the effect of a change in the law on informal controls. The relationship between law and informal controls is complex and still poorly understood (Black, 1976; R. C. Ellickson, 1987; Heckathorn, 1990; Horwitz, 1990). It is clear that many laws are a product of social norms; for example, a popular social movement appears to be driving antitobacco legislation today (Schelling, 1992), and a particularly aggressive grass roots movement was responsible for the adoption of Prohibition earlier this century. It is also likely that the law plays a reciprocal role in shaping and reinforcing informal norms and beliefs; Gibbs (1973) referred to this as the normative validation function of the law. If the law serves this function, then legalization might weaken existing social norms against drug use. Critics often argue that it would send the wrong message, implying a tacit endorsement of drug use. This does not appear to have happened after marijuana decriminalization (Johnston et al., 1981; Single, 1989), but legalization might send a stronger message, particularly for individuals at the conventional level of moral reasoning. In addition, some of the informal sanctions that K. R. Williams and Hawkins (1986, 1989) have identified as deterrence factors—the embarrassment and threat to relationships and opportunities that can result from being arrested—would no longer be operative in a legalization regime.

Black (1976) offered a different hypothesis about the relationship between law and norms: "Law varies inversely with other social control" (p. 107). Although he did not stipulate the direction of causality, he emphasized that the erosion of informal controls tends to result in the emergence of new formal controls. Does the erosion of formal controls similarly result in the emergence of stronger informal controls? H. L. Ross (1976) suggested that the same homeostatic dynamics that undermine attempts to strengthen legal control, discussed earlier, might also lead actors to compensate for reductions in legal control, by more vigorously enforcing those related laws and norms that remain intact. Wilde (1982; Bonnie, 1986) has proposed a risk homeostasis hypothesis, suggesting that people compensate for overprotective policies by behaving more riskily and for underprotective policies by behaving more cautiously. If H. L. Ross and Wilde are correct, legalization might actually strengthen

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**Figure 3.** The legal system's influence on drug use under legalization. (Broken lines indicate weakened effects.)
informal self-controls and social controls. Of course, this argument is speculative and requires a great deal more research attention. But it suggests that we cannot take the erosion of informal controls as a given.

Conclusion

At the present time, there are too many unknowns for us to predict the effects of drug legalization with any confidence. Pundits who suggest otherwise must be greeted with skepticism. The simplicity of the rational-choice analysis of drug laws is appealing, but it is misleading. The behavioral effects of drug laws are considerably more uncertain and complex than is generally acknowledged by advocates on either side of the drug policy debate. Advocates of a change in drug laws need to devote greater consideration to the distinction between absolute and relative deterrence, which suggests that although deterrence is currently weak, a change in laws could have a much larger impact on behavior. Advocates also need to address the potential effects of a change in drug laws on the availability and price of drugs and on the informal control factors that currently protect most people from problem drug use. On the other hand, defenders of existing drug laws and enforcement policies need to recognize that their faith in severity-based deterrence is largely misguided and often counterproductive.

As I noted at the beginning of this article, the drug policy debate involves not only empirical questions but also conflicting core values. Thus, it would be naive to assume that attitudes toward existing drug policies are based solely on implicit or explicit behavioral theories. For example, the retributive doctrine of punishment is strongly endorsed by the American public and policy elite (Grasmick, Davenport, Chamlin, & Bursik, 1992; Jacoby, 1983) and may play a subtle role in support for punitive drug laws. Attitudes toward the death penalty are particularly instructive. Attitude research indicates that many citizens overtly endorse a deterrence rationale for the death penalty that actually masks a deeper retributive motive (Bohm, Clark, & Aveni, 1991; Ellsworth & Ross, 1983; Tyler & Weber, 1982). As a result, support for capital punishment is relatively impervious to evidence that execution provides no marginal deterrence effect beyond that of life imprisonment. Many people may hold similarly hermetic attitudes toward drug policy.

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