QUANTITY ILLUSIONS AND PARADOXES OF DRUG INTERDICTION: FEDERAL INTERVENTION INTO VICE POLICY

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I

INTRODUCTION

The control of crime has been a predominantly local responsibility through the history of the Republic. Similarly, the regulation of morality generally has been viewed as a local responsibility, with each community enjoying the freedom to choose its own moral legislation. The last decade, however, has witnessed the rapid growth of a federal police effort aimed primarily at enforcing drug regulations. Drug enforcement has become a major federal responsibility, though drug policy is treated as the regulation of vice markets. This federal intervention is justified on the basis of paternalistic concerns about the effects of the behavior on both the user and society generally.

For example, the federal drug enforcement effort currently involves expenditures of approximately $2 billion[1] and provides a significant presence in cities throughout the nation. Although state and local authorities continue to make a majority of the arrests for violation of drug laws,[2] prisoners who were arrested by federal agencies account for a substantial minority of the total number of years spent in incarceration for drug violations.[3] Moreover,

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1. The Office of Management and Budget estimated total federal drug enforcement expenditures at over $2.5 billion in fiscal year 1987. NATIONAL DRUG ENFORCEMENT POLICY BOARD, NATIONAL AND INTERNATIONAL DRUG LAW ENFORCEMENT STRATEGY 187 (1987) (ASI 87:6004-19).

2. State and local agencies arrested an estimated 824,100 persons on drug charges in 1986. Thirty-six percent of those state and local arrests were for simple possession of marijuana. FEDERAL BUREAU OF INVESTIGATION, UNIFORM CRIME REPORTS, CRIME IN THE U.S.—1986, at 163-64 (1987). Federal agencies do not keep consolidated arrest figures, so a comparable total cannot be provided. However, the Drug Enforcement Administration recorded a total of 15,695 arrests in fiscal year 1985, some of which were originally made by other federal agencies, such as the U.S. Coast Guard. DRUG ENFORCEMENT ADMINISTRATION, U.S. JUSTICE DEPARTMENT, ANNUAL STATISTICAL REPORT OF FY1985, at 7 (1985).

3. In fiscal year 1984, the most current year for which one can find comparable data, federal institutions admitted 4,844 inmates on drug charges. U.S. DEPARTMENT OF JUSTICE, SOURCEBOOK OF CRIMINAL JUSTICE STATISTICS 1985, at 545 (1986). The average sentence for these individuals was 61 months, accounting for approximately 24,600 "bed-years" of prison capacity. The Bureau of Justice estimated that there were 13,000 convicted inmates in local jails around the country in 1983. U.S. DEPARTMENT OF JUSTICE, SOURCEBOOK OF CRIMINAL JUSTICE STATISTICS 1986, at 396 (1987). Those convicted and sentenced to imprisonment in a local jail serve sentences of less than 12 months. A generous estimate would be an average sentence of six months, accounting for 6,500 bed-years. For the same year, one can estimate 14,000 admissions to state institutions (not including local jails) on

in many instances when local forces are involved in drug enforcement, they work largely under the direction of federal agents.[4]

Drugs have become, by a number of criteria, the dominant concern of federal law enforcement. For example, of those criminals receiving prison sentences in federal courts during the year July 1, 1985, through June 30, 1986, 40 percent were convicted of drug violations.[5] Similarly, the growth in the federal prison population since 1980 is due largely to increasing incarcerations of drug dealers.[6] In short, the federal government has become the engine for a massive expansion of the entire national drug enforcement effort.

The rationale for federal intervention is clear, though not clearly articulated. Drug distribution is a national and international business. State and local agencies lack both the legal authority and the investigative resources to deal with an enterprise of this magnitude. The federal government must, therefore, bear responsibility for some elements of drug enforcement, particularly where international diplomacy, high-seas patrol, or multi-state investigation is required.

It is undisputed that the federal government currently bears ultimate responsibility for some aspects of the control of trade in drugs. Its acceptance of this responsibility, however, raises two questions. First, does such a responsibility justify the allocation of significant resources to federal enforcement activities? Second, is this level of federal intrusion into an area of traditional state concern appropriate? This article investigates what must be the first step toward answering these questions, namely, how one can measure the effectiveness of drug enforcement at any government level.

Much emphasis has been placed on the quantity of drugs seized, and federal officials have clearly seized large quantities of drugs. Little attention is paid, however, to the point in the distribution chain at which the product is seized. Drugs are easy to produce but difficult to distribute. The federal government is uniquely well-positioned to combat the drug trade at importation, the beginning of the distribution process. The replacement cost of drugs seized at the border, however, is small in comparison to the

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drug charges. (This figure is based on 167,000 total admissions, of which 8.3% are for drug charges.) *Id.* at 402, 409. These individuals served an average sentence of 56 months, accounting for 65,000 bed-years.

4. The Drug Enforcement Administration recorded 3,172 arrests made by the state and local task forces with which it worked in 1985. DRUG ENFORCEMENT ADMINISTRATION, U.S. JUSTICE DEP'T ANNUAL STATISTICAL REPORT FY1985, *supra* note 2, at 29.

5. Of the 20,621 individuals receiving prison sentences from U.S. District Courts in the year ending June 30, 1986, 8,152 (40%) were for drug convictions. ADMINISTRATIVE OFFICE OF THE UNITED STATES COURTS, ANNUAL REPORT OF THE DIRECTOR OF THE ADMINISTRATIVE OFFICE OF THE UNITED STATES COURTS 1986, at 261-65 (1986).

6. The U.S. Sentencing Commission and the United States Marshals Service estimate that a large percentage of the growth in the federal prison population has been the result of increased drug enforcement. In 1981, the federal prison population was 26,000; in 1986, it was 44,000. In 1980, 25% of all commitments to federal institutions were for violation of drug laws. In 1986, 37% of all new commitments were for drug trafficking. Kerr, *War on Drugs Puts Strains on Prisons, U.S. Officials Say,* N.Y. Times, Sept. 25, 1987, at A1, col. 2.

replacement cost of drugs seized at some point closer to the consumer. The use of unweighted seizure quantities as the measure of drug enforcement effectiveness, therefore, overstates the impact of federal agencies. This article suggests that a more appropriate measure of drug enforcement effectiveness is the cost of replacing the seized drugs.

To illustrate this point, this article examines the largest single component of the federal drug enforcement effort, the interdiction program, the object of which is to seize drugs and couriers en route from source countries to the United States. In particular, this article examines how the interdiction program affects cocaine use in the United States. An explicit framework is presented to analyze the impact of enforcement programs on drug use, from which a measure of effectiveness very different from that ordinarily used in discussions of drug enforcement is derived.

The first section of this article presents the analytical framework in which the argument for using price levels as a measure of the effectiveness of drug enforcement is developed. The second section then presents some data on the scale and effect of the drug interdiction program. The third section employs a recently developed simulation model to illustrate how increased interdiction would have only a slight impact on the total domestic consumption of cocaine.

II

THE ROLE OF PRICES

Drugs are sold in market transactions. Although some marijuana is produced at home for personal use, such production accounts for a small fraction of the total consumed.[7] Where there are markets, there are prices, and a great deal can be learned about the functioning of these markets by examining the prices at which the drugs are sold.[8]

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7. The National Narcotics Intelligence Consumers Committee (NNICC), a federal interagency committee, estimates that 18% of the marijuana supplied in the United States in 1986 was domestically produced. NATIONAL NARCOTICS INTELLIGENCE CONSUMERS COMMITTEE, THE NNICC REPORT: THE SUPPLY OF ILLICIT DRUGS TO THE U.S. FROM FOREIGN AND DOMESTIC SOURCES 1985-1986, at 15-16 (1987) [hereinafter NNICC REPORT]. Much of that domestic production appears to have been sold commercially. See generally R. WARNER, INVISIBLE HAND: THE MARIJUANA BUSINESS 28-44, 183-208 (1986).

8. Although this proposition seems obvious, it has not been given much attention in the debate over drug policy. Consider, for example, the numerous hearings held by the House Government Information, Justice, and Agriculture Subcommittee (Committee on Government Operations), in which the chairman has vigorously attacked the performance of the federal drug enforcement agencies. In this author's experience, neither the committee nor the agencies have ever discussed the use of price, certainly not of a price tied to a particular level of the market, as a relevant indicator of enforcement efficacy. The same may be said for the General Accounting Office in its numerous reports on the federal drug program. U.S. General Accounting Office, Federal Drug Interdiction Efforts Need Strong Central Oversight, Report GAO/GGD-83-52 (U.S. General Accounting Office, Washington, D.C. 1983).

Prices, even in most illegal markets, are established in voluntary transactions.[9] Sellers seek high prices, while buyers want low prices. The price at which a transaction actually occurs is affected by perceptions of what could be obtained in transactions with other buyers/sellers. In an environment in which enforcement agencies use both "sell-bust" and "buy-bust" techniques,[10] each party has a preference for minimizing his search time, in particular by reducing the number of parties to whom he has to disclose his participation in the market. Consequently, a buyer may be willing to pay more than his estimate of the prevailing prices and, symmetrically, the seller has an incentive to accept a lower-than-market price. The area of negotiation is, therefore, likely to be larger than in comparable legal markets, in which the risks of search are lower and price information is more freely disseminated. Nonetheless, it is plausible that, as in markets for legal goods and services, each bargain is not struck anew but is heavily influenced by perceptions of market prices.

Data collected by enforcement agencies reveal patterns consistent with the performance of a market,[11] and even before any adjustments are made for differences in quantity and location of transaction, it is striking just how narrow is the range of reported prices. For example, in the fourth quarter of 1985, the highest price reported for a kilogram of cocaine[12] was $37,000 and the lowest price $25,000.[13] While this may appear to be a large range in

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9. There may be illegal markets in which sellers can coerce buyers to transact with them. The interpretation of price in such markets is different from that given here. *See generally* P. REUTER, DISORGANIZED CRIME: THE ECONOMICS OF THE VISIBLE HAND 109-31 (1983) (an analysis of the distinctive features of illegal markets).

10. "Buy-bust" is the traditional technique used by drug enforcement agents, in which they pose as buyers of drugs and then arrest sellers. Agencies now also use "sell-bust" methods, in which agents pose as sellers and arrest persons seeking to buy.

11. *See* Lisowski, *Appendix B: Analysis of Wholesale Cocaine Price Data*, in P. REUTER, G. CRAWFORD & J. CAVE, SEALING THE BORDERS: EFFECTS OF INCREASED MILITARY PARTICIPATION IN DRUG INTERDICTION 142, 142-48 (1988). While some uncertainty may remain as to whether data gathered by an enforcement agency in the course of its investigations represent prices in actual transactions, three reasons exist for accepting these data as representative of markets. First, a number of them are observations of consummated transactions, presumably often involving informants. Assuming accurate recording, these are genuine market transactions. Second, there is very little difference between the "buy" data and the "negotiate" data, that is, those instances in which no actual transaction occurred. This is explained by the third reason: agents must bargain hard in negotiations in order to establish their *bona fides.* The undercover agent/seller does not want to seem overly eager to engage the buyer in a transaction by offering too low a price. At the same time, however, he wants to transact, so he will try not to set the price too high. Indeed, the very reason given by the Office of Intelligence of the Drug Enforcement Administration for maintaining the data base was to provide agents with accurate price information when entering into undercover transactions.

12. The analysis was restricted to cocaine price data because the slight volume of data regarding marijuana in specific quarters, regions, and sizes could not support detailed analysis. The price range within the very disparate set of transactions recorded by the Drug Enforcement Administration was still fairly modest, however. According to statistics provided by the DEA's Office of Intelligence, for the first quarter of 1985 the interquartile range was $150, compared to a median price of $375 per pound. (The "interquartile range" is the range between the top 25% of the observations and the bottom 25%—thus, by definition containing one-half of the observations).

13. Discussions with officials of the Office of Intelligence of the Drug Enforcement Administration [hereinafter Discussions with DEA officals].

price, it appears more modest when compared to the range of prices over a one-quarter period in other consumer markets.[14]

When account is taken of geographic variation, these data suggest that one can indeed talk about "the price" of a kilogram of cocaine, at least in the major markets. If one were to divide the nation into three regions (Florida, metropolitan New York, and the rest of the nation), one would *a priori* expect the price of cocaine to differ among these three markets. Florida, as the entry point of large quantities of cocaine, should show the lowest price, while New York, as the largest retail market, should show lower prices than should the rest of the nation. As expected, the median price reported for Florida (the state with by far the largest number of observations) is significantly lower than that reported for the rest of the nation, while the New York median falls between them for every quarter.[15]

Moreover, the range of prices is more limited within each region than in the total data set. The interquartile range for Florida is only $7,000 for the second quarter of 1986, compared to a median price of $28,000.[16] In the same quarter, the interquartile range is $10,000 for all the observations outside of Florida and metropolitan New York, compared to a median price of $36,000.[17] Given that the different regions outside of Florida may constitute different markets, and are on the average farther from the point of importation, one would expect both a higher median and more variation, as was in fact found.

Further, reported prices are lower in large transactions than in small transactions.[18] This is consistent with the hypothesis that the data are samples from different levels of a market and that larger lots sell at lower unit prices because fewer risks have yet been incurred. The median price for the third quarter of 1986 in sales of ten to 100 kilograms was $27,000, compared to $34,500 in sales of between one and ten kilograms.[19] Since most importation attempts involve more than ten kilograms,[20] and import prices

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14. These results are somewhat comparable to the results of price differential studies in retail consumer markets. *See, e.g.*, Pratt, Wise & Zeckhauser, *Price Differences in Almost Competitive Markets*, 93 Q. J. ECON. 189, 189-207 (1979). Pratt's summary statistics, including the mean and standard deviation, describe prices for 39 products obtained from between four and 22 firms. The 39 coefficients of variation (the ratio of the standard deviation to the mean) derived from these data range from 0.04 to 0.71, with three quarters of them below 0.30. For the cocaine price data, dividing the sample median by 1.35 times the sample interquartile range yields a robust equivalent of the coefficient of variation. For the seven quarters of our aggregate data, these estimates range from 0.16 to 0.54. They are generaly larger than those derived from the Pratt study. Those authors, however, chose uniform products in a limited geographical market, while our data represent a variety of drug purities, transaction locations, and dates.

15. For the fourth quarter of 1985, the reported median prices per kilogram of cocaine were: Florida, $34,000; New York, $38,000; rest of the nation, $40,000. *See* Lisowski, *supra* note 11, at 146.

16. With a median wholesale price of $28,000 per kilogram, and an interquartile range of $7,000, half of the prices negotiated were higher than $21,000 and lower than $35,000. *Id.* at 146-47.

17. *Id.*

18. *Id.*

19. *Id.*

20. For fiscal year 1985, the DEA analyzed data on 2.3 metric tons of seized cocaine. Of those 2.3 tons, 2.0 (87%) were seized in shipments of more than 100 kilograms. An additional 0.23 tons

are estimated by reference to the average price from all transactions greater than one kilogram, the effectiveness of interdiction efforts is exaggerated by the use of this price measure.[21]

These analyses support the contention that price is a meaningful term in the analysis of drug market behavior. Attention is now turned to the consideration of how enforcement, particularly interdiction, affects prices at different points in the distribution system. What follows is largely a statement of the economist's creed,[22] applied to a setting somewhat different from that to which the creed is usually applied. Reliance on the creed is necessary because the measurement of illegal market phenomena is so weak;[23] such reliance is also appropriate since the creed has demonstrated its power in such a wide range of settings.

The following analysis assumes that the price of drugs is determined by supply and demand conditions, albeit with acknowledgement that, as the above-described price data reflect, there are some impediments to the flow of market information. The analysis also assumes that demand is unaffected by enforcement, since the variations in import-level enforcement under consideration are so distant from the user. It is the supply side that receives attention, since that is what links federal enforcement efforts to consumption.

The supply curve for illicit drugs (that is, the relationship between price and the quantity of product that dealers will be willing to offer) is determined largely by perceptions of risk.[24] Except at the retail end (with which the federal agencies are explicitly not concerned), there are no other significant inputs (although actual selling time may be a nontrivial component of costs, at least for the marijuana retailer). Dealers will be willing to incur the various risks attendant on participation in the trade (incarceration, loss of assets, physical injury by other participants) in return for an appropriate level of earnings. If those risks increase, some participants can be expected to drop out unless the expected earnings rise correspondingly. This increase in

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(10%) were seized in shipments of 10 to 100 kilograms. *Initiatives in Drug Interdiction (Part 1): Hearing Before the Subcomm. on Government Information, Justice and Agriculture of the House Committee on Government Operations,* 99th Cong., 1st Sess. 608 (1985) (data submitted by D. Lowell Jensen, Deputy Attorney General) [hereinafter Jensen Testimony].

21. According to the Office of Intelligence of the Drug Enforcement Administration, in calculating the average price for cocaine transactions, law enforcement officials will take the total price paid (or negotiated) and divide by the number of kilograms involved. These prices are then summed for a time period and divided by the number of transactions which take place. The result is an upward bias since a 100 kilogram transaction is given the same weight as a one kilogram transaction.

22. The economist's creed is that, as the price of a good increases, and other factors (consumers' incomes, prices of other goods, etc.) remain constant, consumers will generally choose to consume less of the good, or cease consuming the good altogether. The exceptions are arcane. *See* W. NICHOLSON, MICROECONOMIC THEORY 102-03 (2d ed. 1978).

23. For example, this author has seen no study actually demonstrating that increased enforcement against an illegal market shifts the supply curve.

24. For instance, raising enforcement levels increases one set of component risks, in that the dealer is more likely to be deprived of freedom or some assets by enforcement authorities. Whether it affects risks of other participants is unclear. *See generally* Reuter & Kleiman, *Risks and Prices: An Economic Analysis of Drug Enforcement,* in 7 CRIME AND JUSTICE: AN ANNUAL REVIEW OF RESEARCH 289, 302 (M. Tonry & N. Morris eds. 1986).

earnings is realized through higher prices, which in turn decreases consumption.[25]

With this economist's creed in mind, it is now necessary to turn to an examination of the lengthy system of drug distribution. Cocaine is often imported in 200 kilogram lots, frequently to be sold in units of 250 pure milligrams.[26] It is likely that there are as many as six links in that distribution system, even if each seller is willing to deal with as many as ten customers. (Very high level dealers may be unwilling to deal with even that number.) Each level can be thought of as a market, since a different set of participants will be involved; dealers seeking to sell ten-kilogram units of cocaine will not transact with sellers who wish to buy only one-ounce units. Different enforcement programs strike primarily at different markets, though there are important linkages connecting the markets.[27]

The interdiction program, with a few minor exceptions, affects the market at the import level. It raises the cost of smuggling drugs from the source countries. The cost increases arise from the need: (a) to ship more of the drug per kilogram delivered to the United States; (b) to spend more in legal fees and in replacing seized equipment; and, most importantly, (c) to pay more personnel for incurring the higher risks of arrest and incarceration. These cost increases tend to raise the prices charged by smugglers to those who buy the drug at the first transaction in the United States ("importers"). The import or "landed" price is raised, which affects the price in transactions further along the distribution chain, primarily because importers must now charge more for the drugs in order to maintain their own income.

Interdiction affects drug use primarily through this price increase. There are two other inferable effects, and this article asserts (and it is no more than an assertion) that they are no more than second order effects. These include (1) the symbolic deterrent effect of reports of large seizures, providing continued evidence of the government's effective disapproval of sale and purchase; and (2) encouraging source country governments to increase their efforts at reducing production and export. Those who believe the first of these effects to be important have a peculiar faith in symbolic deterrence. As

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25. Note that, as in all market analyses, not all participants are assumed to make rational calculations at the margin; only some need to do so in order for the anticipated result to obtain.

26. Of the cocaine seized in 100 kilogram-or-greater shipments (which accounted for 87% of the cocaine seized in fiscal year 1985), *see* Jensen Testimony, *supra* note 20, at 608, the average shipment size was actually 340 kilograms. The 250 milligrams figure is based on several interviews, including discussions with narcotics officers with the District of Columbia Metropolitan Police Department. While purity and retail quantities can fluctuate, this estimate is accurate enough for the purpose of discussion.

27. For example, control programs in the source countries will affect the export price of drugs, since these programs raise the risks incurred by growers, refiners, and source country distributors. These programs will affect drug distribution downstream only to the extent that the export price is raised and the supply from the source countries becomes less reliable.

to the latter, recent analyses have pointed to the ineffectiveness of source country programs, even if the source countries are willing to support them.[28]

Nevertheless, many find it difficult to accept the notion that the entire impact of an enforcement program, even one as divorced from the user as interdiction, can be captured in price. A number of seminar audiences have been unconvinced of the correctness of this position. Most officials, and even some academics, remain convinced that there is some other similarly important effect which is not captured by price. In particular, the notion that the seizure of drugs will simply lead to their replacement, albeit at a somewhat higher cost, can seem implausible. Yet this doubt can be eliminated by considering the other possible effects of interdiction. There appear to be only three:[29]

(1) *The quantity of drugs entering this country might be physically limited to a certain amount.* Consumption would be limited to this amount and price would adjust correspondingly. This result is implausible because too much cocaine is cheaply available in the source countries and too large an experienced smuggling capacity exists for the replacement of seized drugs to be a limiting factor. For example, the official estimates of total consumption in the United States consistently report significant excess supply in the marijuana and cocaine markets.[30] U.S. consumption may account for no more than one third of total marketable production of these drugs.[31] Although there is repeated reference to a small cartel (the "Medellin" cartel) controlling the export of cocaine from Colombia to the United States, there is also evidence that there are many other competent and experienced smugglers.[32]

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28. *See generally* Nadelmann, *International Drug Trafficking and U.S. Foreign Policy*, THE WASH. Q., Fall 1985, at 87, 91-94; Reuter, *Eternal Hope: America's Quest for Narcotics Control*, THE PUB. INTEREST, Spring 1985, at 79, 85-93.

29. There is a backward link from interdiction to export prices, which in turn affect import prices. If increasingly effective interdiction raises the amount seized, and demand is inelastic with respect to the import level price, total exports (which include both seizures and the amount consumed) will rise. With an upward sloping supply curve in the export sector, this will raise the export price. This effect has been examined in Henry, *Appendix A: The Effects of Interdiction on Drug Exports*, in SEALING THE BORDERS: THE EFFECTS OF MILITARY PARTICIPATION IN DRUG INTERDICTION, *supra* note 11, at 133.

30. Marijuana consumption was estimated to be 4,700 metric tons in 1985. NNICC REPORT, *supra* note 7, at 6. For the same year, an estimated 6,400 to 8,300 metric tons were "available for use." *Id.* at 15.

31. In a seminar sponsored by the Senate Caucus on International Narcotics Control held on May 8, 1987, Ann B. Wrobleski, Assistant Secretary of State for International Narcotics Matters, estimated that U.S. cocaine consumption accounts for approximately 30% of world leaf production. CONG. RESEARCH SERVICE, 100TH CONG., 1ST SESS., COMBATING INTERNATIONAL DRUG CARTELS: ISSUES FOR U.S. POLICY 25-26 (Comm. Print 1987).

32. The very fact that the export and import prices of cocaine are so low relative to the final price points, see *infra*, p. 243, adds to the implausibility of the assertion that there is market power at these levels of the market. Final demand for cocaine is believed to be inelastic with respect to the retail price; the derived demand curve faced by importers and exporters is certainly inelastic at the current price. A cartel, if it in fact existed, would set a price high enough so that its demand curve would be elastic at that price.

(2) *The availability of cocaine may become less predictable, deterring drug users from habitual use.*   This effect can best be understood through a rather artificial example. Assume that there are only a small number of marijuana users in some isolated town, who are serviced by only one retailer and have no other way of obtaining the drug.[33] The dealer will sell them only one ounce at a time. Their wholesaler, after years of faithful service, takes up heroin use and becomes unreliable. As a result, there is now a one in three chance that the drug will not be available when sought by the users. This makes marijuana consumption less attractive than other recreational habits, so some users drop out. In addition, those who remain are less generous and initiate fewer new users. Even though the price of marijuana may not have risen, usage (both incidence and prevalence) may decline.

The critical element of this tale is that the market is small and inventory flexibility is limited. Neither condition is very plausible, however, for the national market in cocaine. There seem to be a large number of importers, wholesalers,[34] and users,[35] all of whom hold considerable inventories. Faced with increased uncertainty, each group might respond by enlarging inventories. This would increase the costs to both sellers and users (since more money is tied up in inventory holdings), but given the cost of capital relative to other costs, an additional month's inventory can have substantial effect only if it adds significantly to the probability of loss.

It is possible that individual importers do not operate in a national market, but sell to wholesalers only in one or two cities. If those wholesalers do not have connections with other importers, then the loss of a single large shipment might lead to temporary shortages in the metropolitan areas serviced by that importer. Discussions with a number of high level dealers and importers suggest that there is a great deal of selling across metropolitan markets.[36] For example, a San Francisco cocaine importer reported having regular customers as far away as Pittsburgh.[37] Absent information to the contrary, one may assume that there is a national market at the import level, and this feature points to the improbability of *interdiction efforts decreasing availability and use.*

(3) *Interdiction might also increase the risks incurred after importation.*   This could happen in either or both of two ways. First, interdiction activities might generate evidence to be used in prosecuting dealers with post-importation involvement in the distribution chain. Second, interruptions to the smooth

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33.   That is, it would be very expensive and very risky for any user in this town to go to another town and find another dealer.

34.   The author has interviewed approximately 20 drug dealers, whose careers involved primarily wholesale transactions. These dealers report holding modest inventories. Interviews with various drug dealers [hereinafter Dealer Interviews].

35.   Cocaine users typically buy quantities large enough for ten or more consumption sessions. They economize on transaction costs this way. Heroin users, because of their poverty and lack of self-control, rarely buy more than one day's consumption at a single transaction.

36.   *See* Dealer Interviews, *supra* note 34.

37.   *Id.*

flow of imports might lead domestic dealers to engage in risky search behavior (such as stealing from other dealers), thereby increasing their exposure to enforcement.

Discussions with interdiction and investigative agencies suggests that the first of these effects is quite implausible.[38] In fact, the reverse is more likely to be true, for domestic enforcement occasionally leads to interdiction activities, though even this is relatively rare.[39] Generally there is little exchange of information among agencies, a matter of almost ritual complaint by Congress.[40] Interdiction agencies have little to gain from generating information for domestic cases and rarely capture the principals who could provide such information.[41]

The second effect is dealt with less easily. Available data do not permit analysis of the impact of interdiction seizures on the search behavior of domestic dealers. One can only be impressed, however, by the scale of the relevant markets, the number of persons involved in high level transactions, and the apparent breadth of the high level markets.[42] Unless the seizure rate were sharply elevated for a sustained period of time, it is unlikely that domestic dealers would engage in significantly more aggressive search behavior.

There may be other effects, and it may be that some of the above is argumentative and speculative, leaving open the possibility that there are significant interdiction effects not captured in the import price. It seems, however, more likely that the import price captures the truly significant effects of interdiction on the drug trade, and this article proceeds on that assumption.

An increase in the landed price of cocaine affects consumption of the drug by raising the retail price. Under reasonable assumptions about the structure of the markets at different levels from import to retail, one would expect that a one dollar increase in landed price would raise the retail price by more than one dollar. The differences reflect two factors: (1) the increased costs of holding more expensive inventory; and (2) the increased risk of loss because there is, with more expensive inventory, a higher incidence of theft by other participants.

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38. These facts were reported in interviews which the author conducted with DEA and Customs personnel [hereinafter DEA and Customs Personnel Interviews].

39. *Id.*

40. Vocalization of such complaints can be found in a variety of hearings and floor debates. *See, e.g., Initiatives in Drug Interdiction, Hearings before the House Government Information, Justice, and Agriculture Subcomm. of the Comm. on Government Operations,* 99th Cong. 1st Sess. (1985).

41. *See* Moore, *Reorganization Plan #2 Reviewed: Problems in Implementing a Strategy to Reduce the Supply of Drugs to Illicit Markets in the United States,* 26 PUB. POL'Y 229 (1978).

42. A number of high level cocaine and marijuana dealers were asked about how they adapted to a failure of sources to deliver. Most reported that they had alternative sources in the rare event that this would occur. For example, a Seattle dealer who purchased one kilogram of cocaine each week would borrow smaller amounts from another dealer, connected to a different source, when he ran short. He offered a reciprocal service to the other dealer to cover the latter's shortages. *See* Dealer Interviews, *supra* note 34.

The first of these cost factors is a function of the cost of capital for dealers and of the length of time they hold inventory. Using reasonably generous assumptions, Mark Kleiman and I persuaded ourselves that this could not lead to a mark-up of more than $1.50 at retail for each increase of $1.00 at the import level. The increased risk caused by larger inventories, however, has less straightforward consequences. Expensive illicit drugs provide great inducement for participants to steal from each other, frequently by means of violent force. The mere threat of theft by other participants accounts for a large share of the domestic value added as drugs move along the distribution chain.[43] Thus, a rise in the import and wholesale price of cocaine increases the risks faced by domestic dealers; it is arguable, however, that the risk compensation which dealers will require rises less than linearly with increases in the value of their inventory.

Assuming the above to be true, a 10 percent increase in the landed price of cocaine, from $30,000 to $33,000, is likely to increase the retail price by less than $6,000, or 2 percent. Even if the demand for cocaine is assumed to be quite elastic with respect to the retail price, demand remains very inelastic with respect to the import price. For instance, assume that the elasticity of demand for cocaine is three (that is, a 1 percent increase in the retail price leads to a 3 percent decline in total consumption). Under the assumption, a 10 percent increase in the import price will lead to only a 6 percent decline in consumption, exhibiting an elasticity of 0.6.

Intuition might suggest that a 10 percent increase in the import price will raise the retail price by 10 percent. If domestic dealers follow a fixed percentage mark-up policy for pricing, then this would indeed be the result. In fact, the uncomfortable truth is that the recent declines in the retail price of cocaine have been almost proportional to those at the import level.[44] Nonetheless, it seems highly unlikely that constant percentage mark-up pricing could characterize competitive markets, since suppliers who followed such a policy would find themselves vulnerable to undercutting by other dealers whose prices reflected more accurately the risks and other costs incurred.

If these observations are accurate, then the current interdiction program has had relatively little effect on consumption of cocaine. The imported price of cocaine in 1987 averaged about $30,000 per pure kilogram compared to a retail price of about $250,000 (sold in one gram units at 30 percent purity).[45] If the argument that most of the interdiction effect is captured in the difference between export and import prices is extended, the export price being determined primarily by production costs and the source country control efforts, then the conclusion is even gloomier. Interdiction may account for only about 8 percent of the total price of cocaine.

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43. *Id.*.
44. Discussions with DEA officials, *supra* note 13.
45. This is based on an estimated retail price of $75 per gram of 30% pure cocaine. *Id.*

III

DRUG INTERDICTION

Interdiction has been the largest component of the federal drug effort for many years.[46] Table 1[47] provides estimates of the expenditures for various

TABLE 1
FEDERAL DRUG ABUSE BUDGET OUTLAYS
FY84 TO FY86

	Millions of Dollars (percent of total)		
	FY84	FY85	FY86
Interdiction	579.5 (38)	636.7 (38)	649.0 (38)
Other Enforcement	712.8 (47)	779.4 (46)	797.8 (46)
Health Related	222.9 (15)	267.2 (16)	279.1 (16)
TOTAL	1515.2	1683.3	1725.9

components of the federal drug program over the last five years. In Fiscal Year 1986, interdiction accounted for 38 percent of the total.

Two agencies, the Coast Guard (high seas interdiction) and the Customs Service (air and coastal marine interdiction), administer the bulk of the program. Other agencies, notably the military services, provide specialized support, such as intelligence collation and airborne radar equipment.[48]

The most frequently cited measure of the program's value is the amount of drugs seized. The quantities for cocaine have risen most impressively in the last five years.[49] The amount of imported cocaine has also risen very sharply.[50] Even compared to the rising consumption of the drug, however, cocaine interdiction seems to be of increasing stringency, as measured by the percentage of imported cocaine seized.[51]

In analyzing how increased interdiction might reduce cocaine consumption in the United States, a summary of the results of the Simulation

46. NATIONAL AND INTERNATIONAL DRUG LAW ENFORCEMENT STRATEGY, *supra* note 1, at 185-88.

47. Table 1 is compiled using data appearing in PRESIDENT'S COMMISSION ON ORGANIZED CRIME, AMERICA'S HABIT: DRUG ABUSE, DRUG TRAFFICKING, AND ORGANIZED CRIME, app. D (1986).

48. *Id.* at 317.

49. *See* Table 2. Table 2 is compiled using data appearing in P. REUTER, G. CRAWFORD & J. CAVE, SEALING THE BORDERS: EFFECTS OF INCREASED MILITARY PARTICIPATION IN DRUG INTERDICTION *supra* note 11, at 73-74, 76 (1988).

50. The average of the high and low cocaine exports to the United States based on production estimates were estimated to be 53 metric tons in 1981 and 132 tons in 1986. OFFICE OF TECHNOLOGY ASSESSMENT, THE BORDER WAR ON DRUGS 11 (Mar. 1987).

51. By applying simple division to the seizure and import figures in the previous two footnotes, 3% (1.7/54.7) of the cocaine that individuals attempted to import into the United States in 1981 was seized. In 1986, that figure was 17% (27.2/159.2).

TABLE 2

ESTIMATES OF COCAINE IMPORTS TO U.S. AND COCAINE SEIZURES

1981-1985
(Metric Tons)

IMPORTS	1981	1982	1983	1984	1985
Min. Estimate	38	50	75	110	111
Max. Estimate	68	75	97	178	153
SEIZURES	1.7	5.1	8.9	13.4	25.0
SEIZURES/IMPORTS					
Max. Estimate	0.04	0.10	0.12	0.12	0.23
Min. Estimated	0.02	0.07	0.09	0.07	0.16

of Adaptive Response (SOAR) model proves helpful.[52] The model incorporates the effects of adaptation by smugglers to changes in interdiction strategies. Smuggler adaptation is one of the most striking features of the interdiction experience and one that helps explain its disappointing performance.

Three instances of large scale adaptation can be cited. First, increased maritime interdiction of marijuana starting in the late 1970's led to a scaling down of the size of individual shipments. The average Coast Guard seizure fell from ten metric tons in fiscal year 1978 to five metric tons in fiscal year 1986.[53] This adaptation lowered the average risk per kilogram shipped and reduced the probability of seizure of any individual shipment. This latter effect is the consequence of an increase in the number of interdiction targets for a given volume of exported marijuana, as well as the fact that it costs as much to interdict a six ton shipment as it does to interdict an eleven ton shipment.

A second instance of adaptation is the use by cocaine smugglers of Mexico as a trans-shipment point in response to increased air interdiction.[54] Because many small airfields are located within fifty miles of the U.S. border, air smuggling over that border is attended by very low risk.[55]

A third, and more speculative, adaptation to the increased severity of air interdiction has been a shift to marine transportation, as evidenced by a sharp increase in Coast Guard cocaine seizures.[56] Cocaine has a high ratio of dollar value to mass and can be secreted in compartments on vessels that are much less readily discovered by boarding personnel whose primary target is

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52. *See* Figure 1, appearing in this text at p. 246. For a complete description of the model and its mechanics, see G. CRAWFORD & P. REUTER, SIMULATION OF ADAPTIVE RESPONSE: A MODEL OF DRUG INTERDICTION 63 (1988).

53. *See generally* U.S. COAST GUARD, GENERAL LAW ENFORCEMENT INTERDICTION STATISTICS (1986) [hereinafter COAST GUARD STATISTICS].

54. NNICC REPORT, *supra* note 7, at 32.

55. The shift to Mexico was also motivated by the increasing price, in Colombia, of certain chemicals used in the refining of cocaine from coca paste.

56. Cocaine seizures by the U.S. Coast Guard have risen from 40 pounds in 1981 to 2,509 pounds in 1986. COAST GUARD STATISTICS, *supra* note 53, at 4.

marijuana. Thus cocaine smuggled by sea may be much less vulnerable than marijuana smuggled in the same manner.

The SOAR model assumes that the cocaine smuggler has a choice of eleven routes (five sea, five air, and one land) by which to import the drug. The routes differ in their attendant risks and costs; some have high transport costs, and some have high personnel costs. Smugglers allocate shipments among the routes so as to minimize the total expected shipment cost.

Initially, the model assumed that, on ten of the eleven routes, there was a 0.20 probability of a shipment being seized. The eleventh route represented a Mexican land route, by which an individual courier carries the drug across the U.S. border on his person. The interdiction probability on this route is only 0.10. Not all of the drug was channeled through this route, however, because use of this route involves high payroll costs.

Next, the impact of raising the interdiction rate to 0.50 on an increasing number of routes was considered. For a small number of routes these increases had little impact on the quantity consumed. Smugglers adapted and shifted away from the high risk routes (those with an interdiction risk of 0.50) to the other routes. The share of the drug moving through the low risk land route rose quite slowly. Only when as many as five routes became high risk was much impact felt upon total consumption, which fell by 15 percent at this point. Further, the share shipped by way of the expensive land route doubled to 19 percent.

Cocaine seizures rose dramatically, however, from 31.4 tons in the base case to 58.3 tons. Even as a share of total shipment, seizures rose from 18 percent in the base case to 23 percent. Smugglers' costs rose much less sharply.

In the final run ten routes faced a risk of 0.50; the expensive land route risk remained constant at 0.10. This run produced a major decline in consumption, which fell from 127.5 tons to 97.5 tons. Seizures rose even more dramatically, rising from 32.5 tons to 78.2 tons. It is very questionable, however, whether it is possible to raise interdiction rates on all air and sea routes simultaneously to such a level.

One of the features that SOAR focuses on is the importance of the composition of smuggler costs. As that composition changes, so does the optimal choice of routes, which in turn can affect seizure rates. The rise in actual seizures over the last five years may be accounted for simply by changes in the replacement cost of cocaine, relative to other components of smuggler costs. The fragments of data available on the export price of cocaine indicate that, in nominal dollars, the price fell by 23 percent between the years 1983 and 1986.[57] This decrease probably reflects the export-led growth in the production sector. Both U.S. and European demand have risen substantially

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57. The average wholesale price of a kilogram of cocaine in Columbia fell from $9,200/kg. in 1983 to $7,500/kg. in 1986. Discussions with DEA officials, *supra* note 13.

FIGURE 1
RESULTS OF THE SOAR MODEL:
QUANTITY LANDED BY QUANTITY SEIZED
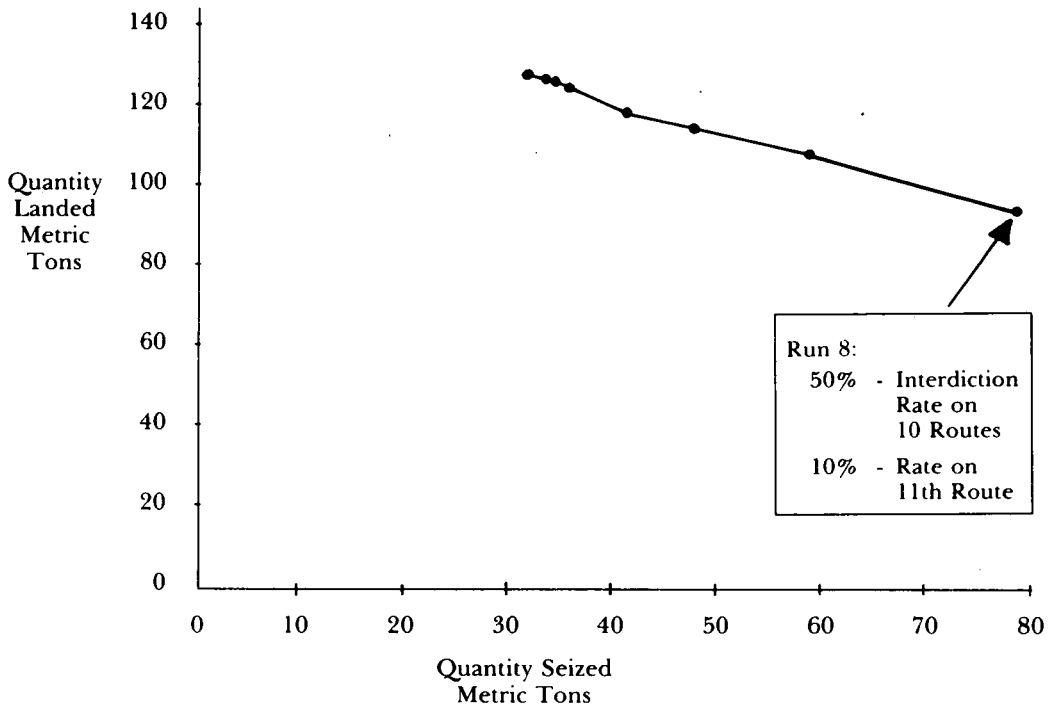
since the late 1970's.[58] With new production areas coming on line gradually,[59] the supply curve has probably shifted out substantially.

The lower replacement cost for seized cocaine may induce traffickers to invest less in the protection of shipments. Smugglers have a variety of methods for bringing in cocaine, including private aircraft, air cargo, and trucks across the Mexican border. With lower cocaine replacement costs, smugglers may simply choose techniques which are more vulnerable but less expensive. Consider, for example, that the average size of cocaine seizures has risen dramatically; whereas 1980 apparently saw the first 100 kilogram seizure, by 1986 the average seizure by the Customs Air Branch was 250 kilograms.[60]

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58. There are no systematic estimates of cocaine consumption in any Western European countries. However, indirect indicators (for example, size and number of seizures) point to an increase in usage. *See, e.g.,* Wille, *Drug Addiction in the Federal Republic of Germany: Problems and Responses,* 82 BRITISH J. ADDICTION 849, 849-50 (1987). For figures on usage in the United States, see NNICC REPORT, *supra* note 7, at 26.

59. Given that it takes two to four years for a coca bush to reach maturity and produce its maximum yield, many of these new fields are just beginning to come on line. EVEREST CONSULTING ASSOCIATES, ECONOMIC AND FINANCIAL CONSIDERATIONS IN THE PRODUCTION, TRAFFICKING AND MARKETING OF COCA AND COCAINE 39 (1983).

60. NNICC REPORT, *supra* note 7, at 42.

The other reason for the disappointing impact of interdiction is that the personnel costs of importation are low, while the value of shipments tends to be high. Coast Guard marijuana seizures weighed, on the average, five metric tons in 1985, with crew size averaging four persons.[61] Even if crewmen demanded $100,000 per trip (a figure that observers believe far higher than the actual payments) in order to incur the high risks of being captured and imprisoned, total personnel costs for the trip would be only $120 per kilogram, compared to a final selling price of approximately $2,000 per kilo. The fact that these individuals are associated with such large quantities when caught points to the inefficacy of their capture as a deterrent, as opposed to an incapacitative, strategy.

This analysis of the allocation of responsibility among levels of government suggests that there is a systematic bias in favor of enforcement against the upper levels of the drug trade. This bias may be severely misplaced.

IV

QUANTITY ILLUSIONS AND POLICY

Economists have always had great contempt for "money illusion," the notion that wage earners in an era of inflation fail to take account of the fact that their higher nominal wages have no greater purchasing power than before. Notwithstanding that contempt, money illusion does have some empirical basis.[62] In discussions of drug enforcement, there exists a parallel concept of "quantity illusion," a belief that the quantity of drugs seized is a useful means of measuring the efficacy of enforcement efforts. In this case, the source of the problem is the lack of reference to price. The result of this illusion is an overemphasis on the value of enforcement efforts in the early stages of the distribution system.

An illegal drug's price increases as it moves away from the source of production. It costs only about $5,000 to replace a kilogram of cocaine seized in Bolivia, at the point where it is about to be sent to Colombia for shipment to the United States. By the time that same kilogram is available for sale in Chicago, its replacement cost has risen to almost $45,000.[63] It is as easy (or difficult) to replace ten kilograms in Bolivia as to replace one kilogram in Detroit.

There is no mystery to this conundrum. As the drug moves through the distribution system, production cost quickly becomes a trivial component of the total value of the drug. For cocaine and marijuana, the cost of actual

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61. COAST GUARD STATISTICS, *supra* note 53.

62. Keynes wrote, "It is sometimes said that it would be illogical for labour to resist a reduction of money-wages but not to resist a reduction of real wages. For reasons given below, this might not be so illogical as it appears at first; and . . . fortunately so. But, whether logical or illogical, experience shows that this is how labour in fact behaves." J. KEYNES, THE GENERAL THEORY OF EMPLOYMENT INTEREST AND MONEY 9 (1936).

63. High price for 1985. Office of Intelligence, Illicit Drug Wholesale and Retail Prices 4 (December 1987) (unpublished data).

production, even including all the money required to compensate the farmer for incurring risks of eradication and other kinds of enforcement activity, is only about 1 percent of the retail price.[64] While drug production is cheap, its distribution is risky and expensive. Seizing vast quantities of drugs before the enormous costs of distribution have been incurred inflicts little injury on the drug trade.[65]

The relatively low cost of producing drugs is easily explained. First, the factors of production, predominantly land and labor in the source countries, have a very low opportunity cost compared to their U.S. counterparts.[66] Little specialization of either of these factors is required and the time for crop maturation is measured in months rather than years.[67] The supply curve is likely to be quite elastic, even in the short run. Second, source governments create relatively modest risks for growers, in large part due to the political costs associated with depriving a politically powerful group of an important source of cash income.[68] The two factors are clearly related.

The quantity emphasis is dangerous because it promotes continued reliance upon a system of enforcement which focuses on production capacity, the one factor which is readily available in the drug market. Replacement cost would provide a more appropriate measure of the impact of drug seizures, since it takes into account the truly scarce resource of efficient distribution.

The emphasis on quantity is reflected in the increasing attention given interdiction programs. These programs generate the visible seizures and thus, at a time of increased federal concern about drug enforcement, are able to attract a growing share of the budget. One finds occasional reference to seizure rates rather than absolute quantities, but the author has found no reference to the effect that the programs might have on the price of the drugs when landed.

The emphasis on quantity also provides support for increased federal involvement in enforcement. Because federal agencies can seize drugs outside the country, they can produce larger seizures than can equivalent commitments by local agencies. The latter act against the lower end of the

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64. Based on information provided by DEA Intelligence, the amount paid at the "farmgate" for enough coca leaves to produce one pure kilogram of cocaine is about $1,200. This $1,200 can be compared to the approximately $250,000 paid for the same pure kilogram of cocaine after it has worked its way through the distribution chain to the street level. *Id.*

65. The point is illustrated by means of a military analogy. In considering the allocation of resources among various sections of the battlefront, a military strategist must take into account the replacement cost of enemy assets to be removed by those resources. A tank destroyed at the enemy's rear, close to the factory, can be replaced *to that point* for little more than the manufacturing cost. The same tank destroyed just before it has reached the front has a much higher replacement cost, since another tank must be brought through all the same risks that the lost tank had survived. Thus, the valuation of tank destruction capacities is dependent upon where the destruction is likely to occur.

66. Much of the land used for cocaine production, particularly in newer growing areas such as the Chappare in Bolivia, is reputed to be uneconomic for any other crop. *See* EVEREST CONSULTING ASSOCIATES, *supra* note 59, at 66.

67. *Id.* at 39.

68. *See, e.g.,* Brinkley, *Bolivia Drug Crackdown Brews Trouble,* N.Y. Times, Sept. 12, 1984, at A1, col. 4.

distribution system, in which drugs are held in smaller but more expensive (and thus less easily replaceable) quantities. As long as quantity is perceived to be the measure of drug enforcement success, however, local governmental units will be perceived as less effective.

The quantity illusion also contributes to the manner in which particular dealers become targets. It is assumed that removing a dealer capable of handling large quantities is preferable, from society's point of view, to removing a dealer lower down in the system. Certainly the formal scoring systems used in the drug enforcement community, which rate individuals according to the unit shipments with which they deal, reflect this belief.[69] Since federal agencies have both the legal and investigative resources to target higher level dealers, it is assumed that federal agents have optimum impact in controlling drug use.

This argument is at best incomplete and possibly misleading. The proper measure of the importance of a dealer is his contribution to the value added in the system. In other words, the higher his value added, the greater is the risk that the system must incur in order to replace him if he is incarcerated. Thus, if a dealer purchases large quantities and sells them intact, he absorbs little distribution risk and adds little value to the system. For example, a dealer may buy (monthly) in ten kilogram units at $30,000 and sell in five kilogram units at $32,000. In terms of the flow of drugs, he appears to be a big dealer. In terms of total value added, however, he contributes only $20,000 per month. This may be far less than the income generated by a dealer who each month purchases a one kilogram unit at $40,000 but sells individual ounces[70] at $2,000 per ounce. The latter's value added is $30,000 per month.

These are not artificial examples. The drug distribution system is characterized by widely varying degrees of commitment and a great deal of opportunism. An unaggressive dealer who knows a good ten kilogram source and two good five kilogram customers may well occupy the niche described in the previous paragraph. An aggressive low level wholesaler may make a large number of transactions.

On the average, it is probably true that larger dealers make a greater contribution to value added than do smaller dealers. Yet averages can be very misleading; the dealer populations at each level are likely to be quite heterogeneous. Moreover, one must also consider the efficacy of enforcement resources on a unit basis. Higher level dealers are likely to be more expensive to investigate than are their lower level counterparts; certainly they are more expensive to prosecute. They perform fewer transactions per unit of time than do dealers lower down in the system, and their exposure (which is a function of the frequency of transactions) is

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69. *See* M. Kleiman, Allocating Federal Drug Enforcement Resources: The Case of Marijuana 76-77 (unpublished doctoral dissertation, John F. Kennedy School of Government, Harvard Univ. 1985).

70. The reader who carps at my mixing of metric and British units of measures is unfamiliar with the drug distribution system, which mixes the two quite liberally.

proportionally lower. If higher level dealers also generate greater value added, almost all of it is net income to them individually and they can therefore be expected to invest more in protecting each transaction from effective investigation.

While enforcement risk does not explain all of the value added in cocaine distribution, and the marginal and average product may be very different, it is nonetheless possible to make a crude calculation of the relative effectiveness of federal cocaine enforcement resources as compared to those of state and local agencies. This calculation requires measuring the dollars of value added which a given type of enforcement activity can remove from the drug distribution system against the dollars of investigative and prosecutorial resources required to so remove. Such a calculation produces a more refined measure of the allocation of criminal justice resources.

For the federal government, the total cocaine enforcement effort is roughly $500 million.[71] This accounts for less than $50,000 of the retail price of cocaine (about one-sixth), assuming that those resources are (as claimed in the official Drug Enforcement Agency reports)[72] concentrated almost entirely on individuals involved in operations that handle units of at least one kilogram. It is difficult to estimate and break down by specific drug the resource commitment of state and local agencies. Total state and local law enforcement expenditures are over $35 billion annually, and cocaine arrests comprise approximately 120,000 of 12 million total arrests;[73] a figure of $1 billion for state and local cocaine enforcement appears generous. Since the price of cocaine rises from $50,000 per kilogram to about $300,000 as it moves from the kilogram level to retail sale,[74] this appears to be a more effective expenditure than that of the federal agencies.

V

CONCLUSION

The conclusion has to be severely qualified. The price of cocaine would rise even without enforcement; distribution is never costless. The marginal product of state and local expenditures, moreover, may be very different from

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71. Total federal drug enforcement expenditures for the financial year 1986 were approximately $1.4 billion, see Table 1 supra, p. 244. This was allocated among drugs in accordance with judgments made about how each of the principal enforcement agencies allocates its efforts among marijuana, cocaine, heroin, and "dangerous drugs" (synthetics). For example, 80% of Coast Guard expenditures was allocated to marijuana enforcement and only 20% to cocaine enforcement, reflecting approximately the values of seizures of the two drugs generated by the agency. The $500 million is clearly a very rough approximation.

72. For example, in 1986, DEA asserted that in fiscal year 1985, 2.1 million of its 3.1 million special agent investigative work hours went to investigation of Class I cases, that is, those involving the highest level dealers. DRUG ENFORCEMENT ADMINISTRATION, U.S. JUSTICE DEP'T ANNUAL STATISTICAL REPORT OF FY 1985, supra note 2, at 47.

73. The FBI's Uniform Crime Reporting System does not distinguish between arrests for heroin and cocaine. This author's estimate for cocaine arrests is simply 50% of the figure for heroin and cocaine.

74. These figures are based on an estimated retail price of $75 per gram of 30% pure cocaine.

the average expenditures. Similarly, the lower level distribution system may have sources of risk unrelated to enforcement that account for a significant share of the price increase. As the nation moves to a federally driven drug enforcement system, however, it is necessary to consider more closely whether the results justify such a large scale usurpation of traditional state responsibilities.