A RAND NOTE

On the Consequences of Toughness

Peter Reuter
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Drug policy has generated two debates in recent years. The more entertaining one concerns the retention of our current prohibitions—the legalization debate. For better or for worse, this remains largely a parlor sport for intellectuals, divorced from the policy-decision process. The more serious debate (and the one addressed in this paper) is the narrower one between the hawks and doves of drug policy, otherwise usually known as the supply-side advocates and the demand-side advocates. The hawks, while denying that they are slighting demand-side considerations, advocate continued expansion of the nation's effort to imprison drug sellers and detect and punish (in various ways) drug users. The doves (whose leaders include Senator Joseph Biden and Congressman Charles Rangel), while generally accepting the need for "vigorous enforcement," argue that current resource commitments to programs directly aimed at demand (prevention and treatment) are grossly underfunded and should be massively increased, even if this be at the expense of enforcement.¹

The debate has been conducted largely in terms of images. The supply-side advocates point to the immediacy of the problems in the streets (such as the carnage surrounding drug distribution) and reasonably (though in intemperate

¹ Support for this work was provided by Rand's Drug Policy Research Center, which is funded by the Ford and Weingart Foundations. Joel Feinleib provided valuable research assistance and Mark Kleiman made helpful suggestions on a late draft.

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tones) ask whether drug prevention in particular offers any reasonable hope for controlling those markets and associated violence in the near future. They point to the low success rates of drug-treatment programs. Finally, they argue that effective prevention and treatment require a high level of enforcement, both to make drugs difficult to obtain and to make drug use appear legally risky.²

The doves are less eloquent, or at least their eloquence is less clear. They argue that drug enforcement has proven a failure. The intensification of enforcement throughout the 1980s failed to stem a massive growth in the nation’s drug problems. Enforcement does not go to the root of the problem; with a loss of faith in source-country control programs (such as crop eradication and crop substitution), the root of the problem is now seen to be a recruitment of new users in the United States. Prevention and treatment receive a derisory share of what the nation spends to control its drug problems.³ Public treatment programs, faced with the most difficult clients, have far fewer resources to spend on those clients that do private treatment programs (Institute of Medicine, 1990). Sotto voce they also suggest that drug enforcement increases crime and may exacerbate health problems related to drug use.

All of these are plausible statements. Indeed, I suspect that they are all true. None of them provide much help in working out what our drug policy should look like. No one can describe, even very roughly, the consequences of doubling the number of treatment slots available for addicts without insurance coverage for such treatment, or what would happen if we were to increase the number of drug arrests by 25 percent. Over (say) five years, would these result in declines of 20 percent in prevalence or in drug-related homicides? What else (positive or negative) might occur as a consequence of these actions?

The discussion is characterized by a rather casual interpretation of the recent past. Doves look at the increasing length of sentences for drug offenses⁴ and the rapidly rising number of prison inmates serving time for drug offenses and assert that the criminal justice system has become much tougher about drugs. The hawks note the numerous incidents of drug dealers getting probation for their first three convictions and the overcrowding of prisons, which require early release of so many offenders,⁵ and say that the criminal justice system is failing to be punitive at all.

The American discussion of society’s alternatives, both in the legalization and the mainstream policy debate, focuses on the extent of drug use. That is, when comparing alternative policies, emphasis (often exclusive attention) seems to be given to which policy will result in the lower prevalence of drug use. I adopt instead what has come in Europe to be called a “harms minimization” criterion.⁶ The question that policymakers (and their entourages of analysts) ought to be addressing is what choices minimize the harms resulting from drug use and drug control.⁷ The value of this approach is that it takes account of the fact that many, though not all, of the adverse consequences of drug use are a function of the
policies used to restrain that behavior. Here I give consideration to at least some of the negative effects of stringent drug enforcement, though I do not attempt to draw any conclusions about the optimal policy mix. Note that, as discussed in the final section, arguments against stringent enforcement are not necessarily arguments for the elimination of prohibitions.

The next section of the paper presents some conclusions on the changing intensity of enforcement during the 1980s; it summarizes highly uncertain calculations, more details of which are given in the Appendix. The remainder of the paper moves from speculative use of numbers to the realm of pure speculation. It considers certain consequences of toughness, in particular whether more intense enforcement does not have important negative effects that ought to be considered in the discussion of drug policy. The final section then considers the implications of these matters for the choices that are available to the nation.

The Changing Stringency of Enforcement

Interpretation of the recent past is important to the policy debate, since it helps form the images of the contending parties. The disagreement between the hawks and doves about the punitiveness of drug control during the 1980s has two components. The first is whether the system now imposes greater risk of legal sanctions on users and sellers than it did ten years earlier. The second is whether the risk is, even now, substantial enough to be a credible deterrent.

The second component involves a difficult judgment about perceptions and responses to legal risks, but the first seems a relatively straightforward matter. Any appeal to the facts, any responsible attempt to test empirically the contending assertions, however, reveals the difficulty of measuring the stringency of enforcement. What follows is possibly tedious, probably inconclusive, and certainly very rough; the reader uninterested in methodological issues or squeamish about approximations may wish to skip to the last page of this section.

Conceptual Issues

The problems are both conceptual and empirical. It is not clear what one should choose as the unit against which risk is measured. For the user, is the relevant measure expected penalties per use episode, purchase transaction, or user year? Arguments can be made for each of them. Most use episodes expose the individual to risk, either because others are present (any one of whom is a potential informant) or because the use itself can be revealing (involving paraphernalia or distinctive odors, or generating conspicuous behavior). The purchase is a plausible alternative because most arrests seem to be associated with purchase
transactions. The final candidate is the user year because the individual's choice may be less how often to use in a year than whether to be a user at all; this is probably consistent with the notion of dependency related to drug use.

One weakness of each of these units is that averages will mask enormous variation across user groups. Purchase risk depends very much on location, for example; those who buy in street markets, whether because of ignorance, impatience, or lack of alternatives, are at much higher risk than those who are able to make their purchases in private settings. If the user year is the unit, then it masks variation associated with the intensity of use.

An added complication is that risks for sellers and buyers may have changed in different directions. If the police launch a campaign against the buyers in open-air drug markets, then buyer risk will rise relative to seller risk. Both risks are relevant for policy analysis but have different consequences; one operates directly on demand, the other only indirectly. We shall consider risks for the two groups separately in the following discussion.

The measurement of penalty presents its own problems. The criminal justice system imposes a variety of penalties on dealers; arrest, seizure of drugs and other assets, time incarcerated. These may not be highly correlated; a crackdown may produce a large increase in arrests but little change in total incarceration. Data are collected systematically (at some levels) on arrests and imprisonments; little is available on the value of assets seized. The following calculations ignore the asset seizures.

No matter which units are chosen, it turns out to be extremely difficult to gather the necessary data to develop a plausible estimate. What relevant evidence does exist produces somewhat ambiguous results. We provide here only a summary; more details are provided in the Appendix.

Penalty Levels

Let us start with the numerator of the calculation, namely, the volume of punishment. We seek to estimate the number of persons arrested for simple possession of marijuana and of cocaine and the total number of cell-years imposed on marijuana dealers and on cocaine dealers. This reflects my assumption that few possession arrests result in serious penalties beyond the arrest itself, whereas the primary punishment for distribution arrests is in the incarceration. The calculations will be done for 1979 and 1988, two years for which prevalence data and most of the relevant enforcement data are available. Results are presented in Table 8.1.

For users the calculations are relatively straightforward; the only problem is the allocation of heroin/cocaine arrests between the two drugs. The cell-year calculations are much more uncertain. With data described briefly below and in more detail in this chapter's Appendix, and with more than perhaps even a
Table 8.1. Punishments for Drug Buyers and Sellers, 1979, 1988
(in thousands)

<table>
<thead>
<tr>
<th></th>
<th>Marijuana</th>
<th></th>
<th>Cocaine</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arre$^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buyers</td>
<td>342</td>
<td>326</td>
<td>24</td>
<td>301</td>
</tr>
<tr>
<td>Sellers</td>
<td>50</td>
<td>65</td>
<td>11</td>
<td>147</td>
</tr>
<tr>
<td>Cell years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prison</td>
<td>12</td>
<td>28</td>
<td>3</td>
<td>70</td>
</tr>
<tr>
<td>Jail</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Federal</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>41</td>
<td>7</td>
<td>108</td>
</tr>
</tbody>
</table>

Excludes federal arrests.

Sources: See Appendix.

"heroic" number of assumptions (also described at length in the Appendix), we can make crude estimates of total punishment for various drug-offense categories in 1979 and 1988.

The number of state and local arrests for drug offenses has increased rapidly, from 560,000 in 1979 to 1,150,000 in 1988. The composition of these arrests changed in an important way over the same period. Whereas the 1979 total was dominated by arrests for marijuana (70 percent) and possession (82 percent) offenses, in 1988 heroin/cocaine arrests had come to exceed the number for marijuana (600,000 versus 391,000), and distribution arrests now accounted for a much larger share than in 1979 (27 percent versus 18 percent). In effect, the average seriousness of arrest offense has increased sharply; this points again to the importance of distinguishing among drugs and roles in analyzing risks.

Arrest is only the first step in the criminal justice process, but at the national level we cannot systematically trace through the disposition of these arrests. Data from California (see Appendix Table 8.A.4) show that sentencing has become very much tougher in that state, at least for the more serious distribution offenses; whereas only 5 percent of those convicted on a felony drug charge in 1979 went to prison (that is, received a sentence of more than 12 months), that figure had risen to 17 percent in 1988. However, this might also have been accompanied by a decline in the severity of sentences for drug-possession cases as dockets became more crowded. For a group of five states tracked over the period 1983–1986, the percent of felony drug convictions resulting in some
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incarceration (prison or jail) rose from 71 percent in 1983 to 83 percent in 1986 (Bureau of Justice Statistics, 1989b).

At the national level, we have only data on the sentencing for felony drug convictions in 1986 and 1988 (Bureau of Justice Statistics, 1988 and 1990). In that two-year period there was a very sharp increase (from 135,000 to 225,000, approximately a 70 percent rise) in the number of persons convicted of felony drug trafficking or possession charges and a modest decline in the expected time served for those who were convicted of drug trafficking (from 22 months to 20 months). In 1988 drug offenses accounted for approximately one third of all felony convictions in state courts.

The available data permit rough estimates of prison and jail years meted out for drug felonies by state courts in 1988. About 90,000 persons were sentenced to prison, and another 65,000 were sentenced to local jails. Allocating across drugs in proportion to their share of distribution arrests nationally, I estimate the total cell-years for marijuana sellers from these sentences to be about 31,000, and for cocaine sellers, about 78,000.

The federal court system also imposes punishment on drug dealers. Though federal drug convictions constitute a small share of the total, the average time served for those incarcerated is much higher than for state-sentenced offenders. The federal courts simplify our estimation task by separating sentences according to the drug involved.

In 1988 these courts generated an estimated 50,000 years of expected prison time for drug dealers, compared to only one-tenth that amount in 1979. This reflected increasing numbers of convictions, rising sentence length and, most significantly, a rise in the share of sentence that the inmate expected to serve; this last was the result of the imposition of sentencing guidelines and the abolition of federal parole.

Estimating the 1979 cell-year totals is an even more speculative venture. For 1979 we have only national data on how many persons were in state prison for drug offenses (Bureau of Justice Statistics, 1988), a slender basis for developing dispositional data. Between 1979 and 1986 the number of persons in state prison on drug charges rose substantially, from 18,000 to 39,000, approximately in line with the increase in the number of sale/manufacture arrests.

To avoid taxing the data unreasonably, I adopt some very simple assumptions that bias the exercise against finding increasing severity of punishment. I assign all the drug-dealing inmates in 1979 to that year and assume that they are serving sentences as long as those served in 1986, the first year for which national time-served data are available. The number of persons receiving jail sentences is calculated on the basis of the share of sentences of incarceration going to jail in five states in 1983.

With these assumptions, the final estimates of cell-years give much more weight to marijuana, reflecting marijuana's dominance of distribution arrests at
the state level. Marijuana cell-years were three times that given to cocaine dealers, though at the federal level more cocaine dealers received prison sentences, which averaged more months.

One surprising feature of the final numbers in Table 8.1 is the high cell-year estimate for marijuana, particularly in 1988. The estimated federal punishment level has a reasonably sound empirical base. Mark Kleiman (personal communication) suggests that the large number of marijuana cases still being brought in the federal system might be a function of federal prosecutors in primarily rural districts not having other drug-dealing cases available to them; with rising pressure to appear tough on drugs, they may choose to bring a lot of marijuana cases.

The state-prison calculations assume that marijuana-dealer convictions are as likely to result in prison sentences as convictions for distribution of other drugs, and that sentences will have the same time served. It is possible that marijuana dealers are given systematically lighter sentences; nonetheless, the total cell-years for marijuana dealers is very likely to have increased between 1979 and 1988.

Number of Transactions

The difficulty of estimating the numerator in the calculation of punitiveness pales beside that of estimating the denominator. Put aside the many conceptual problems discussed earlier and assume for the moment that the denominator is the number of purchases. That is a function of the number of users, their average consumption, and the amount they purchase at each transaction. As cocaine prices have fallen and the mode of ingestion has changed (from intranasal to smoking), the number of transactions per user may have risen very sharply. For marijuana, increased potency and price may have had the opposite effect.

The National Household Survey (NHS) estimate of the number of regular users (monthly) of the two drugs is sharply lower for 1988 than for 1979, contradicting other indicators and the general impression. Even if 1988 cocaine consumers made ten times as many purchases as 1979 consumers, the number of arrests per transaction (either for possession or distribution) would have risen. For marijuana, where transactions per user are likely to have fallen, the data also suggest that arrest risk per transaction has risen.

The NHS estimates are unconvincing, however. Wish (1990–1991) points out that data from the Drug Use Forecasting (DUF) system point to more regular cocaine users just among the arrested population than are found in the whole household survey by the NHS.

An equally plausible (and weak) alternative measure of the increase in the number of transactions is the change in the number of mentions of cocaine in the DAWN Emergency Room (ER) data. That shows a 21-fold increase in the same nine-year period.

For marijuana the DAWN system provides little relevant information, since
marijuana rarely shows up except with another more dangerous drug. The High School Senior Survey (Johnston, O'Malley, and Bachman, 1989), a higher quality annual survey of twelfth-graders, also reports substantial declines in all measures of prevalence over the period 1979–1988; the percentage of respondents reporting daily use of marijuana fell from about 10 percent to about 4 percent.

Conclusions: Punishment per Transaction

The above figures provide some pleasingly unexpected results. Though the focus of drug enforcement in the late 1980s has been on cocaine, we cannot be certain that punishment stringency for that drug has gone up. If the DAWN data provide a reasonable measure of changes in the number of cocaine purchases and sales, arrest risk per purchase may have declined, even if users did not buy smaller numbers of doses per transaction. Even cell-time per transaction would have declined for cocaine sellers. The NHS data, of course, tell a very different story, since they point to a declining number of active regular users.

For marijuana the results are very clear-cut. Marijuana in 1988 got a much smaller share of punishment resources than it did in 1979, but the number of selling arrests rose and the number of possession arrests went down only slightly. With a rapidly declining user base, it is almost certain that the severity of punishment per transaction increased between 1979 and 1988.

It is of interest to calculate roughly the 1988 absolute risks per user-year for the two drugs. If there were 20 million marijuana users, as suggested by the survey data, then they faced an average risk of 2 percent of arrest in that year; though this seems low, note that in steady state that amounted to a 1 in 5 chance of being arrested in a ten-year using career. For cocaine, with a much smaller user base (no more than perhaps 5 million, ignoring those who use less than once per month), the annual arrest risk was 6 percent.

For sellers, the arrest risks differed even more substantially for the two drugs. Using the same assumptions as Reuter and Kleiman (1986) concerning the ratio of buyers to sellers for each drug, marijuana sellers may have faced not much more than a 10 percent probability of being arrested, compared to perhaps 40 percent for a cocaine seller. The cell-year calculations are of course more speculative, but 108,000 cell-years for a population of perhaps 350,000 cocaine dealers suggests that by 1988 that activity had indeed become risky.

Finally, let me comment on the price consequences of punishment. Over the period 1979 to 1988, marijuana prices, even adjusted for purity and inflation, have risen; see Moore (1990) for the data. Over the same period, cocaine prices have fallen substantially in nominal terms, let alone real terms. Given the potential importance of experience in determining the efficiency of high-level smuggling and distribution (Cave and Reuter, 1988) and of addiction for the supply curve of retail labor, not too much should be made of the relationship of
punishment stringency and price. It is, however, comforting to see that for marijuana, where the addiction effect is minimal, price increased as punishment rose.

ADVERSE CONSEQUENCES OF TOUGHNESS

At least three adverse consequences of intensified enforcement need to be considered: increased violence and corruption on the part of drug sellers, higher revenues for sellers, more crime and health-endangering behaviors by both users and sellers. 16

Increased Violence by Sellers

Most violence in the drug-distribution business appears to be directed against other participants, not police. A business involving large sums of cash and valuable commodities, staffed by young, poorly educated males, operating outside the law, is one in which violence is likely to be an important method for settling the numerous disputes that inevitably arise. That the commodity now most frequently involved is a stimulant no doubt adds to the level of violence.

The caveat about the impact of the drug itself is important. The heroin markets of the early 1970s were accompanied by little of the violence that has characterized drug distribution in the late 1980s. Heroin distributors were of no more general background than their cocaine-distributing contemporaries; the life circumstances of the heroin user were no less desperate. The estimated number of heavy heroin users are certainly smaller—at its height, probably no more than one million, compared to a figure maybe three times that for cocaine in the late 1980s (Johnson et al., 1990). Impressionistically though, the level of violence was far less than would be accounted for by this difference in scale. 17

Little deadly violence is directed against the police. Though police are occasionally shot in the course of drug enforcement, the numbers pale in comparison with the numbers of dealers killed by other participants. In Washington, D.C., admittedly an extreme case, perhaps as many as 200 persons were killed annually in homicides related to the drug business. 15 Only one police officer was feloniously killed in the course of duty in 1987, and none in 1988. Tougher enforcement will not increase violence much by raising the number of times that dealers defend themselves against police in order to avoid prison sentences or loss of property. 19

With less certainty, we also reject the hypothesis that tougher enforcement raises violence by increasing the frequency with which participants are suspected to be informants or the severity with which suspected informants are punished. 20
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The disputes in the drug trades seem to be primarily over details of transactions or market territory.

There are yet other probable connections between enforcement and violence. The most troubling possibility is that some of the killings are the indirect consequence of intense police enforcement against street markets. This is not an argument against doing such enforcement; it is merely a sober reminder of the difficulty of achieving large social goals through law enforcement without causing harm to some group.

Competitive violence is an effort to increase market share or, defensively, to prevent a loss of market share. Over time, without outside disturbances, a group of drug sellers operating in the same area is likely to work out some set of arrangements that allow them to do their business peaceably. It may be the result of little more than becoming familiar with particular people on a corner or it may represent explicit arrangements about who can sell particular drugs at specific times and in specific places. Some level of harmony is useful to the dealers as a group, because violence will deter some customers, attract police attention, and increase their own physical risks.

Consider what happens when the police move in on one of these thriving markets. They arrest some dealers, create disturbance for customers, and drive some sellers to other locations. If sellers moved to corners that were currently not drug markets, there would be no marked incentive for violence. In a market with an excess supply of dealers, however, they are likely to move to locations that are already markets—places at which there is already a steady flow of customers and an established set of sellers. That may generate a particularly savage struggle between those sellers and the newcomers. In a legal market, competition for desirable locations is carried out via the rental mechanism; for drug markets the allocation is often by violence. Good policing, responsive to community concerns about concentrations of disorder and violence, may have the unintended consequence of increasing the overall level of violence.

To some extent we are dealing with a historical consequence of the blossoming of the drug trade as much as anything else. Drug-dealing has generated large revenues, permitting the purchase of more expensive and powerful weapons. The guns are now out there in the underworld; even if the drug trade declines in profitability, those guns will have a market in the U.S. underworld. Disagreements may be no more likely to lead to violence than in the past; it is simply that the means for violence are so much more lethal.

**Increased Corruption Incentives**

The incentive to bribe criminal justice officials is positively related to the intensity of enforcement. The greater the probability of long prison terms and loss of other assets, the more aggressively a dealer will seek out officials who can
mitigate those risks, and the more money he will be willing to offer for such mitigation.

One of the potential costs of more intense enforcement is thus raised corruption potential, particularly among the front-line enforcement agencies. At the risk of appearing naive, I suggest that these risks are modest in contemporary America, notwithstanding some large-scale and troubling cases, such as that involving allegations of theft of drug-dealer assets by officers of the Los Angeles County Sheriff’s Department.

The structure of drug-law enforcement has become highly fractionated. Federal, state, and local agencies have overlapping jurisdictions and often mount operations that interfere with each other. These unintended interactions are frequently cited as evidence of “lack of coordination,” the bugbear of so many General Accounting Office reports, but they also point to the risks facing corrupt police (using that term generically to cover enforcement agents). No agency can grant a franchise for operating an illicit enterprise, as was the case in the first half of this century when local police departments had essentially exclusive criminal-enforcement responsibilities (see Schelling, 1967 for an analysis of this phenomenon). Moreover, taking money from dealers has become risky in an environment in which the individual paying the bribe has a reasonably high probability of being arrested by another agency; offering the name of the corrupt official may be the offender’s best method for dealing with the second agency.

Drug enforcement certainly induces corruption, but I suggest that intensified enforcement within the plausible range will do little to exacerbate that evil.

**Increased Dealer Revenues**

It is generally believed that the demand for habit-forming drugs is inelastic—that a 1 percent increase in price will lead to less than a 1 percent reduction in consumption. This implies that higher prices will lead to higher revenues for dealers, at least in the short run. If tougher enforcement raises prices, then it will also increase dealer revenues.

Much depends on the kind of enforcement. As Moore (1973) pointed out, a buyer of drugs incurs two kinds of costs. One is the conventional money cost, the other is the nonmoney cost associated with finding a willing seller. This second cost includes the risks associated with entering unsavory parts of town, transacting with dangerous and dishonest distributors, purchasing drugs that may have been diluted with toxic substances, and incurring the risk of being arrested. Any enforcement actions that raise these latter costs unambiguously lower demand; that is the peculiar allure of street-level enforcement for analysts such as Kleiman (1988).

Enforcement aimed exclusively at the seller has no direct-demand side effects; if it reduces drug consumption, it does so through raising the risks and other costs
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of dealers and hence the price charged in retail markets. It does not necessarily raise the utility of sellers, even if it raises their earnings; they are after all being compensated for incurring higher risks and they may prefer (but be unable to attain) lower risks and lower income.26

Even if dealers are worse off as the result of more intense enforcement, they now receive higher total revenues. These revenues are untaxed and provide an important component of the underground economy. Higher earnings may also be more salient than the increased risks in providing temptations for the young and poorly educated to join a trade that provides the path to such wealth (Taylor, 1990). Of course, if the enforcement can be triggered to making conspicuous consumption a risky behavior, then the latter concern is mitigated. That may be possible in more dour societies, but lavish and conspicuous consumption patterns are so much a part of the culture that such an enforcement pattern would either target too many of the (criminally) innocent or run the risk of being highly discriminatory in terms of age and, possibly, race.27

Health

Marijuana provides the clearest example of the adverse health consequences of intensified enforcement. It is frequently though not universally asserted that more potent marijuana poses higher health risks (Jacobs, 1987). Assume arguendo that the statement is true.28 The potency of marijuana seized by police has risen very substantially over the past fifteen years. It is likely that more intense interdiction is the cause of that potency increase.

Interdiction has made Colombia a high-cost source of marijuana, even though the interior price ($5 per pound in 1989) is very much lower than that prevailing in Mexico ($100 per pound). The explanation for that is found in the high risks associated with maritime transportation from Colombia.29 One means for minimizing smuggling risks is to increase the value per unit smuggled; higher potency strains achieve that.

The other major source of marijuana currently is domestic production, again probably the result of intense enforcement. The principal cost for domestic producers is seizure and arrest risk that is a function of the area required per dollar revenue. Their optimal strategy is to shift to higher-potency strains of marijuana.

It is also worth noting the consequence of bans on “head shops,” outlets for water pipes and other equipment. The carcinogens in marijuana turn out to be water-soluble (Kleiman, 1989). By reducing the availability of water pipes, enforcement has increased the health risk associated with marijuana use.30 Marijuana users now are constrained to use the drug in a particularly dangerous manner.

In the current regime, many (perhaps even most) of the health risks associated
with heroin are a function of the conditions surrounding its distribution—uncertain purity, sometimes toxic diluents, the use of dirty needles. The question is whether these are a function of the intensity of enforcement or simply of prohibition per se; put aside for the moment such innovations as "needle packs," à la Zurich.

I know of no study that has examined the relationship between the intensity of enforcement and any of the above dimensions. Once again we can resort to speculation untrammeled by inconveniently complicated empirical findings.

From a public-health perspective, it is desirable to encourage long-term relationships between individual dealers and users. The prospect of repeat purchases gives the seller an incentive to minimize the risk of the customer's suffering adverse effects from a particular purchase. Intensified street-level enforcement has (at least) two effects, one in each direction. On the one hand, by raising dealers' concern about whether a customer is an undercover policeman, it encourages them to cultivate known addicts as customers and to avoid novice buyers. On the other hand, it causes turnover in the dealer and user populations (through incarceration) and thus reduces their ability to maintain long-term relationships.

Summary Remarks

The above is by no means a complete list of all the harms resulting from enforcement. Given limited prison capacity, the focus on incarceration of drug offenders may have made the "price" of other, perhaps socially more damaging, crimes lower, a factor rarely figured in to the discussion of drug-policy choices.

Note that the examples covered adverse effects of a variety of enforcement tactics. Though most of them seem to be a function of street-level enforcement, the increase in marijuana potency is a function of interdiction efforts and the domestic eradication campaign. The analysis of enforcement effects must be instrument-specific.

All of the above discussion is highly conjectural. None of the effects have been measured and their sizes are impossible to determine with the available data. All these effects (except corruption) are plausible and, to my mind, quite troubling.

Conclusion

This paper was motivated by a curiosity about the punitive approach to drug control. Toughness has been discredited in part on supposedly empirical grounds. "We tried it in the 1980s and it didn't work," summarizes the (broadly) liberal critique. The admittedly crude calculations presented earlier
argue that it is uncertain whether the late 1980s did see intensified enforcement, as compared to the late 1970s, but that the weight of the evidence is that punishment risks probably did rise for both cocaine and marijuana users.

Judging whether the risks were adequate or appropriate is an even more difficult task, which I do not assay here. Even if they are low for some categories of drug offenders (such as marijuana users), this is not to say that current enforcement has no consequences for the use of drugs. The price of cocaine in illegal markets is approximately ten times that charged by pharmacists selling the drug for use as a local anesthetic. For many persons it may be difficult to find a source for the drug without a lengthy and difficult search. How much of that is accounted for by enforcement intensity as opposed to prohibition with something more than ritual enforcement is impossible to say.

The analysis might also be interpreted as a call for re-examination of how enforcement is executed. Some forms of enforcement have more serious negative consequences than do others. It may be that we should search for the "harm-minimizing" mix of enforcement.

Moreover, the High School Senior Survey data on marijuana use suggest that it was changed perceptions of health dangers rather than enforcement risks that reduced cocaine and marijuana use in that population (Bachman, Johnston, and O'Malley, 1989). In short, this nation has not been particularly tough in recent years and the evidence about the effects of toughness on drug use are decidedly mixed. The obligatory call for further research is taken as given.

There is a second argument against the highly punitive approach to drug control, namely the possibility that, whatever its effect on drug use, it makes society worse off by increasing (1) violence by sellers and users, (2) the incomes of sellers and the income needs of buyers, and (3) the crime, morbidity, and mortality associated with drug use. Lacking data on local variation in all these dimensions that would enable the sorting out of these effects, I have simply identified how some of these effects might be generated and suggested which ones are likely to be important.

None of this is, alas, dispositive; but it does suggest that the debate about drug policy requires a better specification of the goals of that policy. Enforcement has costs, even putting aside (as economists are wont to do) the infringement on civil liberties associated with heavy enforcement. Treatment and prevention, though the latter can be somewhat intrusive, have none of these undesired effects.

Moreover, the range of policy options available to society is also broader than is usually suggested. Retaining the current prohibitions does not require massive enforcement efforts. Prostitution is prohibited everywhere in this country, except for certain counties of Nevada, and yet enforcement of that prohibition is (at most) modest. The same holds for bookmaking and privately operated numbers games; though prohibited everywhere (again with the exception of Nevada), little effort is made to enforce those prohibitions. Such light enforcement is nowadays
but rarely a source of concern (though historically it was the very focus of systemic corruption of the criminal justice and political systems). Prostitution is usually targeted by police only to the extent that it becomes conspicuous and/or aggressive, an assault on the safety or sensibility of noncustomers. Gambling is not even controlled to that extent. Symbolic raids on large bookmaking operations on Super Bowl Sunday, particularly those with Mafia connections, is about the extent of enforcement. There seems little concern that the nation is facing a crisis with respect to either illegal gambling or prostitution.

I mention these not to advocate that drug enforcement be relegated to quite such a marginal role but to suggest that the retention of prohibitions is not equivalent to the current “war on drugs.” Even the “vigorous enforcement” generally accepted by Congressional doves may go too far. The prevailing (weak) evidence supports the following assertions, which in turn have policy implications:

1. General user sanctions have little deterrent effect.
2. Vigorous enforcement against high-level dealers, smugglers, and refiners does little to raise the retail price but may engender instability in producer countries, corruption in transit nations, and select out the more suspicious and paranoid distribution organizations in the United States.
3. Saturated enforcement against dealers in street markets increases the level of violence associated with such trafficking.

This suggests that we should examine the possibility of enforcement moving to the fringes of drug policy, aiming at getting dependent users into treatment and making drug dealing less conspicuous, and thus drugs less available to novice users. The case is far from proven but the truth is that we are far from knowing whether toughness has been tried or whether its potential gains are worth the potential costs, given the other means available to us for achieving comparable reductions in drug use.

APPENDIX:
CALCULATING ENFORCEMENT STRINGENCY

There is no perfect measure of how punitive our drug-control system has been.\[\text{11}\] The best single measure of the stringency of drug enforcement is probably the expected time of incarceration per transaction, but even that has its ambiguities.\[\text{32}\] Is the relevant transaction for a user a purchase or a use-episode? Purchases are higher-risk activities than consumption episodes but, taking account
TABLE 8.A.1. ESTIMATED NUMBER OF USERS OF COCAINE AND MARIJUANA:  
HOUSEHOLD POPULATION, 1979 AND 1988

<table>
<thead>
<tr>
<th>Drug/Frequency</th>
<th>1979</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocaine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>1,163</td>
<td>767</td>
</tr>
<tr>
<td>Monthly</td>
<td>4,090</td>
<td>2,698</td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>10,616</td>
<td>5,840</td>
</tr>
<tr>
<td>Monthly</td>
<td>18,760</td>
<td>10,320</td>
</tr>
</tbody>
</table>

*Assumes ratio of weekly users to monthly users same in 1979 as in 1988.


of the total number of each kind of transaction, it may well be that consumption  
episodes account for more of the total legal risk faced by users than do purchases.  
For sellers there is less ambiguity; sales are the risky transactions, though the size  
of the sale has an effect on the risk, and the passive holding of inventory also  
generates risk.

Transaction Trends

On a periodic basis, the National Institute on Drug Abuse (NIDA) performs  
a National Household Survey (NHS). These surveys provide the starting point  
for our estimates of the total number of transactions. In particular, we use the  
1979 and 1988 surveys. Both surveys need considerable adjustment if the purpose  
is estimating the absolute number of transactions. Our goal, however, is simply  
to determine whether enforcement in 1988 was more or less severe than in 1979;  
thus all we need to know is the ratio of the two figures.

Table 8.A.1 presents data on the estimated total number of users of cocaine  
and marijuana in the household population for 1979 and 1988. To turn these  
figures into estimates of the number of transactions, we need to make assumptions  
about the intensity of use with respect to each category of drug and use-frequency.  
These intensities may have changed over time. For example, marijuana has  
become more expensive,\textsuperscript{33} perhaps reducing the intensity of use; on the other  
hand, cocaine has become very much cheaper, presumably increasing the intensity  
of use.

Data from the High School Senior Surveys (Johnston, Bachman, and  
O'Malley, 1989) show that daily marijuana users are indeed very frequent users;  
they may average as many as three joints per day (Reuter, 1984a). They account
for a very large share of all consumption. We have no similarly rich data on frequency of use by heavy cocaine users, and it is difficult to extrapolate from the marijuana. Cocaine is more likely to create dependency among those who use it regularly than is marijuana; that suggests use will be more evenly distributed among those who use cocaine regularly as compared to marijuana. One finds the same when fitting Gini curves for tobacco (highly addictive) and alcohol (addictive only for some groups).

All manner of adjustments could be made to these data. If, as shown by the general population surveys, drug use has become increasingly stigmatized, willingness to report drug use is likely to have declined. Our estimate of the number of drug users in the household population in 1988 is probably proportionately a smaller share of the true figure than is the 1979 figure. The rapid growth of the prison population, and the rising prevalence of drug offenders in that population, also may have an impact on the extent of underestimation of the total number of users.

The prison population represents a difficult element for this calculation. Remember that we are not attempting to estimate the number of users in 1979 and 1988 but the number of transactions. If prison inmates are unable to obtain drugs while imprisoned, then they may still be counted as drug users, in the sense that they wish to consume drugs and are being artificially constrained from doing so. In reality, it is widely believed that many are able to obtain some drugs even in prison. The quantities consumed are likely to be very small, however, since the distribution systems are constricted and expensive and the inmates have little earning capacity while confined. The larger the prison population, for these purposes, the better the household survey captures the currently active user population.

The alternative base for the change in the number of cocaine transactions is the number of mentions among those admitted to hospital emergency rooms (ER) in the NIDA DAWN (Drug Abuse Warning Network) system. DAWN contains a nonrandom sample of ERs in about 22 metropolitan areas. Table 8.A.2 presents DAWN figures for 1979 and 1988 in a quasi-consistent panel of

<table>
<thead>
<tr>
<th></th>
<th>1979</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cocaine episodes</td>
<td>2,558</td>
<td>54,756</td>
</tr>
<tr>
<td>Cocaine w/heroin only</td>
<td>407</td>
<td>6,827</td>
</tr>
<tr>
<td>Cocaine only</td>
<td>1,092</td>
<td>26,228</td>
</tr>
</tbody>
</table>

SOURCE: Based on NIDA, Drug Abuse Warning Network data. See text for adjustment method.
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Table 8.A.3. Drug Arrests by State and Local Authorities

<table>
<thead>
<tr>
<th></th>
<th>1979</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total state/local arrests</td>
<td>558,601</td>
<td>1,154,046</td>
</tr>
<tr>
<td>Sale/Manufacture</td>
<td>101,107</td>
<td>316,525</td>
</tr>
<tr>
<td>Heroin/cocaine</td>
<td>20,688</td>
<td>196,384</td>
</tr>
<tr>
<td>Marijuana</td>
<td>49,715</td>
<td>64,691</td>
</tr>
<tr>
<td>Other</td>
<td>30,164</td>
<td>55,450</td>
</tr>
<tr>
<td>Possession</td>
<td>457,494</td>
<td>837,521</td>
</tr>
<tr>
<td>Heroin/cocaine</td>
<td>47,481</td>
<td>403,165</td>
</tr>
<tr>
<td>Marijuana</td>
<td>341,305</td>
<td>326,922</td>
</tr>
<tr>
<td>Other</td>
<td>68,708</td>
<td>107,434</td>
</tr>
<tr>
<td>Federal arrests*</td>
<td>6,343</td>
<td>15,750</td>
</tr>
<tr>
<td>Marijuana</td>
<td>1,690</td>
<td>4,890</td>
</tr>
<tr>
<td>Heroin/cocaine and other</td>
<td>5,653</td>
<td>10,850</td>
</tr>
</tbody>
</table>

*Defendants charged with violations of Drug Abuse Prevention and Control Act in U.S. District Court, not necessarily arrested in that year.

Source: FBI, Uniform Crime Reports, and Administrative Office of the U.S. Court.

ERs. In addition to the total number of cocaine mentions, it also lists those cocaine mentions that involve heroin as well as cocaine and the number that are cocaine only. Note that cocaine only accounted for less than half of the cocaine mentions in 1988; multiple drug use is increasingly the common pattern, making the punitiveness calculations even more questionable.

Estimating National “Punishment” Levels

Table 8.A.3 presents data on the estimated number of drug arrests by state and local authorities, broken down by drug type and by possession/distribution, for 1979 and 1988. The table also presents data on the closest equivalent federal enforcement figure, the number of defendants appearing in district court on drug charges.

No national arrest-disposition data are available for 1979. Only for California do we have details of the disposition of felony drug arrests in both years; these data are presented for 1979 and 1988 in Table 8.A.4.

Some other relevant data are available for five states from 1983 to 1986 (Bureau of Justice Statistics, 1989b); the states are California, Minnesota, New York, Pennsylvania, and Virginia. In 1986, these states reported 103,000 drug felony arrests, an increase of 52 percent from 1983. The states also showed
Table 8.A.4. Disposition of California Felony Drug Arrests

<table>
<thead>
<tr>
<th></th>
<th>1979</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felony arrests</td>
<td>57,682</td>
<td>158,510</td>
</tr>
<tr>
<td>Convictions</td>
<td>18,789</td>
<td>49,446</td>
</tr>
<tr>
<td>Prison (%) of convictions</td>
<td>991 (5%)</td>
<td>8,393 (17%)</td>
</tr>
<tr>
<td>Jail</td>
<td>9,944 (53%)</td>
<td>36,001 (73%)</td>
</tr>
<tr>
<td>Probation only</td>
<td>5,273 (28%)</td>
<td>4,329 (9%)</td>
</tr>
<tr>
<td>Other</td>
<td>2,581 (14%)</td>
<td>723 (1%)</td>
</tr>
</tbody>
</table>

Source: California Bureau of Criminal Statistics.


<table>
<thead>
<tr>
<th>Year</th>
<th>Number Convicted</th>
<th>Percent Incarcerated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Jail</td>
</tr>
<tr>
<td>1983</td>
<td>29,968</td>
<td>71</td>
</tr>
<tr>
<td>1984</td>
<td>35,070</td>
<td>74</td>
</tr>
<tr>
<td>1985</td>
<td>44,839</td>
<td>78</td>
</tr>
<tr>
<td>1986</td>
<td>53,942</td>
<td>83</td>
</tr>
</tbody>
</table>


Increasing severity in the sentencing of drug felons, over the four-year period shown in Table 8.A.5.

The figures in Table 8.1 (in the main text) are cobbled together from the sources mentioned there with a variety of assumptions. The following subsection lays out those assumptions.

Arrests

To estimate cocaine arrests, it was necessary to make an assumption about the share of heroin/cocaine arrests that were for cocaine only. In 1979, DAWN and expert opinion suggested that heroin was at least as prevalent as cocaine in the drug markets susceptible to police intervention. I assumed that 50 percent of all heroin/cocaine arrests (both possession and distribution) in 1979 were for cocaine.

By 1988 cocaine was much more widely used and marketed in open retail
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TABLE 8.A.6. TOTAL PUNISHMENT CALCULATION: STATE COURTS

<table>
<thead>
<tr>
<th></th>
<th>1979</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felony drug convictions</td>
<td>80,000</td>
<td>225,000</td>
</tr>
<tr>
<td>Prison</td>
<td>18,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Jail</td>
<td>61,000</td>
<td>65,000</td>
</tr>
</tbody>
</table>

Sentence\(^a\) | 20 months | 20 months |

\(^a\)Expected time served in state prison in 1988; 1979 assumed to be same.

Source: 1988, Bureau of Justice Statistics, 1979; see text.

Markets, whether in crack houses or on the street. I assumed that cocaine accounted for three-fourths of 1988 heroin/cocaine arrests. These assumptions possibly underestimate the increase in cocaine arrests, which may have been less than one-half of the 1979 figure and more than three-fourths of the 1988 figure.

Cell-Years

To estimate the rise in prison years assigned to drug distributors, it is necessary to splice together three sets of numbers: drug-distribution arrests, the size of the state prison population serving time for drug offenses in 1979 and 1986, and the number and disposition of felony convictions on drug offenses in state courts in 1986 and 1988. The fact that, for the years available, distribution arrests rose (very) approximately at the same rate as the number of felony drug convictions and the number of prisoners serving time for drug distribution, makes this splicing plausible.

In 1979, 18,000 persons were in prison on drug offenses; the average sentence length is unknown. In 1986, the number was 39,000 (Bureau of Justice Statistics, 1988). Using the increase in drug-distribution arrests as the multiplier, the estimated total population of drug offenders in state prisons in 1988 would have been approximately 60,000.

An alternative estimate can be derived from the figures on felony convictions in state courts, as shown in Table 8.A.6. Forty-one percent of the 112,000 convicted of drug trafficking were sentenced to state prisons; this gives 50,000 commitments to state prisons. Another 30 percent were sentenced to jail for this offense. We do not have sentencing data on the 113,000 drug-possession felony convictions but for the broader residual category in which they fall (accounting for nearly half the category), 35 percent received prison sentences. This would suggest an additional 40,000 commitments, for a total of 90,000 drug commit-
ments. Given expected time served for the two classes of drug offenders, this also produces a total of approximately 140,000 cell-years in state prisons.

For punishment-risk calculations, total cell-years meted out in the year (commitments times expected time served\textsuperscript{34}) is more useful than the number in prison at the end of the year. Thus we need to work backward and try to estimate commitments and time served in 1979.

Two other figures remain: sentences to jail and sentences to federal correctional institutions. Jail sentences are less than one year; I assumed that time served is three months. For 1988, approximately 65,000 persons were sentenced to jail on drug charges, adding approximately 16,000 cell years to the total. I used the same formula as before for allocating those years between marijuana, cocaine, and other drugs.

For state courts no source gives drug-specific sentences. The easiest assumption would be to allocate the total number of sentences for each drug in accord with its share of total sales/manufacture arrests and assume that sentence length is equal for each drug. Impression suggests that marijuana distribution is less heavily penalized than distribution of other drugs, that is certainly true for federal sentences. The difference may have increased as society's concern about the damages associated with cocaine have risen; whereas in 1970 federal marijuana sentences were 80 percent as long as those for heroin/cocaine, that figure had fallen to 70 percent by 1988. Given the small share of distribution arrests now accounted for by marijuana, however, such adjustments make little difference.

Marijuana accounted for approximately half of distribution arrests in 1979 and only 20 percent in 1988. Allocating cocaine arrests within heroin/cocaine arrests as before, I estimated that cocaine distribution arrests were 10 percent of distribution arrests in 1979 and almost half in 1988. This leads to the allocation of cell-years to drug given in Table 8.1.

The federal courts, though accounting for a relatively small number of

<table>
<thead>
<tr>
<th>Table 8.A.7. Federal Court Drug-Sentencing Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Number convicted</td>
</tr>
<tr>
<td>Imprisoned</td>
</tr>
<tr>
<td>Length of sentence (months)</td>
</tr>
<tr>
<td>Expected time served (months)</td>
</tr>
</tbody>
</table>

defendants, add a surprising amount to the total because of the relatively long sentences imposed. For this level of court, drug-specific sentence data are available, though once again heroin and cocaine are not separated. The basic data are presented in Table 8.A.7.

Sentence length increased only moderately between 1979 and 1988. The shift to sentencing guidelines and the elimination of parole status, however, means that those incarcerated will serve a much larger share of the sentence imposed. Expected time served for those sentenced on marijuana offenses may have risen from about 28 months in 1979 (60 percent of average sentence length) to 51 months (90 percent of average sentence length).

Using these figures, I estimated that marijuana dealers received a sentence total of nearly 10,000 years in 1988, compared to 1,800 years in 1979. For cocaine dealers, using the same assumptions about the division of heroin/cocaine cases that are actually cocaine cases, I estimated prison years in the federal system assigned to cocaine dealers to have risen from 3,000 to 30,000.

Notes

1. This question was given its most explicit formulation in the debate on the 1988 Omnibus Drug Control Act.


3. The federal drug-control budget in FY 1990 allocated 26 percent of total expenditures to treatment and prevention (Office of National Drug Control Policy, 1990a). It is likely that state and local governments spend more in total than the federal government but allocate even less to treatment and prevention programs. It is hard to assemble a national drug-control budget, however, since most state and local drug enforcement is carried out by nonspecialized law enforcement agencies and the allocation of their budgets to drug control has a very judgmental element.

4. See, for example, the remarks of U.S. District Court Judge Stanley Sporkin on giving a ten-year sentence to a nineteen-year-old convicted of selling three vials of crack. The defendant had no prior conviction but Sporkin stated that this extraordinarily harsh sentence was mandatory. He advised the defendant to seek clemency from President Bush. (Washington Post, November 1, 1990.)

5. In Florida, the rapid increase in the number of drug offenders sentenced to prison, along with federally imposed limits on the prison population, have resulted in many felons serving extremely short sentences.

6. See Pearson (1991) for a discussion of the role this has played in recent British drug-policy decisions.

7. I ignore here James Q. Wilson’s eloquent plea (Wilson, 1990) that we take into
account the moral costs of different policies. Policy choices should take such into account; policy analysis is unlikely to be persuasive on the matter.

8. Mark Kleiman (personal communication) argues for measuring the risk per gram. Even putting aside the problem created by varying potency (should it be per unit THC for marijuana), this puts too much strain on the available data. Estimates of total consumption begin with estimates of total numbers of consumers and/or use sessions; they cannot be developed from the production side, subtracting out seizures and other losses (Haaga and Reuter, 1991). Thus quantity estimation requires layering on yet another very speculative set of parameter estimates.

9. The Uniform Crime Reports system of the FBI combines heroin and cocaine arrests into a single category. It is generally believed that the increase in the category throughout the 1980s was dominated by an increase in cocaine-related arrests.

10. The Bureau of Justice Statistics (1989b) has collected such data for five states.

11. Since these possession charges were prosecuted as felonies, they are presumably possession with intent to distribute rather than simple possession offenses, which in most states are misdemeanors only.

12. All these dispositional data, both national and Californian, bear on felonies, primarily related to distribution and/or manufacture. There are literally no published data concerning the sentences received by those arrested on simple possession charges.

13. DUF is a monitoring program being carried out in twenty cities. Each quarter a sample of arrestees, mostly those arrested for nondrug felonies, is asked to submit a urine specimen for drug testing. The results are not made available to the courts or prosecutors.

14. This estimate is based on “splicing” a succession of consistently reporting panels to create a synthetic panel for the nine-year period.

15. As so often, many of my ideas here come from discussion with Mark Kleiman. In this case he has actually published some of his own thoughts on the topic; see in particular Kleiman (1987), considering the trade-off between the goals of drug control and organized crime control.

16. Some critics would also include unreasonably long sentences as a cost of toughness at the court level. For example, Michigan imposes life in prison without parole for those found in possession of more than 650 gm of cocaine (Washington Post, November 5, 1990). Federal sentencing guidelines impose mandatory lengthy sentences for distribution of large quantities of cocaine. Only cooperation with the government can mitigate the sentence. That produces apparently unfair results; principals in smuggling operations are able to provide the government with useful information and mitigate their sentence, but less culpable “mules” have no such information and receive the full sentence. That can be treated as an element of design of the toughness program, however. It is not inherent in stringent enforcement regimes. Moreover, less tough enforcement, by permitting more sellers to avoid punishment at all, creates its own unfairness.

17. Cocaine sellers appear to earn higher incomes than heroin dealers; compare, for example, the figures on heroin earnings provided by Anglin and Speckart (1986) and those on a predominantly cocaine-selling population provided by Reuter, MacCoun, and Murphy (1990). The difference may reflect the fact that fewer of the cocaine dealers are drug-dependent and the existence of a larger middle-class market for cocaine. The fact that
heroin sellers take so much of their earnings in the form of heroin does not reduce their incentive to violence, however.

18. Reuter, MacCoun, and Murphy (1988, Section VI) estimate that in 1988 a drug dealer operating regularly (two days a week or more often) in the open-air markets of the city faced a 1 in 70 annual probability of being killed, and a 1 in 14 chance of being seriously injured.

19. In this respect, it is interesting to note that interdiction agencies, such as the Coast Guard and Customs Service, report very little violent resistance to their efforts.

20. Toughness in this case refers both to arrest frequency and expected severity of punishment following arrest. The willingness to take aggressive actions against collaborators and/or friends may be affected by either. On the economic sources of violence in illegal markets see Reuter (1983, Chapter 6).

21. Nor are they likely to leave for other markets even if the income and wealth of domestic U.S. offenders declines. Though there is an international market for arms of this kind, I suggest that few international buyers will purchase guns that may have been used in specific crimes here. The price of these guns may simply decline below that prevailing in other markets and no new guns will enter. Mark Kleiman (personal communication) suggests that the notion of a stock of guns is misleading; a gun may have a very short transactional lifetime, being used for only a few crimes and then being discarded so as to prevent tracing.

22. Data on Chicago robberies in the early 1980s (Zimring and Zuehl, 1986) showed a ratio of 14 to 1 nonfatal to fatal injuries. In the District of Columbia in 1988 there were 269 gunshot deaths and an estimated 1148 nonfatal gunshot wounds, a ratio of less than 5 to 1. In addition, guns are increasingly weapons of choice: Firearms accounted for 55 percent of all D.C. homicides in 1986, by 1988 that had increased to 72 percent, and to 77 percent by 1989.

23. This section adapts arguments found in Reuter (1984b).

24. Some examples can be found in Warner (1986).

25. The long-run elasticity may be substantially greater than the short-run elasticity, because prices have a greater impact on recruitment rates than on consumption levels of current users. This has been the finding from a number of studies of the elasticity of demand for cigarettes (e.g., Lewit and Coate, 1982). The only recent attempt to estimate the elasticity of demand for illicit drugs suffers from serious technical deficiencies (Goldshaw, Pancoast, and Koppel, 1987).

26. This issue is examined exhaustively by Spence (1978), who finds that the utility effects depend on a large number of parameters.

27. One method for targeting conspicuous consumption is to check the tax records of those who purchase luxury goods, such as Mercedes, fur coats, and gold chains. Those purchasers whose declared income seems inconsistent would then find themselves subject to a tax audit and possible criminal investigation. This would, of course, affect more than just drug dealers and requires a very considerable increase in the cooperation among tax authorities at different levels of government. Unless the IRS were authorized and willing to provide state agencies with federal tax returns, those wishing to evade detection could simply make luxury purchases out of state.
28. The claim is most often made by hawks; hence, if it is incorrect, they are at least hoist on their own canard.

29. It might also be argued that the high price of Mexican marijuana is a function of the relatively intense enforcement in Mexico. In a world undisturbed by enforcement, either in the producer country or at the border, Mexico would have a transportation advantage but might nonetheless be the high-cost producer because of higher wage levels. But the export price, absent enforcement, would be a great deal lower.

30. As always, there is a countervailing factor. By forcing users to a less attractive mode of ingestion, head-shop bans may reduce total consumption. The net effect on population cancer risk is indeterminable; one can only say that the bans do raise the cancer risks of current marijuana users.

31. It might be argued that an adequate surrogate for the riskiness of drug selling can be found in the price. Enforcement risk, however, is only one of the factors determining the supply curve for illicit drugs. There are also physical risks associated with participation in an illegal market, which may influence price. Experience curves, diffusion of marketing innovations (most notably the introduction of crack), and consumption by dealers all complicate interpretation of historical price trends.

32. Reuter and Kleiman (1986) present some figures for severity against sellers, using “seller year” as the base and distinguishing among three drugs (cocaine, heroin, and marijuana).

33. Moore (1990) presents price data for marijuana, showing a sixfold percent increase from 1976 to 1988; however, he does not take account of increases in the potency of the drug over the same period or of inflation. After adjusting for these two figures, the price rise (real dollars per unit THC) is only 11 percent.

34. Ignoring the fact that some of the arrests were made in previous years.

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On the Consequences of Toughness


Johnston, Lloyd; Bachman, Gerald; O'Malley, Patrick, Illicit Drug Use, Smoking, and Drinking by America's High School Students, College Students and Young Adults. Rockville, Md.: National Institute on Drug Abuse, 1989.


