

# **Assessing Alternative Drug Control Regimes**

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Thomas Schelling

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**Drug Policy Research Center**

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REPRINTS

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# Assessing Alternative Drug Control Regimes

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## **Abstract**

*The debate over alternative regimes for currently illicit psychoactive substances focuses on polar alternatives: harsh prohibition and sweeping legalization. This study presents an array of alternatives that lies between these extremes. The current debate lacks an explicit and inclusive framework for making comparative judgments. In this study, we sketch out such a framework, as a reminder of possible policy levers and their costs and benefits that might otherwise be neglected or go unrecognized. The framework identifies a range of pharmacological and economic characteristics of substances, potential harms and their bearers, and the sources of those harms, including drug use, trafficking, law enforcement, and illegal status per se. The framework highlights the difficulty of making objective, rigorous comparisons among regimes, but we believe that it can serve a useful heuristic role in promoting more constructive debate and identifying fruitful questions for research.*

## **INTRODUCTION**

How society should regulate psychoactive and habit-forming substances has become a staple of American public policy discourse, whether the substance be legal (like tobacco, whose harms seem to grow daily in number and severity), or illegal (like cocaine, about which a debate on whether prohibition does more harm than good has been active for the last five years). The debates differ in important ways for legal and illegal substances. Whereas policy toward licit substances (primarily alcohol and tobacco) is discussed on a substance-specific basis and considers many dimensions of regulation, the legalization debate on the prohibited substances has been about the class as a whole<sup>1</sup> and has focused on the issue of whether existing prohibitions should

<sup>1</sup> The separate discussion of marijuana, active in the 1970s when many states removed criminal penalties for possession of small amounts of the drug, largely faded during the 1980s [see MacCoun, Kahan, Gillespie, and Rhee, 1993].

be maintained rather than how they should be administered. That debate has largely focused on the polar alternatives of harsh prohibition or legalization, with neither consensus nor impact on U.S. drug policy. But more finely differentiated control options are at least theoretically possible. The next section presents a spectrum of plausible multidimensional regimes (some actual, some hypothetical) arrayed by intended restrictiveness of access, from prohibition to regulation. We observe that regulation allows for much finer targeting of specific harms compared to prohibition.

Another difference in the debates is that the discussion around alcohol and tobacco has identified conflicts between the interests of various parties (producers, users, nonusers) and a wide range of outcomes, many health related (such as cancers, cardiovascular disease, and respiratory problems) and behavioral (such as workplace accidents, child abuse, and crime). For illicit substances the outcomes emphasized in the debate have been almost exclusively the number of users and the extent of crime, with no regard for possible conflicts of interests among parties.

Yet a comparison of alternative regimes for the currently illicit psychoactive substances requires a framework for assessing the many costs and benefits of changing the legal status, one which is at least as rich as that used in the tobacco discussion. In this article, we attempt to sketch out such a framework. In identifying relevant factors, we make no claim to originality; most of those we include have been discussed in one source or another in the academic literature [see, for example, Kleiman, 1992a; Moore, 1976, 1991; Nadelmann, 1989; Zimring and Hawkins, 1992] and the mass media [see MacCoun et al., 1993]. But what is missing from the literature is a suitably explicit and inclusive framework for comparison. A useful framework should be able to reflect the normative values, or the weighting of different objectives and costs, of anyone who may use it, but it should also help to broaden the range of considerations, serving as a checklist and a reminder of possible outcomes that might otherwise be neglected or unrecognized. For reasons that will become readily apparent, at this stage we can provide no more than a framework; it is impossible to fill in all of the numbers for any drug or any change with adequate certainty. But we hope that an explicit framework can serve a useful heuristic role for a reasoned debate; certainly it should help identify a research program to increase the clarity of the debate.

This study then turns to the development of a multidimensional matrix for assessing drug-related harms, emphasizing the importance of distinctions among drugs, the variety of sources of harms (drug or control regime), and differences in the interests of various groups of stakeholders. It also points to two other confounding factors: interactions among drug regimes and the importance of history in determining the consequences of particular regimes. Finally, the article examines characteristics of drugs that seem most relevant to the choice of regime.

#### THE SPECTRUM OF REGIMES

Kleiman [1992a, 1992b] offers some novel intermediate models of control beyond absolute prohibition, using the attractive term "grudging toleration" to describe their balance of access and discouragement; Nadelmann [1992]

also discusses at least one intermediate model between strict prohibition and a "supermarket" model of unabridged access, while Lewis [1992] presents a rough taxonomy of goals and instruments for drug policy. We believe that a more systematic presentation of the full spectrum of regimes would assist the debate.

With the exception of some libertarians [e.g., Szasz, 1974], no one seriously advocates relaxing the drug laws so that the currently illicit substances would be as freely available as peanut butter or gasoline, regulated only for purity, quality, or safety. Everyone seems to agree that children, at least, should not be able to buy cocaine at the local candy store.<sup>2</sup> Thus "legalization," taken literally, is not under discussion. Indeed even for the presently legal drugs, except for caffeine (with high dependency potential but very modest stimulant effect and negligible adverse health consequences), there is some age restriction.

One way to differentiate among regimes, simply as a set of laws, is the extent of justification a user has to provide to obtain the drug. As seen in Figure 1, plausible control models, both existing and theoretical, can be arrayed along a spectrum of restrictiveness with respect to who may legally use and administer the drug. In the following subsections, we briefly describe eight distinct control models. These strategies fall into three broad and overlapping categories—prohibitory regimes, prescription regimes, and regulatory regimes—each of which provides a distinctive set of policy levers.<sup>3</sup> Restrictiveness is the principal, or at least most salient, dimension of drug control policy, but drug policy is inherently multidimensional. We discuss additional dimensions of relevance within each policy regime.

### Prohibitory Regimes

The concept of "decriminalization" is conspicuously absent from Figure 1. Though the term is often used casually as a synonym for legalization, decriminalization is not a distinct model in our framework, but rather, a form of low-severity prohibition. At least for possessing and using, the Alaska marijuana regime from 1975 to 1990 and the current heroin regime may represent the practical ends of a spectrum of prohibitive severity. Alaska was notable among the decriminalization states because (though it prohibited marijuana) it not only eliminated criminal penalties for possession but also exempted production for personal consumption, including gifts to others.<sup>4</sup> Given the ease of home production, that exemption had the effect of making the drug highly accessible. A similar exemption for cocaine or heroin would probably generate little production, simply because these drugs are (at least currently) difficult to produce efficiently in small quantities.

<sup>2</sup> "If there is a universal proposition that is accepted by all parties to the debate on drugs, it is that children and youth should not have unregulated access to potentially harmful psychoactive substances. Even the most ardent libertarians assent to this" [Zimring and Hawkins, 1992, p. 115]. Note though that some access may be allowed.

<sup>3</sup> We are most grateful to Jonathan Caulkins for his suggestions regarding the ordering of the models.

<sup>4</sup> Currently the status of the Alaska marijuana regime is somewhat murky. The 1990 marijuana criminalization referendum was held unconstitutional by a Superior Court judge in Ketchikan [Rinehart, 1993].

Regime		Model
Prohibitory	Prescription	<b>Pure Prohibition:</b> Full prohibition, with no allowed use for any purpose whatever (e.g., heroin, marijuana).
		<b>Prohibitory Prescription:</b> Prohibited except for narrow therapeutic purposes unrelated to addiction; administered by a doctor or other health professional (e.g., cocaine).
		<b>Maintenance:</b> Prescribed for relief of addiction; otherwise prohibited (e.g., methadone). Administered by an authorized agent, or for some patients, self-administered under tight supervision.
	Regulatory	<b>Regulatory Prescription:</b> Self-administered, under prescription, for relief of psychiatric problems (e.g., anxiety, depression); otherwise prohibited (e.g., current US regime for Valium, Prozac).
		<b>Positive License:</b> Available for any reason to any adult in possession of an appropriate license, gained by demonstrated capacity for safe use (theoretical regime from Kleiman, 1992a).
		<b>Negative License:</b> Available for any reason to any adult who has not forfeited the right by violating conditions of eligibility (theoretical regime from Kleiman, 1992a).
		<b>Adult Market:</b> Available to any adult (e.g., alcohol).
	<b>Free Market:</b> Available to any individual (e.g., caffeine).	
		← Decreasing Restrictiveness

Figure 1. The spectrum of drug control regimes.

In contrast, heroin prohibition in the United States is extremely stringent; the retail price is \$1000 per pure gram and conditions of access are extremely restrictive. Heroin users are at high risk of arrest; certainly those known to treatment programs show up with long histories of arrests on drug charges [e.g., Hser, Anglin, and Powers, 1993]. Relative to the current heroin regime, a more lenient prohibitory regime might differ in any of several dimensions. These include:

*The activity prohibited—possession (privately or in public, by adults or by minors), using (privately or in public, adults or minors), offering facilities for consumption.* Though all nations prohibit sale and production, there is considerable variety with respect to the status of other activities [MacCoun, Model, Phillips-Shockley, and Reuter, 1995]. Some nations, notably Italy (since 1975, except the period 1990 to 1993) and Spain, have eliminated criminal penalties for possession of any psychoactive substance; it is not clear whether this turns out to have any significant consequence for either use or harms, beyond criminal justice sanctions themselves. In the German-speaking cantons of Switzerland, a number of nonprofit and municipal organizations offer facilities for the safe injecting of drugs, though possession remains technically illegal. Within the United States, an example of an activity exemption, albeit a narrow one, is one granted by the federal government (through the Religious Freedom Restoration Act) and by many states to the Native American Church of North America for the religious use of peyote.

*The severity of sanctions for the prohibited activities.* Suggestions are frequently made for use of sanctions other than incarceration for first time offenders or those convicted of possession or use offenses; such violations include loss of driving licenses (encouraged in the United States by the 1988 Antidrug Abuse Control Act) and loss of passports (Italy, since 1990). The very harsh mandatory penalties for drug selling, at the federal level and also in some states, can be reduced.

*Lessening the intensity of enforcement against each activity, for each drug.* It is a truism of contemporary American policing that in large cities the police may make as many drug possession or retail sales arrests as they wish.<sup>5</sup> For drug distribution, the number of prison commitments rose from about 10,000 in 1981 to 10 times that level in 1992 [Langan and Graziadei, 1995]. The decision to intensify enforcement against drug sellers was a policy decision and it can be reversed.

*The selectivity or discretion with which enforcement is pursued.* For example, we might consider moving to a policy like that adopted for prostitution, implicitly tolerating drug traffic and use provided that it does not involve other harms, such as violence, disorder, advertising, and the like. In Zurich's Platzspitz, the city council authorized the police to tolerate the use and retail sales of illicit drugs in the mid-1980s in order to provide a cluster point for the provision of drug-related health services; that decision was reversed in 1992.

### Prescription Regimes

As seen in Figure 1, prescription regimes occupy a gray area overlapping prohibition and regulation. The first model, which we call *prohibitory prescription*, seems to us a trivial deviation from the pure prohibition model. Under

<sup>5</sup> Arrests for drug possession doubled in the 1980s but given that drug use expanded, certainly as measured by sessions of use, this may actually have represented a reduction in stringency of enforcement; see Reuter [1991].

prohibitory prescription, psychoactive substances are administered by medical professionals in narrowly specified ways; those treated receive no positive pleasure from consumption and the medical use provides a trivial source of the drug for the illicit market. For example, cocaine is available for use as a topical anesthetic, while PCP (phencyclidine) is used as an anesthetic for veterinary surgical procedures on large animals. Most opiates that were once widely used for recreational purposes, such as morphine and codeine, remain available for medicinal uses as analgesics. Heroin, which was not widely used recreationally until criminal prohibitions against opiates were invoked in many states [Musto, 1987], is unusual in the totality of the prohibition, but there have been proposals to permit the use of heroin for pain control in terminally ill cancer patients [Trachtenberg, 1994]. Marijuana has been legally available to a handful of patients for the relief of symptoms of glaucoma, the nausea of cancer chemotherapy, and several other indications. The Food and Drug Administration (FDA) and the Drug Enforcement Administration (DEA), in 1990, began approving, and the National Institute on Drug Abuse (NIDA) began funding, controlled studies involving human subjects for several drugs in the currently prohibited psychedelic category (including DMT, MDMA, psilocybin, LSD, ibogaine). The aim is to identify effects and mechanisms of action, and possible health risks, posed by their use, but also to assess therapeutic potential for treatment of alcohol, opiate, and cocaine (particularly the latter) abuse, and for the despair and pain associated with terminal illness [Strassman, 1995]. Significant positive results could conceivably lead to a rescheduling of these substances and a new class of medical exceptions to the prohibition of illicit drugs.

Altogether different is permitted use, under a physician's care, of an addictive drug for *maintenance*, that is, cessation of withdrawal symptoms. About 100,000 addicts are currently in methadone treatment in the United States [Rettig and Yarmolinsky, 1995]. There are at least two acknowledged purposes: to reduce the client's discomfort when abstinent from heroin and to keep the client out of "trouble." Trouble would be illegally attempting to acquire heroin or to acquire money with which to buy heroin [e.g., Hser, Anglin, and Powers, 1993]. There have been proposals, and programs in some other countries, to put addicts on maintenance doses of heroin under a doctor's care. British specialists have been allowed to do this at least since 1925,<sup>6</sup> but few do so and less than five percent of heroin addicts in treatment actually receive heroin [Pearson, 1991]. Note that the health effects of heroin, taken under medical supervision, are scarcely more damaging than those of methadone, though the latter does improve social and labor force functioning, because its euphoric effects are less highly peaked and longer lasting [Rettig and Yarmolinsky, 1995].

We call the third prescription model *regulatory prescription*. This model currently applies to psychoactives, like Valium, that are useful for treating anxiety, depression, or other conditions but require careful quantity or safety regulation: The drug may be potentially habit-forming, there may be danger of overdose, or any dose may be dangerous but benefits outweigh risks if the dose is controlled.

<sup>6</sup> Indeed these specialists may also provide cocaine or amphetamines to addicted patients; again, few do [Strang, Ruben, Farrell, and Gossop, 1994].

### Regulatory Regimes

A regulatory regime recognizes some use as perfectly legal, but stipulates who may use, sell, or purchase a substance, where or when or in what activities, and the like. The two nonmedicinal dependency-creating substances for human consumption that are most regulated in this country are alcohol and tobacco. Where prescription regimes involve selective provision, regulatory regimes essentially involve selective prohibition (although sanctions may differ from those under prohibitory regimes). For example, selling liquor to minors may be sanctioned by an alcoholic beverages control agency through withdrawal of license. Not all regulation is selectively prohibitory: Labeling of purity or concentration—tar, nicotine, alcohol—may be required without any regulation of the purity or concentration itself. Regulatory regimes also facilitate the use of common law controls (e.g., tort liability) that are difficult to apply under strict prohibition.

A prohibitory regime may be one that opposes all use, or alternatively one that denies some legitimate use because selective prohibition is infeasible (“reluctant denial”). In the same way, a regulatory regime may be one that “grudgingly tolerates” the allowed consumption [Kleiman, 1992a, 1992b]—perhaps because full prohibition is politically unachievable or because enforcement of full prohibition would be infeasible—or alternatively one that recognizes the right to consume and even the benefits of consumption, as long as consumption is within the regulatory limits. Current regulation of alcohol appears to represent a majority (but not unanimous) opinion of the latter type.

Regulatory regimes share many features with prescription regimes. One major difference involves their scope of restriction; prescription regimes are a form of selective provision, not selective prohibition. A second is that prescription regimes rely on the physician and the pharmacist as the primary agents of enforcement; their stakes in compliance with licensing requirements, because of their substantial profession-specific human capital investment, are much greater than are the stakes for alcohol vendors.

One of the attractions of regulatory regimes is that, with respect to both statutory restrictions and enforcement mechanisms, they are typically more multidimensional and more detailed than prohibitory or prescription regimes. Consider the following description of the alcohol regime in this country,<sup>7</sup> probably the most lenient regulatory model that would ever be proposed for any of the currently illicit drugs. It is instructive to see along how many dimensions the various alcohol beverages (beer, wine, and distilled spirits) are regulated. The elements subject to regulation include:

- *Who may purchase, possess, or consume alcohol.* Current the only prohibition is on age, although other dimensions, such as military status, health status, criminal record or history of alcohol abuse, could be invoked.
- *When alcohol may be sold over-the-counter or served in bars and restaurants.* Sales and service may be banned on certain hours of the day, days of the week, and days of the year (e.g., election day).

<sup>7</sup> For a survey of controls used throughout North America and Western Europe, along with a summary of the evidence on effects of each control, see Edwards et al. [1994].

- *Where the possession, consumption, or sale of alcohol is permitted or prohibited.* "Zones of intolerance" include public buildings, public areas, military bases, school grounds, and some sports events.
- *What activities may or may not be associated with consumption of alcohol* (e.g., piloting a commercial aircraft).
- *The purity and concentration of the substance.*
- *Labeling.* There are mandatory content labels on distilled spirits and wine (but not beer), and health hazard labels warning, for instance, about the risks of alcohol for pregnant women.
- *Advertising.* Advertising of distilled spirits on television has been discontinued as the result of voluntary restrictions. There has been some discussion of banning beer and wine ads on television; such ads are already subject to certain restrictions. For example, the act of drinking cannot be shown.
- *Taxation.* So-called "sin taxes" are now regarded as a major control mechanism for both alcohol and tobacco [e.g., Manning, Keeler, Newhouse, Sloss, and Wasserman, 1991].
- *Access.* Every state licenses package stores, bars, and restaurants or has a state-operated retail alcoholic beverage system.
- *Quantity restrictions.* No effort has been made in the United States to directly regulate alcohol quantity for individuals, except as it applies to certain conduct in which high levels of consumption engender risk; in many states, the statutory definition of driving while intoxicated relies on some threshold level of blood alcohol. Sweden had quantity limits on adult monthly retail purchases from 1920 to 1955 [Edwards et al., 1994].

The existing tobacco and alcohol regimes do not exhaust the possibilities for regulatory drug control. Kleiman [1992a, 1992b] notes the possibility of *licensing* access (see Figure 1). A negative license would be a default condition, which could be revoked in response to any violation of certain eligibility conditions. Alternatively, a positive license model would require the holder to complete a course on drug safety, or otherwise demonstrate a capability for safe use. Kleiman's license proposal for tobacco is perhaps more closely analogous to a maintenance scheme; tobacco would only be available via ration cards to those who are current users at the time rationing is implemented, and access to ration cards would be gradually phased out.

### Comparing Regimes

Regulatory regimes provide a much greater array (not simply number) of explicit levers to achieve specific policy goals. Among many attributes that distinguish liquor vendors from retailers of illicit drugs is the visibility—and hence monitorship—of their operation. Consider time of sale control. Police can no doubt intensify enforcement against drug dealing that occurs at particular times of day (e.g., working hours) but such enforcement will be effective only against the visible transactions which, for some drugs (like marijuana and MDMA), constitute a small share of all transactions. After-hours provision of liquor by licensed vendors occurs but certainly the vast majority of alcohol

outlets do in fact comply with hours of sale regulations. Police enforcement can be selective and aimed at specific harms but we believe that it provides a far blunter instrument than regulation.

That argument is clearly not sufficient to demonstrate the superiority of regulation to prohibition or prescription. But it is a useful reminder that the three classes of regimes are labels for bundles of programs and laws that make the array by level of restrictiveness only a rough heuristic. We now turn to the question of how one undertakes the comparison of specific regimes.

#### A FRAMEWORK FOR ASSESSING REGIMES

Assessment of costs under a given regime usually requires at least three distinct steps: identifying all the relevant dimensions of consequences; estimating their magnitudes; and then assessing the costs of those consequences. All present major problems in this field.

First, in the absence of a continuing academic discourse on drug policy, participants in drug policy debates are quite selective in highlighting the particular dimensions of harm that serve their rhetorical purposes. For example, in newspaper essays, legalization advocates emphasize drug prohibition's affront to civil liberties and the incentives it creates for black market crime and violence; prohibitors emphasize the risks of addiction and its pernicious effects on families, neighborhoods, and the workplace [MacCoun et al., 1993].

Second, little is known about the magnitude of the relevant consequences. For example, it is extraordinarily difficult to estimate the number of premature deaths caused by cocaine use under the current regime, much less a hypothetical alternative. Data are available from the Drug Abuse Warning Network and from Vital Statistics but it is impossible to do much better than say that the number is between 3000 and 10,000, using a very narrow definition that excludes deaths due to certain effects of chronic use, like stroke and heart attack, or indirect effects, like homicide [National Institute on Drug Abuse, 1991; National Center for Health Statistics, 1991].

Third, even less is known about how to translate such consequences into costs. Only occasionally will a consequence be, in its raw or original form, an express monetary value. "Fines collected," "drug enforcement budget," and "costs of treatment" are already in monetary terms; many consequences—infringement on personal liberty, the fear of apprehension, and the sense of public disorder—will not be. Generally, attaching monetary values to these consequences, to make them commensurate with each other, is at least as difficult and uncertain as estimating the raw consequences in the first place. While there is a small literature on "the costs of drug abuse" [e.g., Collins and Lapsley, 1992; Rice, Kelman, and Miller, 1991; Votey and Phillips, 1976], it is of limited value because it examines just a small fraction of the relevant cost factors, generally those most readily quantified. For example, fear of crime, as opposed to defensive expenditures, is not included.

The current situation might be taken as providing the baseline for comparison. For example, under almost any imaginable regime there will be drug-related deaths; what must be determined is whether there would be more or fewer, and whose deaths they would be (users, sellers, innocent parties), under specified alternative regimes. We note, however, that it is extremely difficult to find a parsimonious quantitative characterization of what consti-

tutes current policies, let alone their consequences. For example, estimates of total (as opposed to only federal) expenditure on drug enforcement have been available only since 1993 [Office of National Drug Control Policy, 1993] and even those are questionable [Reuter, 1994]. Even determining the number of persons incarcerated for drug offenses strains existing data systems nationally: For example, many persons are incarcerated for violation of a parole or probation condition that they remain abstinent from illicit drugs, but existing data systems keep track of only the original crime of conviction. Reuter [1991] explored the problems of determining whether the punitiveness of drug enforcement had increased or decreased during the 1980s; he found that the result was very sensitive to whether the denominator was an estimate of the number of users or of transactions.

Given the enormous difficulties of assessing the characteristics of the status quo, the challenge of anticipating the relative costs of alternative regimes is a daunting one. For example, in considering a change in drug laws or enforcement, an important consequence is certain to be something like "number of dependent users." Whether this number goes up, goes down, or is substantially unchanged is an important consequence, as is the number of deaths due to overdose, the number of illegal transactions occurring, the quantity of drug consumed, the number of annual person-years in prison, and the like. Yet most of these consequences remain unexamined. For example, existing studies of state marijuana decriminalization have looked at only short-term changes in prevalence and not at lengths of drug-using careers [see Single, 1989]. Furthermore, there is no systematic basis for assessing the impact of decriminalizing use of cocaine on the number of users [MacCoun, 1993], or, even if we agreed on such a number, the consequences that would result.

### **A Multidimensional Matrix of Drug-Related Harms**

Of the three assessment tasks—identifying the relevant dimensions, estimating the magnitude of consequences, and assessing the resultant costs—this article tackles only the first. The other two present major empirical challenges, requiring new data and modeling. To encourage a more systematic comparison of drug control regimes, we offer a multidimensional assessment matrix. We have already described its first dimension, the prohibitory, prescription, and regulatory regimes under consideration. Though for simplicity we refer to "the policy dimension," it should be understood that we really mean a series of subdimensions: the who, what, where, and when of restriction; the certainty, severity, and nature of sanctions; and the like.

The second dimension is the array of alternative drugs under consideration. It seems advisable to treat each drug separately. The consequences of tightening or loosening the heroin laws in the United States, for example, are so different from the likely consequences of comparable changes in the regime governing marijuana—in terms of the numbers and kinds of people involved, the health effects, the burdens on the enforcement system, the associated crime or violence, and the transmission of disease—that no assessment of an alternative regime for heroin could be directly translated into an assessment for marijuana (or alcohol, or frequently abused prescription drugs). Similarly, psychedelic drugs like LSD, MDMA, and psilocybin differ sufficiently from cocaine and heroin that it makes little sense to simply lump them together

as “hard drugs.” Thus, in a later section, we outline some characteristics of drugs that might be expected to affect the optimal policy choice, and we note the considerable complication presented by the fact that the effects of a specific regime for one drug may depend on the regime applied to other drugs that are potential substitutes or complements.

In addition to these two dimensions, at least three others need to be included in our evaluation matrix; all three relate to drug-related costs (damages, harms, losses). These appear in Table 1. We omit the policy and drug dimensions to simplify the presentation, so that what appears in Table 1 is just one of a series of conceivable matrices: specifically, the status quo for heroin and cocaine. The matrix might appear very different for either an alternative regime or type of substance, or both, such as the medical prescription of heroin for maintenance purposes.

One dimension specifies *the nature of the harm or cost*. We list nearly 50 such harms in Table 1; the list could undoubtedly be expanded and refined, but we think that it provides a good first approximation of the full range of costs associated with drugs in an industrial society. For convenience we have clustered them into the categories of health, social and economic functioning, safety and public order, and criminal justice. It is important to identify the full range of these harms/costs because they are not all positively related to the extent of drug use or to any other single metric; a policy that increases drug use may reduce other harms, and vice-versa.

Another dimension specifies *who bears the cost*. Costs can be borne by users of the drug, users’ intimates (family, lovers, friends), dealers, taxpayers, innocent bystanders, neighborhoods, and society in general. A careful identification of all possible bearers of cost or damage need not imply that costs are even commensurable across bearers; if anything, attention to this dimension discourages attempts to treat all costs interchangeably. It also encourages one to think explicitly about the allocation of harms across different groups under different policies [see Moore, 1976], for the interests of groups may be in conflict. For example, measures that increase the extent of cocaine use but reduce the violence and disorder surrounding distribution of the drug may benefit neighborhoods but increase the damage suffered by intimates.

The final dimension specifies *the primary source that generates the harm or cost*. There is an ample supply of published hypotheses on this issue [e.g., Kleiman, 1992a; MacCoun et al., 1993; Moore, 1991; Nadelmann, 1989]; our own hypotheses appear in the final column of Table 1. Four potential categories of causes are trafficking in the drug, use of the drug, illegality of the drug *per se*, and enforcement of drug laws. We use only the latter three. Our decision to exclude the first—trafficking—requires explanation. The harms and damages due to trafficking in a prohibitionist regime are mainly of two kinds. One is obviously that trafficking is the medium through which use is supplied; if use can be blamed on traffickers, then “harms due to use” can be traced back into “harms due to trafficking.” But because the harms due to use are typically identified with users and their associates—ruined lives or careers, ill health, and the like—nothing is gained and something is lost if the accounting framework suppresses users and identifies the harms and losses with trafficking.

The other kind of cost (harm, damage) due to trafficking is mostly associated with enforcement of the laws. It includes direct costs: specifically budgeted drug law enforcement. It also includes indirect costs: the crowding of courts

and prisons; the drug-market violence and neighborhood deterioration associated with illegal black markets and criminal competition; the loss of lives and careers of young people drawn into criminal activity, perhaps arrested, incarcerated, and often permanently removed from the legitimate labor force; and all of the attendant social demoralization and loss of confidence in law and order. To associate these harms with enforcement of the law is not to "blame" law enforcement for the evils of criminal drug-market activity but to recognize that among the costs of prohibition are the side effects of what is necessarily imperfect and incomplete enforcement of the law. These are just as real and as "enforcement related" as are police deaths and the budgetary costs of law enforcement. Of course, enforcement can only generate these costs when there are consumers attempting to purchase and use drugs, but we attribute these costs to enforcement if there is reason to believe that the costs would not be incurred in the absence of prohibition.

Some of traffic-related violence, however, is not attributable to enforcement but to illegality *per se*. Young males in an illegal commerce, with valuable goods to sell and without access to courts to resolve disputes, are likely to use violence to resolve disputes, whether about territory, payment or the quality of goods, even if enforcement is minimal.

The illicit status of the drug *per se* also generates a variety of other costs and damages. When a person purchases and consumes an illicit drug, there is a cost to society, and arguably to that individual, simply because the transaction and the consumption are illegal and the person has, in buying and consuming the item, committed a crime. Just as unenforced or unenforceable speed laws may produce law-breaking and disrespect for traffic laws, incompletely enforced or unenforceable drug laws make the ensuing drug purchases criminal acts, and the person an unapprehended "criminal." These social and individual harms might be assimilated into the costs of law enforcement—as "costs" associated with imperfect and incomplete enforcement. But they would be accrued even in the absence of enforcement. Because these harms are a matter of the legal status of the drug, we find it useful to keep them as a separate category.

Subtler costs arising from illegality include the reduced availability for medical research and use of a substance with potential medicinal benefits that is deemed, as a matter of legal policy, unacceptable for any use. A controversial example is the use of marijuana for appetite enhancement for AIDS patients and nausea relief for cancer patients undergoing chemotherapy. The reason for prohibiting or severely restricting research on this use is presumably not that the use for AIDS treatment is itself contrary to policy but that allowing that use is somehow incompatible with marijuana laws and their enforcement [Hecht, 1991].<sup>8</sup> When in doubt as to whether a cost—such as lack of sterile needles—requires enforcement above and beyond legal status, we attribute the cost to legal status *per se*; we assume that mere legal status has an important symbolic role with or without the instrumental impact of enforcement [MacCoun, 1993].

<sup>8</sup> A reader pointed out that this prohibition on research is not inherent in drug prohibition; an enlightened prohibitionist regime could tolerate such a use of a prohibited drug, just as cocaine is allowed as a topical anesthetic. However, we are more convinced by the obverse; the moral argument against medical use of marijuana could not be made unless it were prohibited.

Table 1. Taxonomy of drug-related harms.

Category	Harm	Who bears the harm/risk?							Primary source of harm
		Users	Dealers	Intimates	Employers	Neighbourhood	Society		
Health	Public health care costs (drug treatment, other)				X				Use
	Private health care costs (drug treatment, other)	X		X	X				Use
	Suffering due to physical illness (acute, chronic)	X		X	X				Use
	Suffering due to mental illness (acute, chronic)	X		X	X				Use
	Addiction	X		X	X				Use
	Effects of maternal use on infants	X		X	X				Use
	HIV/other disease transmission	X		X	X				Use, illegal status
	Prevention of quality control	X		X	X				Illegal status
	Inhibition of voluntary pursuit of treatment	X		X	X				Enforcement
	Restriction on medicinal uses of drug	X		X	X				Illegal status
	Reduced performance, school	X		X	X				Use
	Reduced performance, workplace	X		X	X				Use
	Poor parenting, child abuse	X		X	X		X		Use
	Influence on others' using	X		X	X		X		Use
	Harm to self-esteem associated with use	X		X	X				Use, illegal status
Harm to reputation associated with use	X		X	X				Use, illegal status	
Harm to employability associated with use	X		X	X				Illegal status	
Accruing criminal experience	X		X	X				Illegal status	
Acquaintance with criminal networks	X		X	X		X		Illegal status	
Elevated dollar price of substance	X		X	X				Enforcement	
Infringement on personal liberty	X		X	X				Enforcement	
Prevention/restriction of benefits of use	X		X	X				Illegal status	
Accident victimization (work, road, etc.)	X		X	X		X		Use, enforcement	
Property/acquisitive crime victimization	X		X	X		X		Use	
Violence, psychopharmacological	X		X	X		X		Use	
Violence, economic compulsive	X		X	X		X		Enforcement	
Violence, systemic (associated with markets)	X		X	X		X		Enforcement, status	
Fear, restricted mobility	X		X	X		X		Use, enforcement	
Sense of public disorder and disarray	X		X	X		X		Use, enforcement	
Reduced property values near markets	X		X	X		X		Use, enforcement	
Observably widespread violation of law	X		X	X		X		Enforcement	

Table 1 (continued)

Category	Harm	Who bears the harm/risk?							Primary source of harm
		Users	Dealers	Intimates	Employers	Neighborhood	Society		
Criminal justice	Increased police costs							X	Enforcement
	Increased incarceration costs							X	Enforcement
	Preempting of scarce jail/prison space							X	Enforcement
	Court congestion and delay							X	Enforcement
	Police invasion of personal privacy	X	X	X		X			Enforcement
	Corruption of legal authorities							X	Enforcement
	Demoralization of legal authorities		X					X	Enforcement
	Violation of the law	X						X	Illegal status
	Devaluation of arrest as moral sanction							X	Enforcement
	Interference in source countries							X	Enforcement
	Strained international relations							X	Enforcement
	Fines		X					X	Enforcement
	Time and income lost (in court, in prison)		X					X	Enforcement
	Legal expenses		X					X	Enforcement
	Stigma of criminal record, prison record		X					X	Enforcement
Fear of apprehension		X					X	Enforcement	

Some costs are probably determined jointly by both drug use and enforcement or illicit status. In such cases, drug prohibition arguably adds to the costs that would already be incurred in the absence of prohibition. Uncertainty about the purity of (and diluents in) heroin, arising from enforcement and illegality *per se*, contribute to the number of overdoses by heroin users; but given poor self-control on the part of the heroin-addicted, it is likely that some of these deaths would occur even if the drug were legally available. Similarly, prohibition contributes to the stigmatization of drug users, but drug users might well be stigmatized in the absence of prohibition [MacCoun, 1993; Schelling, 1992]. Through its effect on prices, law enforcement inadvertently promotes acquisitive crime and its attendant violence—what Goldstein [1985] calls “economic compulsive” violence aimed at generating cash for drugs. But there is suggestive evidence that, for some substances and dosage levels, intoxication *per se* can promote impulsiveness and criminality [see Bushman, 1993; Fagan, 1990]. In these cases, we list both causes to indicate our ignorance as to the *primary* source of the cost.

A simplistic reading of Table 1 might imply that we are arguing that drug prohibition is in total a greater source of harm to society than drug use *per se* (which is cited only half as frequently). Indeed, many have argued this position [e.g., Nadelmann, 1989]. But, as we noted earlier, one’s position on this question will depend on how one weighs alternative harms and how the harms compare across regimes. Four facts suggest that evaluating and comparing total harm is largely a judgment task, rather than an arithmetic task. Three of these facts were noted above: We currently lack relevant empirical evidence for many of the harms that are at least quantitative in principle; many of the quantifiable harms are not readily translated into monetary terms; and many of the harms are intangible and inherently subjective. Our relative aversion to them is a matter of personal (dis)taste. A fourth is that it is easier to perceive the presence of harms than their absence; we may blame a regime for the harms that it allows or creates, but fail to credit it for the harms it reduces or prevents [Kleiman, 1992a].

The empirical problems are unlikely to be resolved soon; only a very modest research effort has been mounted. However, even order-of-magnitude estimates would be helpful in clarifying which parameters and values are worth focusing on and which can reasonably be put aside as being of little significance.

Our discussion thus far may suggest a far more technocratic view of drug policy formation than we would care to defend. An examination of the content of the drug policy debate [see MacCoun et al., 1993] confirms that disputants differ not only in their beliefs about the facts of the matter, but also in their normative judgments about the inherent morality of drug use, the symbolic implications of formal drug policies, and the rights of the individual versus the state and of the user versus the nonuser. We do not view these normative disagreements as orthogonal to our assessment framework. Instead, they are explicitly reflected in the relative weighting of alternative costs and benefits. At one extreme, those of a strict deontological bent will adopt a weighting in which certain factors trump all others, such as the protection of personal freedom for some strict libertarians, or an unequivocal social condemnation of drug-induced intoxication for some religious conservatives. For those of a more utilitarian or consequentialist bent, the weighting of costs will be more

vexing, and more susceptible to revision given new empirical evidence on costs.

### Policy-Relevant Differences Among Substances

The appropriate policy regime is likely to vary among drugs. We believe that the variation is systematic and relates to a drug's particular characteristics, including its history of use and control. In Table 2, we attempt to identify the particular characteristics of a given substance that are likely to be relevant to policy decisions. We identify three categories of characteristics—involving the production, distribution, and consumption of a drug—that have implications for two broad policy considerations: the social harmfulness of the drug (in terms of the analysis presented in Table 1); and the likelihood of effective control of the drug under a prohibitionist regime. Some characteristics appear to be intrinsic to the substance and independent of a given policy regime (e.g., difficulty of detecting consumption, and availability of a "maintenance" substitute), while others are clearly heavily influenced by its control history (e.g., price, and prevalence of toxic adulterants).

With regard to the production process, we identify no significant sources of social harm; however, the ability to control expensive and specialized chemicals or equipment needed for production of certain pharmaceuticals (like Methaqualone) can make enforcement against some drugs relatively unintrusive and effective. Drugs that are imported (in either raw or processed form) offer unique opportunities for enforcement via interdiction, because border officials have unique latitude to conduct searches.<sup>9</sup> However, the possibility of truly "sealing the border" to any significant degree appears remote [Reuter, Crawford, and Cave, 1988].

With respect to distribution, any social harmfulness of a substance is not intrinsic but rather a consequence of prohibition, as shown by the items in Table 2. For example, toxic adulterants—a significant problem for heroin users currently—would essentially disappear under a prescription or regulatory regime. Distribution factors also have a reciprocal influence on the effectiveness of prohibition. For example, marijuana has a distinctive odor, does not store well, and is relatively bulky; cocaine has no distinctive odor, stores well, and is extremely compact per dose. *Ceteris paribus*, these differences tend to make it easier for authorities to disrupt the smuggling (from overseas) of marijuana than of cocaine. On the other hand, a typical retail marijuana purchase, such as a quarter ounce, may serve for a week or month of regular use, whereas cocaine is typically sold in smaller amounts that suffice for only a few sessions. This difference may be the consequence of psychopharmacology (cocaine's greater interference with self-restraint) or of economics (price differences per dose). But it affects frequency of purchase and hence vulnerability to retail enforcement. Therefore, cocaine retailing is riskier.

In this respect, marijuana's high price poses a puzzle. Although the drug is a naturally occurring substance grown under a wide variety of conditions, requiring no processing and producible in small quantities at home, enforcement has made it very much more expensive than it used to be [Moore, 1990] and perhaps 100 times its farm gate level in low-cost producing countries.

<sup>9</sup> Customs authorities do not require probable cause to conduct a search, a unique power within the American legal system.

**Table 2.** Policy-relevant attributes of psychoactive substances.

Category	Factors that increase the social harmfulness of a substance	Factors that hinder effective prohibition of a substance
Production	<ul style="list-style-type: none"> <li>• No significant sources of harm are identified</li> </ul>	<ul style="list-style-type: none"> <li>• Can be grown or manufactured without special chemicals or skills</li> <li>• Easy to produce in private residence (no odor associated with processing; can grow in closet)</li> <li>• Easy to expand supply by "lacing" with inert substance (facilitates importation in compact form)</li> </ul>
Distribution	<ul style="list-style-type: none"> <li>• Violence in markets</li> <li>• Large-scale trafficking organizations (acquire the capacity to challenge the state)</li> <li>• Quality is highly variable</li> <li>• Toxic adulterants are common</li> <li>• Retail transactions involve strangers (encourages violence, discourages quality control)</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to hide or disguise</li> <li>• Users make infrequent purchases</li> <li>• Widely available and accessible</li> <li>• Inexpensive</li> <li>• Available for legitimate uses (e.g., airplane glues and other solvents; prescription drugs)</li> </ul>
Consumption	<ul style="list-style-type: none"> <li>• High current prevalence of use</li> <li>• Addictiveness (promotes tolerance, craving, withdrawal symptoms)</li> <li>• Promotes aggression</li> <li>• Impairs cognitive, psychomotor functioning</li> <li>• High potential for overdose</li> <li>• Used intravenously</li> <li>• Complementary relationship with other intoxicants (poly-drug use)</li> <li>• "Gateway" substance (increases likelihood of progressing to "harder" drugs)</li> <li>• No effective "maintenance" substitute</li> <li>• No effective blocking substance</li> <li>• Effective treatment methods are unknown or costly</li> <li>• High posttreatment relapse rate</li> </ul>	<ul style="list-style-type: none"> <li>• High current prevalence of use</li> <li>• Widespread social acceptability</li> <li>• Health risks and harms to others are perceived to be low</li> <li>• Price elasticity of demand is low</li> <li>• Generally consumed in private settings</li> <li>• Consumption is difficult to reliably test (via breath, blood, urine)</li> </ul>

We think that the explanation for this may be that although it can be grown inconspicuously in small quantities by the user, the time, inconvenience, and risks of production are substantial. Commercial production within the United States is relatively conspicuous and thus subject to high enforcement risks. There is a parallel for alcohol during Prohibition, for which home production was also possible (though with quality loss) but inconvenient; thus, most illicit consumption was purchased from large-scale producer/traffickers who had to incur the risks associated with bulky refining and distribution.

Consumption characteristics have a significant bearing on how much damage each drug inflicts on users and others. Because most of these harmfulness factors have been analyzed extensively in the scientific and popular literature, we do not discuss them here.<sup>10</sup> Note that in some ways, the factors that increase the harmfulness of a drug also increase the difficulty of enforcing a prohibition against the drug. For example, widespread consumption increases the total harm associated with a substance, but it also indicates that the illicit market is large and well established, and that informal injunctive norms (what others think one should do) and descriptive norms (what others do) are likely to be either tolerant or only weakly intolerant of use [MacCoun, 1993]. A larger market also requires more enforcement resources to attain a given level of control. Similarly, highly addictive drugs are more harmful, but also harder to control because users are less easily deterred and less sensitive to price.<sup>11</sup>

Several of the consumption factors in Table 2 are not well understood at present and might be particularly important to consider in anticipating possible "spillover" effects that the policy for one drug might have on the harms incurred because of another drug.

First, does the drug have a *complementary* relationship with other drugs, such that users prefer to use the two drugs in tandem (or in alternating sequence)? For example, cocaine may be complementary to both alcohol and heroin, whereas there is no evidence of marijuana being complementary to any other psychoactive (except perhaps chocolate, which may have psychoactive properties) [Kleiman, 1992a]. Alternatively, does the drug have a *substitutionary* relationship with another drug? Recent evidence indicates that marijuana may have a substitutionary relationship with alcohol [DiNardo and Lemieux, 1993] and hard drugs [Model, 1993], such that consumers will substitute one for the other as a function of relative price and availability. In assessing the effectiveness of a marijuana regime, one has to consider how it will affect the harms associated with a specific alcohol and cocaine regime as well, and whether a reduction in alcohol or cocaine use might justify an increase in marijuana consumption.

Second, over time, does the drug serve as a *gateway* to other, "harder" drugs? The widespread notion that marijuana serves as a gateway to other drugs is consistent with statistical evidence that experience with marijuana at one point in time is significantly associated with the likelihood of initiation to either cocaine or psychedelics or both at some later point in time [e.g.,

<sup>10</sup> For example, recent review articles compare the effects of psychoactive substances with respect to the promotion of aggression [Bushman, 1993], dependency potential and physical safety [Gable, 1992].

<sup>11</sup> The assertion about users' sensitivity to price, classified by intensity of use, is a plausible speculation; we know of no empirical study of this matter.

Kandel, Yamaguchi, and Chen, 1992]. On the other hand, cocaine does not appear to serve as a gateway to, say, heroin. The gateway phenomenon remains controversial because a causal link has not been established—the correlation might be spurious because of some unobserved third variable—and the most sure means to establishing causation (a controlled experiment) is ethically and legally precluded. But even if we stipulate a causal link between marijuana use and subsequent hard drug use, the policy implications will depend on the nature of the causal mechanism [Kaplan, 1970]. We see several alternatives.

First, marijuana might promote hard drug use by triggering an urge for more and stronger (and more dangerous) intoxicants. If so, there is a more persuasive case to be made for aggressive efforts to discourage marijuana initiation and use, which might include prevention campaigns, treatment programs, and law enforcement efforts. We take this to be the most popular interpretation of a gateway effect. But its validity has been disputed by Kaplan [1970] and Kleiman [1992a], among others.

Second, seemingly safe experiences with marijuana might reduce the perceived riskiness of harder drugs. If so, perhaps public information campaigns should draw a clearer distinction between marijuana and more dangerous drugs. One of the disadvantages of current drug policies may be that they blur the distinction between marijuana and heroin or cocaine. The current policies may have the effect of suggesting that, if one can experiment with marijuana without experiencing severe adverse effects or severe dependence, one can proceed to cocaine or heroin with some confidence.

Third, experience with marijuana use may challenge one's image of omnipotent police surveillance [see MacCoun, 1993]. If so, a gateway might result from a reduction in the perceived legal risks of using harder drugs. In this case, policymakers might either take steps to increase the legal risks associated with marijuana use, or alternatively, legalize marijuana—or reduce the legal status and penalties to something like the "Alaska" regime from 1975 to 1990, when production for one's own use was not subject to criminal sanctions, thereby taking it out of the realm of illicit behavior.

A fourth possibility is that marijuana use puts one in contact with hard drug sellers. The Dutch policy of tolerating the sale of cannabis products in selected coffee shops and nightclubs was adopted, in part, to disrupt this type of potential gateway mechanism [e.g., Wijngaart, 1991].

## CONCLUSIONS

One implication of our analysis is that history matters; the optimality of a control regime is dependent on the nation's history of consuming and controlling the drug in question.<sup>12</sup> Thus, it is probably a mistake to conceptualize optimal drug regimes in an abstract possible world, as if "behind a veil of ignorance" [Rawls, 1971] without historical constraints. Current prevalence, access, and familiarity are characteristics of a psychoactive substance that must be considered in decisions about regulation. The mixed message implied by legal alcohol and illicit marijuana poses problems, and in the abstract,

<sup>12</sup> Also relevant is the history of controlling substitutes and complements.

alcohol may well be a better candidate for prohibition than is marijuana. But it would be a mistake to ignore the fact that alcohol use has been integrated into our culture in many different ways; as a result, the consequences of a renewed alcohol prohibition in terms of crime of various kinds may be vastly greater than for continued prohibition of marijuana, which is common only for certain age groups and situations.

The choice of regime for controlling society's use of and access to psychoactive substances, particularly those with strong dependency potential, is clearly a vexing one. The need for a multidimensional framework is not mere sophistry. Many dimensions of regimes, substances, and experiences have an important claim to attention. Although the multiplicity of dimensions complicates the analysis, it also suggests that there is a greater diversity of options for drug control than is generally recognized in the rhetorical fixation on two extremes: William Bennett's aggressive version of prohibition and Milton Friedman's vision of free market legalization. The effort to articulate these options has only recently begun [Kleiman, 1992b; Nadelmann, 1992].

This article has so far given little attention to the issue of what is known about these matters; yet the devil here is not so much in the details as it is in the epistemology of the problem. Compared to designing an aircraft what we have laid out here is not inordinately complex; the difference, however, is that there is almost no research base for estimating any of the relevant entries. Thus, it is extremely difficult to use this framework, even in a moderately condensed and heuristic form, for assessing options.

We do not mean to suggest that the problem of assessing the consequences of alternative legal regimes is beyond the capacity of analysts. Given the uncertainties involved, neither complacency with the status quo nor brash assertions about the superiority of alternative regimes seem justifiable. If society wishes to make an informed decision as to how to best control psychoactive drugs, then it will be necessary to invest in a substantial, and more policy-focused, empirical research agenda.

For example, the relationships between enforcement and price, and price and prevalence, remain surprisingly unexplored [see Moore, 1990]. A second question for investigation is whether informal norms against drug use would be weakened, or strengthened, by reductions in the stringency of prohibition's enforcement [MacCoun, 1993]. From a purely scientific standpoint, the agenda might also include more radical alternatives, such as controlled experiments with alternative regimes. For example, Swiss researchers are conducting controlled clinical trials of a heroin maintenance program [Rihs-Middel, 1993]; similar trials are under debate in Canberra, Australia [Bammer, 1995].

Of course, the legalization debate involves not simply empirical disputes but core ideological or moral issues. We hope that one benefit of our taxonomy is that it helps to make these differences explicit and concrete. For the most ardent legalizers and prohibitors differ not only in their predictions about alternative futures, but in the kinds of harms they discuss, and the kinds of bearers who will suffer. As illustrated by Table 1—and as any student of public policy knows—there is unlikely to be a single optimal regime for all parties. It is conceivable, for example, that a regulatory regime for cocaine might well benefit current users and their intimates, yet increase some harms to nonusers in terms of, for instance, reduced economic productivity, or increased risk of becoming a user.

We suspect that if each side were required to explicitly weight all harms and bearers, the polarized character of drug policy debates might give way to shades of gray. Such a development could promote greater attention to incremental policy interventions and might end the paralysis of recent policy-making. Alas, the extraordinarily negative reception to former Surgeon General Joycelyn Elders's call for merely studying legalization illustrates the difficulty of encouraging a more analytical debate.

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