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AN ANALYTIC VIEW OF DRUG CONTROL POLICIES

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I. Defining the Drug Abuse Problem

The economists have a good way of beginning to think about objectives in a given policy area. They ask: what would the world be like if the government had no policy at all, but instead let the world operate on its own? This question, when taken seriously, forces us to think hard about exactly what disasters we think are being warded off by relying on the authority and resources of the government to alter the conditions of private life. The answer to the question also establishes an implicit benchmark against which we can evaluate current policy: it is the differences between the world of no policy and the world with our current policy that provide whatever justification exists for our current policy. The differences, of course, are matched against whatever costs are imposed by using the authority and resources of the government in the way that describes our current policy.

So, imagine for a minute what the world of drug use would be like if there was no government intervention in this domain. What we would see is a population of drug users. The population would be of a certain size -- probably larger than today's population of users, but conceivably either the same size, or perhaps even smaller. The population of users would be distributed across patterns of consumption defined in terms of: (1) kinds of drugs; (2) rates of use; (3) mode of administration; and (4) period of time over which the drug use was maintained. Some users would be casual, short-term users who took oral doses of minor tranquilizers or smoked marijuana. Others would be chronic, intensive users who took heroin and amphetamines intravenously.

When we looked at the behavior and condition of a group of users within a given consumption pattern, it would be possible to describe their current status in terms of several key dimensions. We could see that they were: (1) more or less healthy; (2) more or less economically independent and productive; (3) more or less dangerous or reckless in

situations that created risks for others; (4) more or less able to manage conventional responsibilities associated with their role as husband, wife, father, etc.; and (5) more or less satisfied with their own lives. Individuals within the defined group of users would differ in terms of their position on these dimensions. Some would look in relatively good shape on all dimensions; others would be in very bad shape. Some might be in great shape in terms of health and happiness, but very bad in terms of economic independence and dangerous behavior. Although individuals differed within a given consumption pattern, it would be possible to describe an average behavior and condition for the entire group.

Whatever the individual or group position on these dimensions, some part of their observed behavior and condition could be attributed directly to their drug use. This part would not have to be either large, or broad, or even necessarily negative. In fact, at low levels of consumption, it is difficult to imagine that the drugs would have any significant effect on the status of individuals. What effects they did have might even be positive -- enabling the users to enjoy their lives more or function more effectively. At higher levels of use, of course, the drugs might well emerge as a larger and more consistently negative factor influencing the status of users. At any rate, only some portion of the observed behavior and condition of users could be attributed to their drug use.

If these are the terms in which we would see the world of drug use in a world of no drug policy, where would the drug abuse problem lie? An important part of the answer to this question is that the drug abuse problem is *not* coterminous with either drug use in general or the use of any particular drug. In this world there are many people using drugs who are healthy, economically independent, safe, responsible, and happy. Moreover, there are some people who use drugs and are miserable or dangerous, but whose condition cannot plausibly be attributed to drug use. Thus, there is a great deal of drug consumption that is *not* causing significant individual or social problems, and a great deal of misery among drug users that is not being caused by drugs.

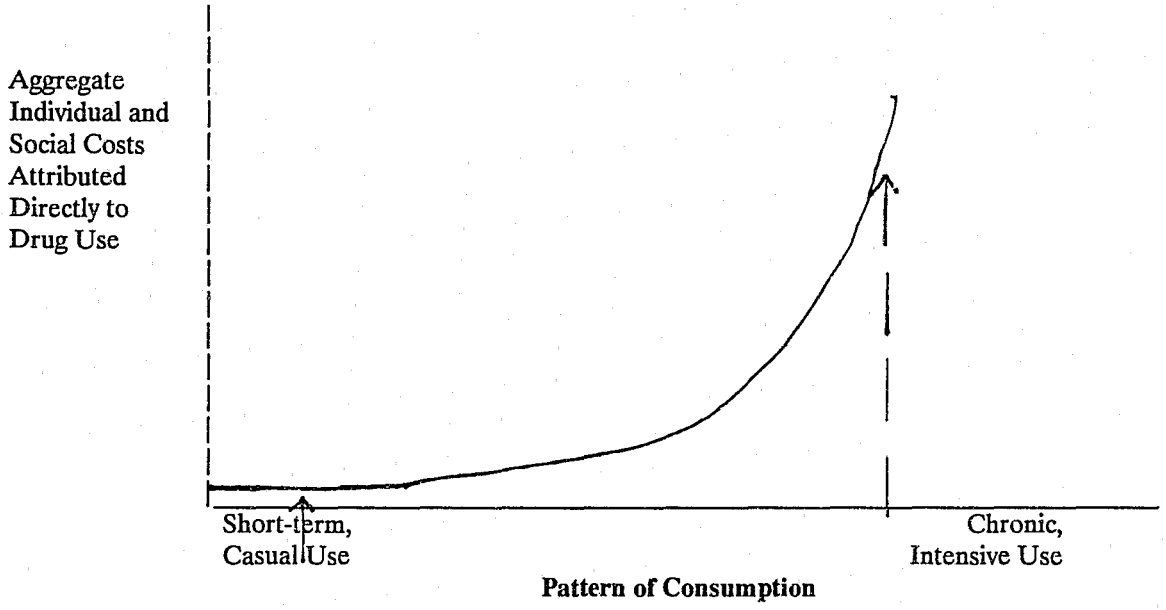
At the same time, however, within this population of drug users, there would be some people who were taking significant, real losses on one or more of the behavioral dimensions as a direct result of their drug use. That is where the drug abuse problem would lie. It would be defined as the decrements in the behavioral status of individuals measured along the dimensions of health, economic independence and productivity, risk of accidental or deliberate damage to others' property or person, ability to discharge conventional social responsibilities, and attitudes towards their own lives that could be attributed directly to drug consumption.

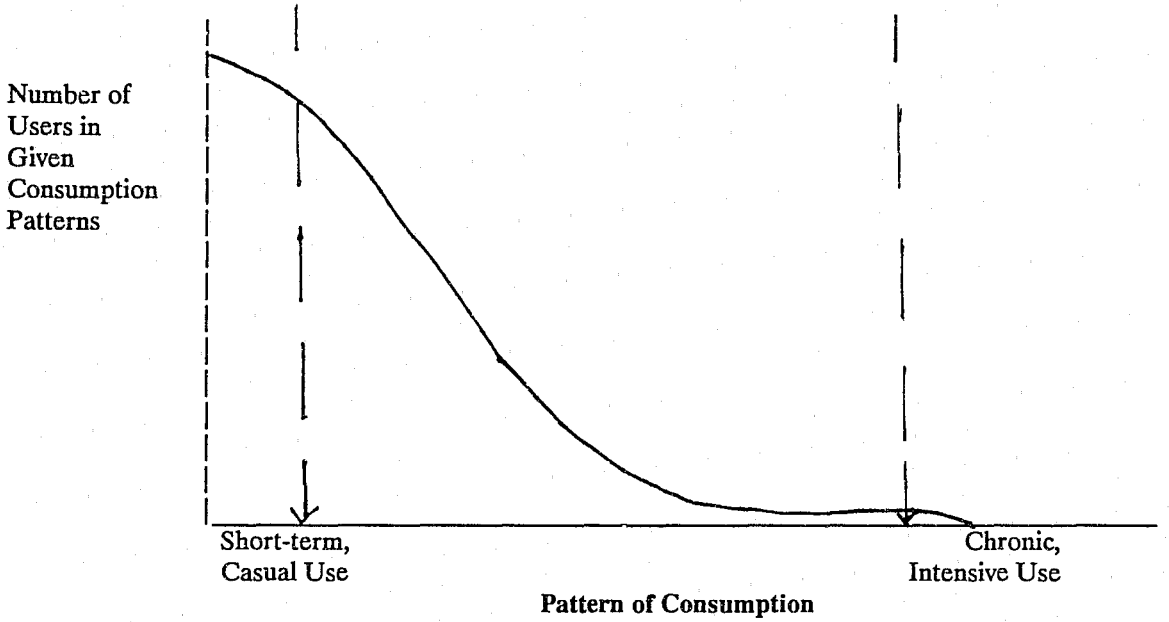
Now, some portion of this problem would be located among people who consumed small quantities of relatively harmless drugs in situations that turned out to be very dangerous. The common examples here are marijuana smokers who lose control of an automobile, hallucinogenic experimenters who suddenly become psychotic and leap out of windows, or amphetamine and barbiturate users who end up assaulting friends or strangers simply because they are excited or intoxicated. Such events are, of course, very serious. And they are clearly part of the "drug abuse problem."

My hunch, however, is that the vast majority of the drug abuse problem would not be located among short-term casual users of drugs who get involved in dangerous situations, but rather among the chronic, intensive users of drugs. These would be the people whose daily lives would be profoundly and continually warped by the process of procuring and using drugs. It is this group of users whose average status is very bad, and whose bad condition can plausibly be attributed to drug use for no more complicated reason than that their drug use itself claims a very large portion of their daily activity. If drug use at these levels is not the *only* cause of their bad condition, it is nonetheless sufficient to keep them in bad shape if it continues. Figure 1 provides a graphic illustration of this idea.

FIGURE 1.

HYPOTHESIZED RELATIONSHIP BETWEEN PATTERNS OF DRUG CONSUMPTION AND INDIVIDUAL AND SOCIAL COSTS ATTRIBUTABLE TO DRUG USE "IN-ITSELF"





II. Modes of Intervention

If drug use took this shape in a world of no drug control policy, how would we be tempted to intervene? How would we evaluate the impact of alternative interventions? What characteristic problems would afflict different kinds of interventions?

A. Changing Behavioral Status Associated with Given Levels of Drug Consumption (Treatment)

One mode of intervention would be to provide a variety of personal services to drug users who are in bad shape with the objective of reducing their drug consumption and/or improving their behavior and condition given some continuing level of drug use. This is what we usually mean by "treatment." Its objective is to move individual users along the behavioral dimensions defined above in positive directions: i.e., to improve their health, increase their economic independence, make them less dangerous to others, etc. Reducing drug use may or may not be an objective of treatment. If drug use is an important causal factor influencing the behavior and condition of users, treatment might usefully (or will necessarily) be focused at least partly on drug use. If drug use is a less important causal factor, treatment might avoid trying to reduce drug use entirely. (Note in this last case, however, that the "treatment" might properly be considered outside the scope of drug control policy. It may be producing social benefits by helping someone who is either dangerous or in bad shape, and the person might have become visible because he used drugs, but we are really dealing with some problem other than the drug abuse problem.) In short, treatment is designed to improve the behavior and condition of current users by changing the relationship between a given level of drug use and the overall behavior of the users, or by reducing drug use, or by some combination of the two.

If this is the ordinary role of treatment, it is then clear how the performance of treatment programs should be evaluated. We should measure changes on the various

behavioral dimensions identified above that can be attributed to the treatment regime. This requires us to be able to identify differences between the behavior and condition of users as we see them *during* and following treatment from what the behavior and condition would have been in the absence of treatment. It is these "net improvements" in behavior and condition, sustained over given periods of time both during and after treatment, that constitute the benefits of treatment.

Treatment intervention characteristically has two major problems. One is that the treatment programs simply fail to produce any noticeable changes in the status of individual users. Sometimes the problem is simply that the changes fail to survive after a patient leaves the support and supervision provided by the program. But other times the program either loses the patient, or fails to produce any changes in behavior even while the patient remains in treatment.

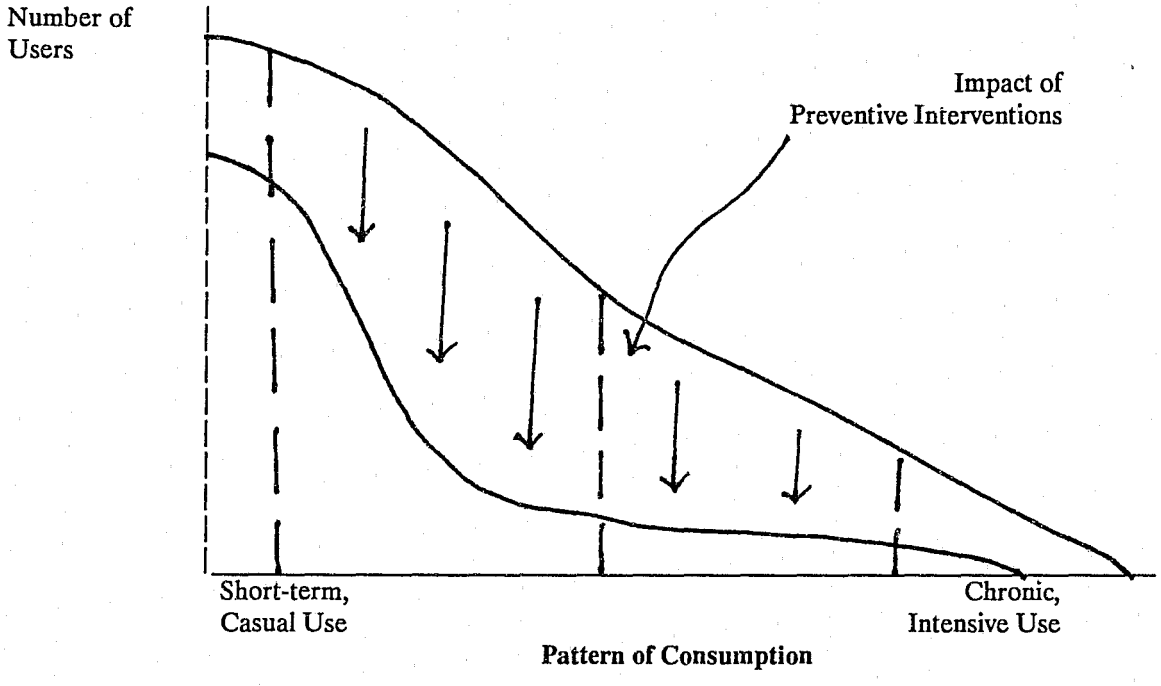
A second major problem for the treatment policy is efficient targeting and screening. It is obvious that a treatment policy has the possibility of being targeted quite narrowly on the group of users who constitute the bulk of the drug abuse problem. This gives treatment interventions an enormous strategic advantage over other drug control policy instruments. In fact, however, bureaucratic incentives to produce "cures" combine with the ideological preferences of service providers to treat anyone who volunteers to insure that treatment services will be distributed across the full range of drug users and *not* targeted on the hard core of the drug abuse problem. This is not so bad if treatment programs take people who are in bad shape for reasons other than their drug use, say, for example, people who already are in the criminal justice system. But it is very costly if the treatment programs end up being targeted on individuals who are not in very bad shape, and whose only claim on treatment resources comes from minor levels of drug use.

B. Shifting the Distribution of Drug Consumption (Prevention Broadly Construed)

A second mode of intervention would be to find ways to reduce the total number of people who end up in chronic, intensive consumption patterns. This effect would occur if we could simply reduce the overall size of the drug using population (leaving the distribution of users among consumption patterns as it now is); or, if we changed the shape of the distribution among consumption patterns by reducing the "transition probabilities" from lower levels of consumption to higher levels of consumption. In terms of Figure 1, the idea is either to lower the entire curve or to push the shape of the curve in a southwesterly direction. Figure 2 illustrates the idea. In either case, the total number of people in the

FIGURE 2.

HYPOTHESIZED IMPACT OF SUPPLY REDUCTION EFFORTS ON AGGREGATE PATTERNS OF DRUG USE



dangerous consumption patterns would be reduced. We think we might be able to accomplish these shifts in aggregate patterns of consumption through three different approaches:

1. Structural Reform

One approach might be called "structural reform." The notion is that if we could change the basic structure of society to allow us all to lead richer and happier lives, the overall "need" (an economist would say "demand") for drugs would be reduced. This approach is usually rejected as utopian. I would add that it is somewhat ludicrous to imagine that the reason we should really strive to have a decent society is to reduce the drug abuse problem. It is a little like saying you should have children so you'll have someone to take out the trash; or that you should drink screwdrivers for the vitamin C. Both the trash carrying and the vitamin C might well be benefits of the proposed action, but surely if the act is justified it is justified by much greater benefits than those that are identified.

2. Drug Education

A second approach is called drug education, or reverse advertising, or propaganda. The idea is that, given some potential latent demand for drugs in the society, we can reduce it below its natural level by persuading people that drug use is bad or, in the more sophisticated form, that some *kinds* of drug use are bad. The problem with this approach is that it appears to have very little impact on either the probability of experimentation or the conditional probability of chronic, intensive use given experimentation.

3. Regulation of Price and Availability (Supply Reduction)

A third approach in trying to shift aggregate drug consumption patterns is to make drugs expensive, inconvenient, and somewhat risky to consume. To the extent we could disrupt the supply and accomplish these objectives, we might raise obstacles to the

transitions from non-user to experimenter, and experimenter to chronic, intensive user of drugs. The effect would show up as a reduction in the total number of users, and a change in the shape of the distribution of consumption patterns. As a result, fewer people would end up in chronic, intensive use patterns.

There is an important and unfortunate side effect of trying to regulate price and availability, however. The problem is simply that while increased prices and reduced availability may discourage some people from advancing to higher levels of consumption (and thereby produce a social benefit), those users who are *not* dissuaded will suddenly be worse off than they would be in a world of no regulation. In effect, *regulation of price and availability changes the relationship between drug use and behavioral effects of each level of consumption*. Thus, in regulating price and availability we secure a benefit (a reduction in the level and a shift in the distribution of actual drug consumption), but only at the price of making the behavior of drug users at given levels of consumption worse than it would otherwise be. This implies that the need (and opportunity) for treatment interventions is greater when we try to regulate price and availability than when we do not.

C. Common Problems of the "Prevention" Instruments

Thus, each of the instruments designed to reduce or shift aggregate patterns of drug consumption has unique problems. But it is also worth noting that they have a common problem as well. They are fundamentally crude instruments. They end up targeting and producing effects on all drug users -- not simply those who are in trouble. That is not so bad for the structural reform approach and the drug education approach, since the effects of these approaches on the relatively well-off drug users are likely to be at least harmless and potentially beneficial. But it is a greater problem for our efforts to regulate price and availability, since it could conceivably make a large population of non-serious drug users worse off than they would be without the policy.

III. The Role of Supply Reduction Efforts in Our Drug Control Policy

A. Summary of the Argument So Far

At this stage, we have developed an abstract, stark, but nonetheless useful map of our drug control policy. We see that our objective is to minimize the aggregate losses in individual behavior that could, in the absence of a drug policy, be attributed to drug use. We see that the problem is not all drug consumption, but only that drug use which results in the deterioration of an individual's health, economic independence, danger to others, and so on. It is likely that the largest portion of this problem would be concentrated among chronic, intensive users of drugs.

To manage the problem, we have only a limited number of approaches. We can try to improve the status of people who would take large losses as a result of their drug use through treatment. Alternatively, we could try to reduce the number of people ending up in chronic, intensive use patterns through one of three approaches: (1) by improving the quality of life in the society; (2) by drug education; or (3) by regulating the price and availability of drugs. We understand that we pay a price for regulating price and availability in that we make life much harder for drug users who decide to maintain or increase levels of drug use *despite* the increased cost and difficulty of doing so. This cost can be justified only by a significant change in the absolute number of people who end up in chronic intensive use patterns.

B. Justifying Supply Reduction Efforts

If this abstract view of the situation is roughly correct, what can be said about the role of supply reduction efforts in an overall drug control policy? How can it be justified?

Part of our problem in thinking broadly about drug control policy is simply having to cope with the enormous empirical uncertainty. We do not really know if we would have a major drug abuse problem in the absence of any government policy. Moreover, we worry

that all of the policy instruments on which we rely are relatively frail reeds. None really looks all that powerful. We do not know whether they work, and if so, whether they work at a reasonable cost. So, we are in a realm of making bets about the relative value of alternative approaches, all of which seem relatively weak against the backdrop of a problem whose potential for getting worse also seems unclear. It is nowhere for a careful scientist to be. What we need is a reckless policy analyst.

Assuming that role for a minute, what would we say about the role of supply reduction efforts in drug control policy given current understanding and knowledge? The answer would be something like the following. It seems virtually certain that we should continue to rely on a combination of treatment and supply reduction efforts as the cornerstone of our drug control policy for the indefinite future. Our treatment programs are not so effective that we can comfortably take a dramatic increase in the absolute number of chronic, intensive users knowing that we will be able to restore them to health once they reach this disastrous position. Similarly, we are not so sanguine about the potential of prevention instruments other than supply reduction efforts to affect aggregate levels of consumption that we can happily turn to them to prevent chronic, intensive levels of use. Moreover, once we decide to rely on supply reduction to help ward off an increase in the number of chronic, intensive users, we strengthen our need for a treatment program to deal with the adverse effects of supply reduction efforts. Thus, the value of supply reduction is established by comparison with other prevention approaches.

Note, however, that *all* of the justification for a supply reduction policy comes from its role in discouraging people from advancing to chronic, intensive levels of consumption. If it cannot accomplish this purpose at a reasonable cost, it should be abandoned, since all of the real benefits of our drug control policy would then be emerging entirely from our treatment programs.

Does the supply reduction effort actually prevent significant increases in the total number of chronic, intensive drug users? The candid answer is that no one can be quite sure. It is hard for an economist to believe that increases in price would not reduce consumption, but many other people have different views. At this moment, there are only a few pieces of evidence which make me think that supply reduction does have that effect. Let me simply list some pieces of evidence about the impact of availability in heroin use without elaborate discussion. I understand that each is either weakly documented or subject to other interpretations. I also understand that what is true for heroin might be different for other drugs. In any event, the evidence that influences me is the following:

> During 1972-73, the availability of heroin declined on the East Coast of the United States. This reduced availability coincided with decreases in both the incidence and prevalence of heroin use.
>
> In Vietnam, where heroin was freely available, a substantial fraction of the population used it. When this same population returned to the United States (where heroin was presumably somewhat less available), a large fraction abandoned use.
>
> Virtually all studies of the onset of heroin use indicate that no one searches actively for their first dose of heroin. One possible implication is that when people do have to look hard, they won't do so.
>
> A small study of heroin users who abandoned use despite favorable first reactions indicated that about half of those who did abandon use did so because of interrupted supply. Moreover, many of these users reported that they made little effort to re-establish their connection.

I don't think this evidence is entirely persuasive. But the combination of my training as an economist and this evidence does push me in the direction of believing that increasing the effective price of drugs will reduce consumption. Moreover, I am sufficiently risk-averse that relatively small probabilities of very large increases in the number of chronic, intensive users dissuade me from deciding to abandon all prevention efforts and leave everything to treatment. Whether the effect is actually large enough to justify the

obvious costs of the policy, however, remains unclear -- partly because the empirical estimates are currently impossible to make, and partly because people disagree about the values to be attached to the various effects.

C. Designing Supply Reduction Efforts

What does all this say about the design and management of a supply reduction effort? I would suggest the following principles.

First, one should understand that the role of a supply reduction effort is neither secure nor isolated. Given the manifest costs and uncertain benefits, there is a continuing need to produce evidence indicating that supply reduction efforts are, in fact, reducing the incidence and prevalence of drug use. Hence, a crucial part of the supply reduction effort must be gathering information useful in evaluating performance. Similarly, it is important to keep in mind that the supply reduction effort is inevitably linked to treatment efforts.

Second, one should see that the fundamental objective of a supply reduction problem is to make drugs inconvenient, expensive, and somewhat risky to obtain. The most important effects of accomplishing this objective are to discourage non-users from experimenting and experimental users from advancing to chronic, intensive use; and to encourage chronic, intensive users to seek treatment. It is primarily in these terms that we should evaluate the impact of supply reduction efforts.

Third, while the idea of making drugs inconvenient, expensive, and risky to obtain is the most general description of the objectives of a supply reduction strategy, it is important to see that the general description masks two important complications. One complication is that not all drugs are equally dangerous in illicit use. At any given level of use, drugs differ from one another in terms of their consequences for a user's health, economic independence, and risk to others. In addition, drugs differ in terms of the chance that a

user will advance to chronic, intensive use of the drug. In fact, that difference is precisely what we mean by the dependence-producing capability of a drug. The objectives of a supply reduction effort should reflect these differences among drugs. Drugs that are dangerous at any level of consumption *and* likely to lead to chronic, intensive use should be more difficult to find than drugs which are less dangerous and less likely to lead to chronic, intensive use. This is true partly because scarce resources require us to concentrate on drugs that cause the greatest social problems, and partly because it is desirable to create large relative price differences to deflect consumer choices to the less hazardous drugs.

A second complication is that many drugs have legitimate medical uses. To preserve the benefits associated with legitimate medical use of the drugs, we should make the drugs easily and inexpensively available to legitimate users. In effect, we must try to create two different markets, each with a different level of price and availability -- an illicit market in which drugs are expensive and inconvenient, and a legitimate market in which drugs are cheap and readily available. Note that the need to preserve the legitimate market complicates not only the description of the objectives of supply reduction efforts, but also the design of strategies to achieve the objectives. For nearly all drugs, the problem of sealing off a legitimate sector will exist at some stage of production or distribution, and our success in erecting these barriers will have a decisive influence on the level of supply to illicit markets.

These complications can be accommodated by introducing the concept of "effective prices" for different drugs in different markets. The effective price is defined as an index of all things that make drugs difficult, expensive, or dangerous to consume -- dollar costs, amount of time required to secure the drugs, the toxicity of adulterants, uncertainty about the actual dose, risk of arrest, and the risks of being defrauded or mugged in the

transaction. Given this definition, we can describe the objectives of a supply reduction strategy in terms of a desired matrix of effective prices for different drugs to different consuming groups. Table 1 presents such a matrix. The *absolute* levels of price reflect our desire to discourage drug use in general. The *relative* price levels reflect the fact that different drugs have different individual and social consequences. The two different markets reflect the fact that many drugs that are abused have legitimate medical uses that should be preserved. Thus, the proximate objectives of a supply reduction strategy can be seen as achieving this desired matrix of effective prices.

TABLE 1.

THE OBJECTIVES OF A SUPPLY REDUCTION STRATEGY

(Illustrative Matrix of Intended Effective Prices for Different Drugs in Different Markets)

Specific Drugs	**Effective Price in Illicit Markets**	**Effective Price in Legitimate Markets**
Heroin	Very High	Not applicable
Cocaine	High	High
Methamphetamines	High	Moderate-High
Amphetamines	Moderate-High	Moderate-Low
Barbiturates	Moderate-High	Low
Hallucinogens	Moderate-High	Not applicable
Minor Tranquilizers	Moderate	Very Low
Marijuana/Hashish	Moderate	Not applicable

It is obvious, but important to see nonetheless, that this description of supply reduction objectives differs significantly from the common view that our supply reduction effort is designed to "enforce the narcotics laws," or "put dope peddlers in jail," or "keep all narcotics and dangerous drugs out of the country." The important differences are the following:

First, the objective presented here acknowledges that, despite our best efforts, drugs will reach illicit markets. Given an appropriately unyielding commitment to the maintenance of civil liberties, and given competing claims for resources, the government is simply unable to mount a supply reduction effort that will keep all drugs from reaching illicit markets. The problem is cast in terms of minimizing the rate at which drugs move to illicit markets (and measuring this effect in terms of availability) rather than stopping all drugs. Clearly, this is a more realistic objective than stopping all drugs.

Second, the objective presented here allows one to think of the variety of instruments beyond "making cases" and enforcing laws that one can contribute to supply reduction objectives. In effect, the statement of the objective does not bias the choice of instruments. The roles of regulatory programs, eradication programs, and the development of international institutions to encourage drug control become noticeable. The inadequacy of a policy that focuses solely on drugs that have no legitimate medical use (e.g., heroin, cocaine, and marijuana) or relies only on arrests of traffickers to achieve the objectives is underscored.

Third, the objective presented here makes virtue of selective enforcement. We attack the drugs that cause problems and the individuals who currently account for a large fraction of the supply capability. The strict enforcement objective encourages us to go after all violators of the law equally. Loyal pursuit of this strict enforcement objective would

dilute the impact of supply reduction efforts. Resources would be wasted on insignificant individuals and on reducing supplies of more drugs that are relatively less harmful while allowing supplies of more harmful drugs to increase.